Lexical Categories and Argument Structure

A study with reference to Sakha

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Lexical Categories and Argument Structure

A study with reference to Sakha

(met een samenvatting in het Nederlands)

Lexicale Categorieën en Argumentstructuur

Een studie met betrekking tot het Sakha

Proefschrift

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Contents

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LIST OF ABBREVIATIONS

ACC	Accusative case
ADV	Adverbial marker
AOR	Aorist
AUX	Auxiliary verb
CAUS	Causative voice
COMIT	Comitative voice (with verbs) Comitative case (with nouns)
COMP	Complementizer
COMPAR	Comparative case
DAT	Dative case
FUT	Future
GEN	Genitive case
GER	Gerund
IMM.PAST / IMMED.PAST	Immediate past tense
INSTR(UM)	Instrumental case
NEG	Negation
NOM	Nominalizer
PART	Partitive case
PAST	Past tense
PASS	Passive voice
PL	Plural
REC	Reciprocal voice
RED	Reduplication
REFL	Reflexive voice
REM.PAST	Remote past tense
SG	Singular
SUBJ	Subjunctive mood
VERB	Verbalizer

0. HISTORICAL PRELUDE

Highlighted in this section are various important moments in the history of linguistic categorization.[1]

0.1. Pānini

The first two extant attempts to categorize words were undertaken in two different parts of the world, in ancient Greece by Plato and in ancient India by Pānini, author of the oldest Sanskrit grammar. Pānini distinguished four classes of words: inflected ones (nouns and verbs) and uninflected ones (prepositions and particles). Nouns were inflected for case, verbs - for person, number, and tense. Since the verb in Sanskrit could stand alone as a complete sentence, it was taken as the core of the sentence with other words standing in specific relations to the verb. Of these words nouns were considered the most important and were designated by the term *kāraka* (literally 'doing', 'acting'). Different kinds of *kārakas* were distinguished depending on the type of relation between the denotata of the nouns and the action/process expressed by the verb. Although *kārakas* were expressed by the case endings, the *kāraka*-system does not correspond directly to the European case system since *kārakas* related nouns to verbs and hence the Sanskrit genitive which relates nouns to nouns did not express a *kāraka*. Two possible *kārakas* were 'agent' and 'object'.

As we can see, in Indian grammatical tradition the ability to inflect was taken as the basic criterion dividing words into two large classes – inflected ones and uninflected ones. Within the former class a distinction was drawn between nouns and verbs in terms of a distinction between 'subject' and 'predicate' and not in terms of different inflections carried by nouns as opposed to verbs.

The insights of Indian grammarians did not contribute to the progress of linguistic categorization in the Western world simply because their work was incorporated into European linguistics much later when the traditional Greek/Latin-based word class system was long established and adopted by linguists working on other European languages (although in other linguistic domains the influence of Sanskrit grammarians was great).

0.2. Plato and Aristotle

The history of linguistic categorization in Europe begins with Plato who considered some language-related philosophical questions in some of his dialogues, most notably *Cratylus*[2]. Although the principal issue taken up in *Cratylus* concerns the correctness of names (to put it simply, why a dog is called a dog and not a cat), some attention is devoted to analyzing a sentence into two major components – the nominal one (onoma) and the verbal one (rheme): "... sentences are, I conceive, a

[1] This section is a synopsis based mostly on Robins (1966; 1990) and, in addition, Lyons (1968) and Kodukhov (1974). For original references, see Robins 1990.

[2] *Cratylus* and the philosophical issues raised in it have been subject to various, widely divergent interpretations (see a.o. Palmer 1989, Baxter 1992 and references cited there).

combination of verbs and nouns" (*Cratylus* 431b). Thus, Plato approached the problem of 'noun-verb' distinction very much like Pānini, also in terms of 'subject' versus 'predicate'. Since Plato's focus was purely syntactic (i.e. on sentential analysis), Platonic 'nouns' (onomata) and 'verbs' (rhemata) do not exacty correspond to nouns and verbs as these are conceived nowadays and are more likely to be identified with modern NPs and VPs.

Aristotle continued in the Platonic tradition but added a further distinct class of 'conjunctions' (covering conjunctions, pronouns and the article) to the Platonic system. This class included all those words which were neither nouns nor verbs but which served to combine nouns and verbs into propositions. Aristotle defined the rheme as indicating a time reference and as representing the predicate which allowed him, like Plato, to include adjectives among the rhemata, i.e. verbs (Robins 1990:31). However, although the verbal criterion of having time reference was first applied by Aristotle, it was not accompanied by the morphosyntactic criterion of carrying tense inflections. That the inflectional criterion was not yet at play can be seen from the following two facts. First, inflected pronouns and articles were categorized together with uninflected conjunctions under the general heading 'conjunctions', as mentioned earlier. Second, all morphological differences between basic and inflected word shapes, irrespective of whether it was an 'onoma-noun' or a 'rheme-verb', were covered by the same category of 'ptosis'. Thus, the notion of 'ptosis' applied to oblique nominal cases, comparative and superlative forms of adjectives, deadjectival adverbs, non-present verbal tenses and other verbal inflections. In fact, "note the statement by Aristotle that *rhemata* by themselves, when not forming part of a sentence, are *onomata* (i.e. such word forms, like any isolated word forms, can be hypostatized, as in citation, and treated as nouns)" (Robins 1966:9).

Thus, both for Plato and Aristotle parts of speech were unambiguously parts of sentences: words became nouns or verbs only when they were put into sentences, outside of a sentence they had no categorial affiliations.

0.3. The Stoics

The inflectional criterion for deriving word class distinctions was brought into play by the Stoic grammarians. Their major theoretical achievement was to restrict the meaning of the term 'ptosis' to that of English *case*. By restricting *ptosis* to *case* and *case* to nouns, the Stoics made case the fundamental distinction between nouns and verbs and between, on the one hand, the group of case inflected pronouns and articles and, on the other, the group of invariant prepositions and conjunctions. Stoic case covered all the forms of case inflected words (basic non-inflected and inflected) and so a division was made between nominative and oblique cases. One consequence of taking case to be the basis for distinguishing nouns from verbs was that adjectives in Greek (and, later, Latin) were treated as a subclass of nouns (and continued to be treated so until the eighteenth century). In grouping adjectives together with nouns the Stoics differed from Plato and Aristotle who grouped adjectives together with verbs.

After *ptosis* was restricted to nominal words, verbal categories required separate terminology. Interestingly, the divisions in the verbal domain were also

case-motivated: active transitive, passive and intransitive verbs were recognized and their different syntax was taken to be closely linked with differences of case with which they constructed.

In addition to restricting case to nouns, the Stoics made another very important contribution, namely, the abstraction of the temporal and aspectual meanings inherent in the tense forms.

Thus, the Stoic word class system looks as follows:

<table>
<tr><td>1. Proper nouns</td><td rowspan="2">The term ‘onoma’ applied only to proper nouns. The Stoic motivation for the distinction between proper versus common nouns was semantic: reference to individual quality (being Socrates) versus reference to general quality (being a horse) (Robins 32-33)</td></tr>
<tr><td>2. Common nouns</td></tr>
<tr><td>3. Adverbs, or mesotes ‘those in the middle’</td><td>The class of adverbs was split off from the class of common nouns and named mesotes ‘those in the middle’ because syntactically they were associated with verbs but morphologically with nouns</td></tr>
<tr><td>4. Verbs</td><td></td></tr>
<tr><td>5. Inflected articles</td><td rowspan="2">Aristotle’s conjunctions were split into two classes: inflected (pronouns and articles) and uninflected (prepositions and conjunctions)</td></tr>
<tr><td>6. Uninflected conjunctions</td></tr>
</table>

0.4. Dionysius Thrax

A turning point in the history of linguistic classification was the appearance in late 2nd century B.C. (around 100 B.C.) of the Greek grammar, *Téchnē grammatikē*, by Dionysius Thrax, a pupil of Aristarchus. He was a representative of the Alexandrian school. The Alexandrian school built further on what was achieved by the Stoics although the two schools were each other’s rivals. As far as linguistics is concerned, it was the Alexandrians who were lucky to leave their seal on subsequent linguistic research and not the Stoics.

Two basic units of description are taken to be the sentence defined notionally as ‘expressing a complete thought’, the upper limit of grammatical description, and the word, the minimal unit of grammatical description. Words were organized into eight classes.

1. Noun: a part of speech inflected for case, signifying a concrete or abstract entity
2. Verb: a part of speech without case inflection, but inflected for tense, person and number, signifying an activity or process performed or undergone
3. Participle: a part of speech sharing the features of the verb and the noun

4. Article: a part of speech inflected for case and preposed or postposed to nouns (the relative pronoun is meant by the postposed article)
5. Pronoun: a part of speech substitutable for a noun and marked for person
6. Preposition: a part of speech placed before other words in composition and in syntax
7. Adverb: a part of speech without inflection, in modification of or in addition to a verb
8. Conjunction: a part of speech binding together the discourse and filling gaps in its interpretation

Each word class is associated with a number of inflectional and derivational categories applicable to it. Thus, the five categories of the noun class are:

1. Gender: masculine, feminine, neuter
2. Type: primary (e.g. the primary noun 'earth') or derived (e.g. the adjective 'of the earth' as well as adjectival comparative and superlative forms)
3. Form: simple (a single noun stem consisting of one noun root) or compound (the roots of more than one noun can be identified within a single noun stem)
4. Number: singular/dual/plural
5. Case: nominative, vocative, accusative, genitive, dative

The categories of the verb are mood, voice, type, form, number, person, tense and conjugation. Unlike the Stoic system, *Téchnē grammatikē* did not recognize the aspectual dimension in the semantic structure of the Greek tenses.

Although the Alexandrians and the Stoics were rivals, their classifications are similar in many respects. Both made use of three kinds of criteria: morphological, syntactic and semantic. Whereas the Stoics divided Aristotelian conjunctions into case-inflected (grouping together pronouns and articles) and case-uninflected (grouping together prepositions and conjunctions), the Alexandrians made further finer distinctions:

- case-inflected → 1) pronouns (occurs instead of a noun)
  2) articles (occurs with a noun)
- case-uninflected → 1) prepositions
  2) conjunctions

An interesting step made by Dionysius Thrax was to single out participles as a separate word class.

0.5. Latin grammarians: Varro and Priscian

Varro proposed a quadripartite morphological classification of Latin inflected words based on the categories of case and tense. The four inflectionally contrasting classes were:

Those with case inflection	Nouns (including adjectives)
Those with tense inflection	Verbs
Those with case and tense inflection	Participles
Those with neither	Adverbs

The inflectional abilities correlated with particular syntactic and semantic functions: nouns named, verbs made statements, adverbs supported and participles joined.

Other Latin grammarians were less original than Varro and took over the Greek system except that they compensated for the lack of a definite article in Latin by establishing a separate class of interjections. Previously (e.g. in *Téchnē grammatikē*) interjections were treated as a subclass of adverbs (even though they are syntactically independent as opposed to adverbs which depend on verbs). In Priscian's grammar of Latin eight word classes were distinguished:

1. Noun (including adjectives): the property of the noun is to indicate a substance and a quality, and it assigns a common or a particular quality to every body or thing
2. Verb: the property of a verb is to indicate an action or a being acted on; it has tense and mood forms, but is not case inflected
3. Participle: a class of words always derivationally referable to verbs, sharing the categories of verbs and nouns (tenses and cases), and therefore distinct from both
4. Pronoun: the property of the pronoun is its substitutability for proper nouns and its specifiability as to person (first, second, third)
5. Adverb: the property of the adverb is to be used in construction with a verb, to which it is syntactically and semantically subordinate
6. Preposition: the property of the preposition is to be used as a separate word before case-inflected words and in composition before both case-inflected and non-case-inflected words (Priscian identified prefixes in e.g. *proconsul* and *intercurrere* 'to mingle with' as prepositions)
7. Interjection: a class of words syntactically independent of verbs, and indicating a feeling or a state of mind
8. Conjunction: the property of conjunctions is to join syntactically two or more members of any other word class, indicating a relationship between them

0.6. A summary: from Plato to Priscian

We have seen that the development of the word class system in European tradition involved going from simple distinctions to complex ones involving more criteria. First, a bipartite division was made into subject and predicate. Then it was noticed that words performing these two functions were associated with their own morphology (case for nouns, tense for verbs). It appears that the notional criteria were the last to enter the stage when Dionysius Thrax explicitly incorporated in his definition of word classes an observation that formal distinctions are accompanied by particular meanings. This development can be summarized as in the table below.

Plato	**Aristotle**	**Stoics**	**Dionysius**	**Varro**	**Priscian**
1. Noun	1. Noun	1. Noun: incl. Adjective	1. Noun	1. Noun: incl. Adjective	1. Noun: incl. Adjective
2. Verb	2. Verb: incl. Adjective	2. Verb	2. Verb	2. Verb	2. Verb
	3. Conjunctions: conjunctions, pronouns and the article	3. Inflected articles: pronouns and articles	3. Articles		
			4. Pronouns		3. Pronouns
		4. Uninflected conjunctions: prepositions and conjunctions	5. Prepositions	3. Invariable words	4. Prepositions
			6. Conjunctions		5. Conjunctions
		5. Adverbs	7. Adverbs	4. Adverbs	6. Adverbs
			8. Participles	5. Participles	7. Participles
					8. Interjections
Based on which criteria					
Synt.	Synt. Sem.: time reference	Morph. Synt. Sem.	Morph. Synt. Sem.	Morph. Synt. Sem.	Morph. Synt. Sem.

0.7. Further historical developments

During the Middle Ages scholastic philosophers working on linguistic topics (known as 'speculative' grammarians or the Modistae) took over Priscianic categories which they assumed to be valid for all languages although in accordance with their ideals of science as a search for universal causes they devoted a great deal of attention to the logical motivation of Priscian's word class divisions. According to the modistae a word represented the thing it signified as existing in a particular mode: there were several modes (e.g. the mode of stability and permanence, the mode of temporal process, etc.). These modes were connected with particular parts of speech: thus, a noun was a part of speech signifying by means of the mode of stability and permanence whereas a verb was a part of speech signifying through the mode of temporal process, detached from the substance (of which it is predicated). The modistae understood meaning broadly enough to include formal syntactic relations: this was necessary since it was the only way to ascribe a class meaning to indeclinable word classes. Hence, a conjunction was a part of speech signifying through the mode of joining two other terms and a preposition signified through the mode of syntactic construction with a case inflected word, linking and relating it to an action.

The ideals of 'speculative' grammar somewhat neglected during the early stages of the Renaissance were later brought back to life by the Port Royal grammarians who believed that the same general logical and rational system

underlay different languages. Nine classical word classes were distinguished: noun, article, pronoun, participle, preposition, adverb, verb, conjunction and interjection. The first six relate to 'the objects' of our thoughts and the last three to the 'form or manner' of our thought. The explanation of the noun/verb difference was modistic in spirit, based on the categories of permanence/transience.

An interesting proposal was made by Petrus Ramus (murdered in the massacre of St. Bartholomew): since case inflection had largely disappeared from modern languages of his time, he proposed instead to rely on number inflection. This was an influential proposal and it was followed by some writers of English grammars.

An important turning point is presented in Beauzée's *Grammaire générale* (1767) where the adjective is taken as a separate class.

Next, a very original contribution to the development of the European parts-of-speech system can be found in Horne Tooke's *Winged words, or the diversions of Purley* (1786, 1805) which recognized only two parts of speech, nouns and verbs: other word classes were 'abbreviated' from these two in order to make a language run smoothly.

In the 19th and 20th centuries linguists have been mostly concerned with trying to find a balance between different criteria: reordering their successive application, ignoring some, focusing others. E.g. descriptive structuralists classify stems on the basis of their inflectional and syntactical behaviour and deny the role of meaning in identifying parts of speech (hence their term 'form-class', cf. Bloomfield 1933, Hockett 1958).

1. INTRODUCTION

1.1. Lexical categories: Features versus configurations

When one is asked to imagine such a typical noun as 'urchin', one would imagine an urchin. But if one is asked to imagine such a typical verb as 'eat', one would imagine, for example, a person putting a sandwich in his mouth. Thus, it seems that it takes a noun or two to recreate a verbal concept in one's mind. This intuition has been formalized in various ways: e.g. Jackendoff 1977 assumes that verbs are [+obj] whereas nouns are [-obj]. Baker 2003 assumes that having a specifier is the defining property of verbs as opposed to nouns which do not have a specifier. Within the approach which has been dominant in generative grammar since Chomsky's (1968/70) *Remarks on nominalization* this intuition concerning the inherently relational nature of verbs has been largely missed: lexical items are simply listed in the lexicon specified for the categorial features as in (1).

(1) [+N-V] nouns
[-N+V] verbs
[+N+V] adjectives
[-N-V] prepositions[1]

Stowell (1981:23) proposed to interpret the features in terms of case: [-N] categories assign case and [+N] categories receive case. However, such a connection between categorial feature system and Case theory was dismissed because it was assumed that nouns and adjectives assigned genitive case (Chomsky 1986:190ff).

In fact, the [±N, ±V] feature system could not capture categorial distinctions in relational terms precisely because it was introduced in order to give up such an approach to categorization. Before *Remarks*, distinctions between categories were accounted for in configurational terms: the distribution of nouns was different from the distribution of verbs. If a noun appeared in the same structural position, with the same range of complements as a corresponding verb, then a transformational relation was postulated between the two in order to maintain the relational definition of lexical categories. In *Remarks,* Chomsky showed that it was no longer feasible to derive nouns from verbs transformationally whenever the former appeared in the same structural contexts as the latter. Instead, since the range of noun, verb and adjective complements were equally wide, it was proposed in *Remarks* that the categorial component of the base contained phrase structure rules like NP → N Comp; VP → V Comp; AP → A Comp which were generalized in the X-bar format. X-bar theory made it impossible to account for categorial distinctions

[1] Originally, the features [±verbal, ±nominal] were employed to account for the differences between nouns, verbs and adjectives: adpositions were left out. The matrix was completed by Chomsky later and the finalized four-class system appeared in Chomsky 1981:48.

in terms of different configurations, hence the only way to derive categorial distinctions was in terms of inherent categorial feature specifications.[2]

These two opposing approaches to lexical categories, in terms of features versus in terms of configurations, are most naturally paired with, respectively, lexical versus syntactic approaches to categorization and thus bear directly on the lexicon/syntax controversy concerning the proper division of labor between these two modules of grammar. The controversy puts the status of the lexicon at stake: whereas syntax is par excellence the computational module of grammar, the generative ability of the lexicon is less clear. There are two extreme viewpoints on the issue (Borer 2000): 1) according to the traditional lexicalist viewpoint, the lexicon is omnipotent and isn't just a list of sound-meaning pairings (lexical items): the computational abilities of the lexicon rival those of the syntactic component; in particular, the omnipotent lexicon encodes categorial information (+/-N, +/-V), thematic and subcategorization information and possesses powerful word-derivational machinery; 2) according to the syntactic/anti-lexicalist viewpoint, the lexicon is impoverished: it is nothing more than an interface with the conceptual system containing only sound-meaning pairings and all the computational burden rests on syntax (Borer 2000, 2003, 2004; Marantz 1997, 2001). Thus, resolving the lexicon/syntax controversy basically amounts to finding a balance between the computational abilities of the two modules.

One issue which is directly relevant to the present concerns is argument structure. First, it has some bearing on the issue of categorization. On the one hand, it can be assumed that lexical categories have the same argument-taking possibilities and therefore argument structure is category-neutral and the differences among lexical categories can in no way be related to argument structure. On the other hand, it can be assumed that lexical categories differ in their argument-taking possibilities and that these differences can be used to explicate the nature of the lexical categories themselves. Second, argument structure is a high priority task when dividing labor between lexicon and syntax: is information about thematic roles part of the lexicon entry and thus determines syntactic projections or is argument structure syntactically derived and particular thematic roles are particular structural configurations? Are lexical operations manipulating argument structure of predicates allowed (which would render lexicon computational on a par with syntax)?

These questions, namely, categorization, argument structure, their relationship to each other and to the lexicon/syntax controversy, will constitute the

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[2] It should be noted that the inability to derive categorial distinctions in terms of Case theory or argument structure paves a way for a notional definition of lexical/syntactic categories. However, in Reuland 1986 two reasons are mentioned for not taking a notional approach to the task of category determination. The first has to do with the fact "that grammatical processes appear to involve a considerable number of elements and relations that would have to count as degenerate under a strictly notional interpretation, such as expletive subjects, supportive verbs, quasi-θ-roles, etc., which seem motivated only for 'formal', structural reasons. In fact, this may be argued to hold true in general for all non-lexical categories such as C, I and D" (p. 44). Second, the number of semantic notions is much larger than the number of grammatical categories, hence the relation between the two cannot but be arbitrary. However, it is arbitrary only from a semantic point of view: from a syntactic point of view, "the categorial system functions as a grid, cutting through the notional space, and inducing its own divisions. The grid is completely part of the linguistic system" (p. 44). We will therefore dismiss at the very start with a notional approach to categorization.

topic of the dissertation which will attempt to develop an argument structure-based approach to lexical categories using Sakha[3] as the empirical domain. However, before moving to the main, empirical part of the dissertation, in the remainder of this introductory chapter we would like to dwell more on the theoretical issues involved. First, in section 1.2 we would like to track down the history of the generative approach to the issue of lexical categories starting with Chomsky's (1965) *Aspects of the Theory of Syntax*. This section will conclude by discussing the specifics and disadvantages of the lexicalist feature-based approach to categorization. In section 1.3 we will give a general outline of the lexicon versus syntax controversy this time concentrating on the syntactic configuration-based approach to categorization. Section 1.4 will introduce two current alternative conceptions of argument structure, configurational (Hale and Keyser 1993; 1998; 2000; Borer 2000; 2003; 2004) and conceptual (Reinhart's (2000-2003) Theta System). The proposal of the present dissertation will be outlined in sections 1.5 and 1.6 and its structure in 1.7.

1.2. Lexical categories: The generative background

As a starting point we will take Chomsky's *Aspects,* moving on to Chomsky's (1968/1970) *Remarks on nominalization*, followed by Lexicalism and the various feature formalisms.

1.2.1. Chomsky's (1965) *Aspects of the Theory of Syntax*

Before *Remarks*, in the framework of *Aspects* word formation was syntactic although the lexicon was given a separate place in the base component of the grammar: it was conceived as consisting of lexical entries, each of which was a system of specified syntactic, semantic and phonological features. Thus, *sincere, destroy, refuse* (but not *sincerity, destruction, refusal*) were entered into the lexicon with a feature specification that determined the phonetic form they assumed by later phonological rules when they appeared in nominalized sentences (Chomsky 1965:184-186). However, there were also quasi-productive derivational processes, for example, those involved in the formation of such words as *horror, horrid, horrify; terror, (*terrid), terrify; candor, candid, (*candify);* or *telegram, phonograph, gramophone,* etc. For Chomsky 1965 to enter these items directly in the lexicon because no general rules could be postulated for deriving them was "a very unfortunate conclusion, since it is clear that from the point of view of both the semantic and the phonological interpretation it is important to have internal structure represented in these words. Their meaning is clearly to some extent predictable (or at least limited) by the inherent semantic properties of the morphemes that they contain, and it is easy to show that internal structure must be assigned to these items if the phonological rules are to apply properly in forming their phonetic representations" (p. 186).

Chomsky 1965 leaves it pretty much an open question how to resolve this general dilemma faced when dealing with examples which involve varying degrees of productivity – whether to derive the items in question transformationally by

[3] Sakha is a Turkic language of the Altaic family spoken in the Sakha Republic, eastern Siberia, Russia.

allowing the rules to overgenerate and regard the nonoccuring cases as accidental gaps or "alternatively, it may be necessary to extend the theory of the lexicon to permit some "internal computation" (p. 187).

1.2.2. Chomsky's (1968/70) *Remarks on nominalization*

In *Remarks*, Chomsky considers two types of nominalizations corresponding to the sentences in (2): gerundive nominals in (3) and derived nominals in (4)[4].

(2) (i) John is eager to please
(ii) John has refused the offer
(iii) John criticized the book

(3) (i) John's being eager to please
(ii) John's refusing the offer
(iii) John's criticizing the book

(4) (i) John's eagerness to please
(ii) John's refusal of the offer
(iii) John's criticism of the book

Since gerundive nominalizations involve a grammatical transformation from an underlying sentence-like structure, they are fully productive, the semantic relation between the nominal and the associated proposition is predictable and they display the internal structure of sentences. This is not the case with derived nominals which are not productive, have the internal structure of noun phrases and the semantic relation between a derived nominal and a corresponding sentence is idiosyncratic. Such idiosyncrasies are not expected under a transformationalist approach.

As Chomsky notes, the transformationalist approach was the only available option capable of capturing the similarity of the contexts in which *refuse* appears as a verb and *refusal* as a noun and at the same time preserving a distributional definition of lexical categories. If, for example, the noun *destruction* appeared in the same structural context as the verb *destroy* taking the same number and type of arguments, then the basis for the distributional account of categorial distinctions would be lost. However, if *destruction* were underlyingly a verb (*destroy*) to which a nominalizing transformation applied, then it would be still possible to maintain that the differences between nouns and verbs were due to their different combinatorial properties.

At the time when *Remarks* appeared, it was no longer necessary to uphold the transformationalist position at all costs as the only alternative. The separation of the lexicon from the categorial component of the base allowed the formulation of an alternative non-transformationalist approach to derived nominals: "we can enter

[4] Also, Chomsky briefly considers mixed forms, an intermediate category between gerundive and derived nominals like *John's refusing of the offer, John's proving of the theorem, the growing of tomatoes*. These forms, like derived nominals, have the internal structure of noun phrases. It is suggested that the lexicalist hypothesis should be extended to cover these forms as well (Chomsky 1968:31-32).

refuse in the lexicon as an item with certain fixed selectional and strict subcategorization features, which is free with respect to the categorial features [noun] and [verb]. Fairly idiosyncratic morphological rules will determine the phonological form of *refuse, destroy,* etc., when these items appear in the noun position. The fact that *refuse* takes a noun phrase complement or a reduced sentential complement and *destroy* only a noun phrase complement, either as a noun or as a verb, is expressed by the feature structure of the 'neutral' lexical entry, as are selectional properties. … Let us propose, then, as a tentative hypothesis, that a great many items appear in the lexicon with fixed selectional and strict subcategorization features, but with a choice as to the features associated with the lexical categories noun, verb, adjective" (Chomsky 1968:7)[5].

Thus, Chomsky 1968/1970 argues against deriving nominals such as *refusal, eagerness, amusement,* etc. from the corresponding verbs transformationally. Instead, he argues for a 'lexicalist' approach, 'lexicalist' in the sense that it simplifies the transformational component by extending the base rules to accommodate the derived nominal directly: the categorial component of the base now contains a rule that introduces a noun phrase of the form Determiner-Noun-Complement in which the Noun slot can be filled by a category-neutral lexical item. Thus, Chomsky's 'lexicalism' is not lexicalist in the sense that *refusal, destruction, eagerness, certainty* and other 'derived' nominals are entered in the lexicon directly as such nor in the sense that these nominals are derived in the lexicon from the corresponding verbs.

We can demonstrate the workings of the 'lexicalist' hypothesis with the pairs such as *eager/eagerness* versus *easy/easiness*. *Eager* and *easy* both allow gerundive nominals but only the former permits a derived nominal *eagerness*. The transformational approach cannot account for this fact but within the lexicalist approach the difference is explained in terms of subcategorization features associated with *eager* and *easy*: "*eager* must be introduced into the lexicon with a strict subcategorization feature indicating that it can take a sentential complement, as in *John is eager (for us) to please*. In the simplest case, then, it follows that in the noun position, *eager* will appear in the contexts *John's eagerness (for us) to please*, etc., with no further comment necessary. But *easy* (or *difficult*) does not appear in the lexicon with such a feature. There is no structure of the form … *easy (difficult) S* generated by base rules. Rather, *easy* (*difficult*) appears in base phrase-markers as an adjective predicated of propositions as subject (*(for us) to please John is easy*, etc.); forms such as *it is easy (for us) to please John* are derived by extraposition. Consequently, *easy* (or *difficult*) cannot be introduced by lexical insertion into the

[5] The possibility of a lexicalist alternative to the transfromationalist position is prefigured in *Aspects*, as the following quote shows: "there may be some point to allowing a lexical item to appear in several categorial positions (either by specifying it positively with respect to several lexical categories, or by leaving it totally unspecified with respect to these categories) – for example, in the case of such words as "proof", "desire", "belief". Suppose that these are specified as taking Sentential complements of various forms, but are permitted to enter either the Noun or Verb position. Then the lexical insertion rule will place them in either the frame "… N that S …" or the frame "… V that S …", in the positions of the Noun and Verb, respectively. Hence it will not be necessary to derive the former by transformation from the latter, as is necessary, for example, in the case of "… proving that S …"." (Chomsky 1965, p. 219, note 29).

noun position with sentential complements, and we cannot derive such forms as (8i), **John's easiness (difficulty) to please*" (p. 8).

(5) a. John is easy to please
b. John's being easy to please
c. *John's easiness to please

(6) a. John is eager to please
b. John's being eager to please
c. John's eagerness to please

Given the fact that the range of noun complements is almost as great as the range of verb complements and that there is also a wide range of adjective complements (*eager (for Bill) to leave, proud of John*, etc.), Chomsky proposes that the categorial component of the base contains rules like the ones in (7), (8).

(7) (i) NP → N Comp
(ii) VP → V Comp
(iii) AP → A Comp

(8) Comp → NP, S, NP S, NP Prep-P, Prep-P Prep-P, etc.

The fact that the complement structure was kept constant across distinct categorial phrases made it possible to unify the various rules in (7) using a single categorial variable – X resulting in the general X-bar format for all lexical categories.

(9) XP → Spec X'
X' → X Comp

X-bar theory made it impossible to group words into the same grammatical category on the basis of shared distribution. Rather, from now on the similarities/ differences between separate categories were to be explained in terms of features that they had/did not have in common.

1.2.3. Lexicalism

As noted in Baker 1988, *Remarks*, along with Fodor 1970, initiated the development of "the *Strong Lexicalist Hypothesis* (SLH), which holds (with varying degrees of strength) that syntactic processes are not allowed to build or change words; rather words are inserted into syntactic structures fully formed. Thus the regularities of word structure and relationships between words cannot be due to the syntax, and must be the result of another component – the lexicon (or 'morphology'). Indeed, an important class of work has attempted to complete the picture with a theory of this

new component (e.g. Aronoff 1976; Selkirk 1982; Di Sciullo and Williams 1987)" (pp. 9-10)[6].

In such a framework the lexicon contains rules for deriving nouns, verbs, adjectives: derivation is either category-preserving (if the base form belongs to the same category as the derived form) or category-changing. Being lexical in nature, such word-formation is allowed to be unproductive and non-transparent. The changes in category involve the changes in categorial feature specifications.

Seen from this point of view ∅-alternations between nouns and verbs such as 'a walk – to walk', adjectives and verbs such as 'warm – to warm' which are so common in English and Dutch raise many questions as to the direction of derivation and the kind of derivational mechanism involved, as discussed in detail in Don 1993. The same author gives an extensive summary of the various treatments of morphological conversion within the lexicalist framework. These analyses, although couched within the same lexicalist terms, diverge from each other greatly in details of execution. We can briefly consider some of them as presented in Don 1993. Lieber 1981 treats conversion as a non-directional process: members of a conversion-pair are not related as 'base' and 'derivative'; rather, they are underived and linked by a non-directional redundancy rule in the lexicon. On the contrary, for Allen 1978 and Kiparsky 1982 conversion is a directional process involving zero-affixes. Williams 1981, Strauss 1982a also view conversion as a directional process but instead of zero affixes they postulate a specific derivational device, namely, headless rules of the type $X \rightarrow Y$.

The proposal advanced by Don himself views conversion as a directional process reduced, like all derivation, to affixation. The derivational affixes are housed in a special lexicon consisting of two sublexicons: the morphosyntactic one which contains bundles of morphosyntactic features - AFFIXES and the morphophonological one which contains phonological strings - affixes. In addition, the lexicon includes R, i.e. various relations between AFFIXES and affixes. These relations can be one-to-many and many-to-one: e.g. one AFFIX can be spelled out by several affixes thus giving rise to synonymy or, vice versa, one and the same affix can expone several AFFIXES resulting in polyfunctionality. Words are assumed to have two representations: 1) a morphosyntactic one built from the elements of the morphosyntactic lexicon (AFFIXES) and responsible for the categorial and semantic properties of words and 2) a morphophonological one built from concatenations of the elements of the morphophonological lexicon (affixes) and responsible for the phonological properties of words. The two representations are mapped onto each other: this mapping operation goes through iff the relation between a morphosyntactic element and a morphophonological one belongs to R as defined above.

Consider how the derived noun *happiness* and the converted noun *walk* are represented.

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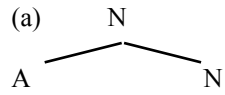
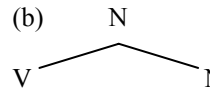
[6] Other important contributions to the theory of lexicon/morphology are Halle 1973, Siegel 1974, Aronoff 1974, Jackendoff 1975, Allen 1978. For instance, Halle 1973 postulates a word formation component which deals with both derivation and inflection and which is distinct from phonology. See Schultink 1988 for an overview of the relations between morphology and syntax in twentieth-century linguistics.

(10) (a)



HAPPY	NESS
(MS-REPR)	
happy ^	ness
(MP-REPR)	

(b)



WALK	NOM
walk	

The mapping relation between the morphosyntactic representation and the morphophonological one is provided by the Finite State Transducer - a finite state automaton which inspects two or more symbols at different tapes at the same time and proceeds accordingly. When applied to (10a), the FST will first see the pair <HAPPY, happy> and, since there is a relation in R between these two elements, the FST may proceed undisturbed to inspecting the pair <NESS, ness>. On the contrary, in (10b) we have underdetermination: a morphosyntactic AFFIX is attached to a STEM but this AFFIX lacks a corresponding morphophonological affix. The FST can take care of such cases of underdetermination as well as overdetermination since it has a built-in characteristic that it can suppress reading at either one of the tapes while proceeding to the next state. In (10b) reading has been suppressed at the morphophonological tape. Thus, in Don's (1993) framework mismatches of a paradigmatic nature such as synonymy and polyfunctionality are dealt with in the 'lexicon' whereas syntagmatic mismatches such as over- and underdetermination are encoded in the way the Finite State Transducer operates. In section 1.3 we will consider how conversion is dealt with in the anti-lexicalist framework.

1.2.4. Consequences and implications of the feature formalisms

In this subsection we will consider the general consequences of the [±N, ±V] feature system for a theory of grammar. In order to be viable, the system must ensure that the set of distinct feature combinations can match the set of actually existing categories: feature conflation (if, for example, both C and N were specified as [+N, -V]) would render the theory void as noted in Reuland 1986. However, the [±N, ±V] feature system allows only for the four categories N, V, A and P and makes no provisions for functional categories.

Therefore it becomes necessary to extend the feature system. The first proposal to incorporate an additional feature in Chomsky's two-feature system is made in Stowell 1981 who argues that the difference between NP and CP should be construed in terms of the tense operator. This distinction is formalized in terms of the [±Tense] feature: NPs are [-tense], CPs (including *to*-Infinitives) are [+tense] (ibid. p. 40). However, as Reuland 1986 points out, one must ensure that adding a new feature helps make the necessary categorial distinctions in a non-arbitrary way which is not the case with Stowell's [±tense] feature "since at least five of the categories involved, viz. N, A, V, P, D, do not differ in a dimension involving tense" (Reuland 1986:43).

Other attempts to extend Chomsky's feature system so as to accommodate the existing set of categories are presented e.g. in Fukui 1986 and Abney 1987. Fukui 1986 is concerned with extending Chomsky's feature system from the lexical categories to the functional ones: each lexical category (except for adjectives) has a corresponding functional category which is specified in the same way for the features [±N, ±V] and in addition specified as [+functional]. I(nflection) corresponds to V, D(eterminer) to N, C(omplementizer) to P. Furthermore, each functional head is specified as [+Kase] or [-Kase]. The [Kase] feature is relevant for spec-head agreement: only those functional heads which are [+Kase] project a specifier position. Kase is also applicable to lexical categories but here its plus-value allows a lexical head to license a complement position. Transitive and unergative verbs are [+Kase], unaccusatives are [-Kase]. Prepositions are [+Kase] and nouns and adjectives are [-Kase].

(11) Fukui's (1986) feature system for functional categories

	C [+F, -V, -N]	I [+F, +V, -N]	D [+F, -V, +N]	Absent [+F, +V, +N]
+Kase	+wh	Tense/Agr	's	
-Kase	That	to	the	

The gap in Fukui's system corresponding to [+F, +V, +N] can in fact be filled by Abney's (1987) Deg. The feature system proposed in Abney 1987 also covers both lexical and functional categories. For Abney there are two major dichotomies of syntactic categories: functional [+F] versus thematic [-F] and nominal [+N] versus verbal [-N]. Abney dispenses with the feature [V] because the dichotomy between [+V] elements V and A and [-V] elements N and P is less robust and significant than the dichotomy between [+N] and [-N] elements. Since the [+V] feature is what distinguishes adjectives from nouns, under Abney's analysis the adjective loses its separate status: "the notional category "adjective" does not correspond to a single category with a stable syntactic characterization, but rather to two distinct categories, one a subcategory of verbs, the other a subcategory of nouns (the latter being predominate in English)" (352).

The composition of syntactic categories is based on five features: ±F, ±N, ±Adj, ±Q, ±C. Only the first three features have a major, global application, ±Q and ±C are much more local, applicable only to a subset of the categories defined by the global features. The Adj-feature separates, on the one hand, nouns from noun-like adjectives and, on the other, verbs from verb-like adjectives. The [±C] feature stands for 'inherently Case-marked' and marks as such the following elements: bare NP-adverbs, bare-adjective adverbs and *ly*-adverbs. [Q] sets apart [+Q] quantificational adjectives from [-Q] descriptive ones. As for the category P, Abney remains uncommitted to its status and leaves open the question if languages differ in whether P is [-N] or [+N].

(12) Abney 1987

	-Adj		+Adj	
	-N	+N	-N	+N
-F	V, P	N	---	A, Q, Adv
+F	I, C	D, K	---	Deg

Some of the problems with Fukui's and Abney's approaches have been pointed out in Déchaine 1993. With respect to Fukui 1986, the following two inconsistencies are noted. First, [+Kase] has different syntactic reflexes for lexical versus functional categories: a [+Kase] functional head projects a specifier position, a [+Kase] lexical head licenses a complement position. Second, the complements of [-Kase] lexical categories (unaccusative verbs; nouns; adjectives) which cannot be licensed by their lexical heads behave differently: the complement of an unaccusative verb raises to a Case position while the complement of N/A does not (Déchaine 1993:35). With respect to Abney 1987, Déchaine (1993:36) mentions two undesirable consequences of dispensing with the [±verbal] feature: on the one hand, the lack of separate status for A and, on the other, the uncertain status of P[7]. It is also clear from the table in (12) that Abney 1987 allows for massive feature conflation which renders categorization vacuous.

One possibility implicit in a feature system is to try to organize the features in a hierarchy (as is often done with phonological features) and to derive the distribution of categories in terms of this hierarchy. This possibility is employed in Hale & Platero 1986. They assume that there is a universal inventory of categorial features and that languages differ as to which features they choose to utilize and which to ignore. Navajo, for instance, does not use the [A] feature because adjectival meanings are expressed by verbs. In English, on the contrary, adjectives form an important category, hence the [A] feature must be given a place in the hierarchy. The place a particular categorial feature is given in a hierarchy is determined on language-specific grounds. Thus, the fact that postpositions in Navajo are not autonomous from nouns is captured by subordinating the P feature to the N feature.

In fact, the authors claim that a representation in terms of features is structurally more economical than a representation in configurational terms. In languages like Navajo and Hopi nominalized sentences functioning as relative clause expressions and as factive nominals are configurationally identical to canonical sentences. Hence, Hale & Platero claim that both nominalizations and root sentences involve the same structure but their top nodes have different feature specifications: a canonical sentence functioning as a root sentence is [+S, -N] whereas a nominalized sentence functioning syntactically as a noun phrase is [+S, +N][8].

As Hale & Platero themselves note, their theory makes clear predictions and can be falsified readily. In particular, they make one prediction which is falsified by the data from Sakha. It runs as follows: "… assuming further that [V] is superior to [N], it is possible for a language to have nominalized verb phrases, but it would not be possible for a language to have verbalized noun phrases. To be sure, it

[7] However, as Déchaine mentions in a footnote (p. 36), Abney restores the [±verbal] lexical feature in his (1988) presentation.

[8] [±S] is the so-called sentential categorial feature the existence of which Hale & Platero postulate.

is possible for a language to have deverbal nouns in the lexicon, since rules of the lexicon can refer directly to categorial features to derive a noun ([-V, +N]) from a verb ([+V]), or conversely, a verb ([+V, -N]) from a noun ([+N]). But at the phrasal level, this cannot happen, since phrase structure rules are not capable of effecting derivations of this sort (within the X-bar theory, that is). Therefore, if verbalized noun phrases exist in languages, our theory is false" (p. 38). In Sakha, at the phrasal level we find both nominalized verb phrases (13) as well verbalized noun phrases (14).

(13) a. Armija kuorat-y bosxoloo-to.
Army town-acc liberate-past.3
'The army liberated the town.'
b. Armija kuorat-y bosxoloo-hun-a
Army town-acc liberate-nominalizer-3
'the army's liberation of the town'

(14) a. kyhyl uonna saharxaj sibekki-ler
red and yellow flower-pl
'red and yellow flowers'
b. kyhyl uonna saharxaj sibekki-ler-dee
red and yellow flower-pl-verbalizer
'provide with red and yellow flowers'

The impossibility to organize the features in a coherent system with mutually dependent members might suggest (although not necessarily) that the features in question constitute a kind of a ragbag, i.e. they are not mutually dependent at all and are governed by different modules as is the case with e.g. the features [+past] and [+anaphoric] in the GB-framework.

However, the [±N, ±V] feature system may still be kept alive if it helped define natural classes. The four classes defined in this feature system are given in (15). In addition, the system also defines two 'unnatural' classes: 1) nouns and verbs and 2) adjectives and prepositions.

(15) Natural classes defined in terms of the features [±nominal], [±verbal]

[+Nominal]	[-Nominal]	[+Verbal]	[-Verbal]
N, A	V, P	V, A	N, P

Stowell 1981 attempts to show that the rules of syntax and morphology target the natural classes in (15) and ignore the unnatural classes but the arguments he brings are inconclusive. Thus, [-N] defined the class of Case assigners but this view was later refuted since it was assumed that nouns and adjectives assigned inherent genitive case (e.g. Chomsky 1986). The [+N] class is supposed to include those phrasal categories which require *of*-insertion, namely, NPs and APs. However, alongside *the destruction of the city by the enemy,* a parallel derivation is also possible – *the city's destruction by the enemy* because *of*-insertion is not a rule

which is sensitive to the [+N] feature but a rule which is related to the realization of genitive Case and in English genitive can be realized either postnominally with the help of the preposition *of* or prenominally with the help of *'s*. Next, the [+V] feature is taken to single out the class of prenominal modifiers e.g. in German – adjectives and verbal participles. However, the fact that nouns can also appear as prenominal modifiers, as in *a stone wall*, is left uncaptured.

Another argument against Stowell's justification of the feature system in terms of (un)natural classes comes from Baker (2003:2) who shows that adjectives and prepositions defined as an unnatural class in reality behave as a natural class in that they display significant syntactic similarities. Déchaine 1993 (section 2.2) presents a careful examination of the predictions made by the [nominal/verbal] feature system with respect to natural classes. In particular, she shows that for each natural as well as unnatural class some motivation can be found in English in the form of some peculiar morphosyntactic process. Thus, on the one hand, verbs and nouns and, on the other, prepositions and adjectives defined as unnatural classes behave in fact as natural classes with respect to a number of phenomena: 1) V/N both take a subject, P/A don't; 2) V/N can host gaps, P/A can't; 3) P/A can be modified by measure phrases, V/N can't.

Here, however, it is worth mentioning that Stowell (1981:25-26) mentions another very important observation based on the collapsing of two categories into one in languages other than English: it appears that only those pairs of categories defined as natural classes in (15) may be collapsed into a single category whereas the unnatural classes, namely, that of nouns and verbs and that of adjectives and prepositions, cannot. This is an important observation but as we will show on the basis of Sakha, it can hardly be captured in terms of arbitrary feature specifications. Sakha is precisely the kind of language in which the categorial boundaries between the natural class pairs tend to wash off more readily than those between unnatural class pairs but a more principled account is available in relational terms – more principled, hence to be preferred.

The above considerations still do not preclude an account in terms of features, albeit in terms of different features. Alternative features may include the features [±subj, ±obj] (Jackendoff 1977), [±referential] (Déchaine 1993) or [Argument]/[Functor] (Reuland 1986). It is clear that such features make an appeal not just to the inherent nature of lexical categories but also to their external context, their behaviour with respect to other categories. Below we will consider Jackendoff's and Déchaine's proposals. A discussion of Reuland 1986 will be postponed until later. A third approach to be considered in section 1.2.5 is prototype theory which also makes frequent reference to the external context, viz. to discourse-oriented functions of lexical categories.

1.2.5. Other proposals in current linguistics: Jackendoff 1977; Déchaine 1993; prototype theory

Jackendoff (1977:31-33) divides the phrase structure of English based on four syntactic distinctive features listed in (16).

(16)

±Subj:	the existence of the syntactic subject relation
±Obj:	the ability of the complement to include a surface NP direct object after the head
±Comp:	the ability to take a complement
±Det	

The first two features are sufficient to define the four major lexical categories as highlighted in the table below. The remaining two features are responsible for divisions among the 'minor' lexical categories of English. For example, the [Comp] feature distinguishes between adjectives and adverbs which are related to adjectives: the former can take complements, the latter lack this ability.

(17) Jackendoff's (1977) feature system

	Subj	**Obj**	Comp	Det
V	+	+	+	
N	+	-	+	
A	-	-	+	
P	-	+	+	
Adv	-	-	-	-
Deg (degree words)	-	-	-	+
M (modal verbs)	+	+	-	
Prt (particles)	-	+	-	
Art (articles)	+	-	-	+
Q (quantifiers)	+	-	-	-

As shown in detail in Déchaine 1993 (sections 2.2.1-2.2.2), Jackendoff's features both overgenerate and undergenerate, making the wrong typological predictions concerning the collapsing of natural class categories into a single one. For him the natural classes are 1) [+Object] V/P; 2) [-Object] N/A; 3) [+Subject] V/N; 4) [-Subject] P/A and the unnatural classes are 1) V/A and N/P. However, the mergers of the latter two (impossible for Jackendoff) are attested cross-linguistically whereas the mergers of V/N and P/A are predicted to be possible but they have not yet been attested.

A different system of lexical and functional categories is proposed in Déchaine 1993 whose main concern is to develop a category-neutral theory of predication as a licensing relation. She notes an asymmetry between N, V, A and P: whereas the former two are universal and associated with extended projections (the potential set of functional heads dominating a lexical head), the former two are relatively marginal and it is doubtful that they have full extended projections of

functional heads[9]. This asymmetry is not captured by the [±nominal, ±verbal] feature system.

She therefore proposes to revise the feature system into the one based on [±functional, ±nominal, ±referential]. The [+referential] categories are [+nominal] N, D and [-nominal] V, T. N and V are categorially selected by functional heads, D and T, respectively. This is supposed to follow from the fact that V and N are [+referential] and [+referential] heads must be licensed by forming part of an extended projection. This also explains why V and N, although a natural [+referential] class, are never picked out as X^0 heads by any syntactic process. Non-referential P and A are not associated with an extended projection and are treated as canonical modifiers. The referential/non-referential asymmetry also holds of functional heads: T and D, being referential, c-select lexical phrasal complements whereas C and K don't. Referential categories N/V/D/T can refer: the extended projection of [D-N] can denote things whereas that of [T-V] – propositions.

(18) Déchaine's (1993) [-Functional] categories

	[+Referential]	[-Referential]
[-Nominal]	Verb	Preposition
[+Nominal]	Noun	Adjective

(19) Déchaine's (1993) [+Functional] categories

	[+Referential]	[-Referential]
[-Nominal]	Tense	Comp
[+Nominal]	Determiner	Kase

We will see below that Déchaine's analysis cannot be maintained. In particular, it assumes that not only predication but also valency are category-neutral such that all categories project a complement position which they license by the θ-relation. Between every lexical head and its complement a Kase phrase is projected with V/P assigning structural case (K is null) and N/A assigning inherent Case (K is overt). Subsequent chapters will show that such an analysis is not warranted for Sakha.

Outside the generative framework, various functionalist approaches have been developed within cognitive linguistics which can all be subsumed under a single heading of prototype theory because they treat lexical categories as organized around a prototype and having fuzzy boundaries ((among others) Rosch 1978; Givón 1986; Lakoff 1986; Geeraerts 1989; Taylor 1995; Corrigan et al. 1989 (eds.)).

For example, Hopper & Thompson 1984 and Thompson 1989 develop an approach to the N/V/A distinction in terms of prototypical discourse functions. For them categoriality is imposed on acategorial linguistic forms by discourse. The prototypical discourse function of nouns is to introduce a discourse-manipulable participant and that of verbs is to report an event. Lexical items will be categorized

[9] Although, as Déchaine notes, it has been proposed in Corver 1991 that A is always dominated by the functional head Deg(ree).

as either nouns or verbs to the extent they perform these functions. Thus, *fox* will be a noun in *a red fox jumped* but in *fox-hunting* it is not a noun, i.e. it is acategorial because it does not a introduce a discourse referent.

Property concept words (lexicalized as adjectives in English) perform two major functions - to predicate a property of an established discourse-referent (predicative function) and to introduce a new discourse referent (attributive function for new information adjectives). According to Thompson 1989, the fact that the predicating function is shared with verbs and the referent-introducing function with nouns is supposed to explain that "Property Concepts will **sometimes** be categorized with morpho-syntactic properties similar to those of Verbs, and **sometimes** with morpho-syntactic properties similar to those of Nouns, **while sometimes**, since they are neither prototypical Nouns nor prototypical Verbs, they are categorized as a separate lexical category of Adjective" (260; boldface supplied).

The noun-verb distinction is also the subject of Langacker 1987 who argues that grammatical categories should be characterized notionally but not based on conceptual content alone – rather, in terms of how this conceptual content is construed at the level of cognitive processing. Nouns, or nominal predications, are opposed to relational predications which are either processual (verbs) or atemporal (prepositions, adjectives, adverbs, infinitives, and participles). The difference between the two types of predications amounts to the following. Given a set of conceived entities and the interconnections among them, in a nominal predication the interconnections are presupposed and connect the entities into a region and it is this region which is profiled by a noun. By contrast, a relational predication presupposes the entities and profiles the interconnections among them.

The prototype theory has found typological application in Bhat 1994. On the basis of how the adjectival category is expressed in various languages, four idealized language types are postulated: 1) languages which have a distinct category of adjectives; 2) languages in which adjectives are identified with nouns; 3) languages in which adjectives are identified with verbs; 4) languages in which adjectives are identified with both nouns and verbs. Each grammatical category is associated with a particular function (reference for nouns, predication for verbs and modification for adjectives) and each language type is functionally motivated. In languages of the first type the function of nominal modification is *so important* that it succeeds in being lexicalized as an independent adjectival category. Languages belonging to other idealized types consider the functional distinction of modification as unimportant and fail to establish the adjective class: thus, in languages where adjectives are undifferentiated from nouns, the functional distinction between modification and reference is lacking; in languages of the third type (with identical adjectives and verbs) the distinction between predication and modification is lost and modification is replaced by presupposed predication; finally, in languages where nouns, verbs and adjectives are all undistinguished from each other, the function of reference is restricted to personal affixes occuring inside the predicate (so-called 'self-contained' predicates) and independent arguments and their modifiers function as optional presupposed predicates.

Objections against a prototype-based approach to categorization have been raised in Osherson & Smith 1981 and Fodor (1989:49ff)[10]. The former show some inadequacies of prototype theory as a theory of concepts but point out ways how to salvage the situation. The latter is more categorical in not accepting the extension of prototype theory to language. According to cognitive linguistics, there is no separate language faculty and the same cognitive processes should underlie both non-linguistic and linguistic categorization, namely, both domains are claimed to be organized around prototypes. This goes against Fodor's modularity hypothesis. He argues that, even if perceptual recognition of some objects (e.g. cats) may indeed be mediated by the prototype-plus-similarity metric, perceptual recognition of linguistic utterances is unlikely to be based on such procedures because speech/language constitutes an eccentric stimulus domain, i.e. a domain in which input analysis requires information highly specific to that domain, and it is quite plausible that eccentric stimulus domains are analyzed by special-purpose mechanisms. Thus, in case of language perception the input analyzer involved may be assumed to contain a grammar of the language which it applies to the computation of input sentences. As Fodor himself puts it, "the computational question in sentence recognition seems to be not "How far to the nearest prototype?" but rather "How does the theory of the language apply to the analysis of the stimulus now at hand?" (p.51). On the contrary, a computational system employing a prototype theory is quite general in that it applies the *selfsame* metric to a large variety of perceptual domains.

Prototype theory lacks precise definitions and formalizations. Being too liberal, it fails to make predictions and cannot be falsified which constitutes the main objection against it. Thus, the process of conversion both in English and Dutch is not as liberal as it may appear and is subject to certain restrictions (Don 1993). However, prototype theory would allow a hitherto unattested situation in which all nouns can be converted to verbs or adjectives and vice versa: for instance, in case of a noun used as a verb either the verb category or the noun category could be extended indefinitely to accommodate a fugitive. In fact, it is quite conceivable that prototype theory would end up making the wrong prediction, namely, that central nouns such as *blanket, carpet, house,* etc. can be converted into verbs less easily than peripheral members such as *arrival, refusal, criticism,* etc. for which crossing the fuzzy noun-verb boundary would be much closer and hence, apparently, much easier.

1.3. Lexicon versus Syntax

In the preceding sections we have concentrated on the lexicalist approach to categorization which groups items of the lexicon into nouns, verbs and adjectives. This viewpoint corresponds to the traditional definition of a part of speech as a class of words distinguished according to the kind of idea denoted and the function performed in a sentence (Merriam-Webster). The syntactic approach, on the contrary, assumes that the lexicon contains category-neutral roots from which nouns,

[10] Also see the discussion in Posner 1986 who argues, on the basis of experimental evidence, "that the evidence never suggested that concepts were completely represented in terms of prototypes, nor that prototypes were a sufficient basis for thought" (p. 54).

verbs and adjectives are derived in the syntax. This is the basic difference, the cut-off point between the two approaches. The syntactic viewpoint on parts of speech is clearly closer than the lexicalist 'word class' interpretation to the original use of the term 'part of speech' by Plato to denote a sentential consitituent. Defining a part of speech as a sentential constituent does not impose any division of lexical items into classes prior to syntax whereas defining a part of speech as a word class does: it is implied that the words of a language are already pre-labelled and therefore enter the syntactic component with categorical statements 'I do this but I do not do that'.

Another difference between lexicalist and syntactic approaches to categorization concerns treatment of derivation and inflection. That this difference is no cut-off point is shown by the existence of different viewpoints on the matter within lexicalism itself. Whereas within the anti-lexicalist, syntax-oriented approach both derivation and inflection are handled in the syntax, Lexicalism either puts both in the lexicon (Strong Lexicalist Hypothesis) or it puts inflection in the syntax and derivation in the lexicon (Weak Lexicalist Hypothesis). For WLH the crucial argument for separation is the fact that inflection does not change the category of a word while derivation (usually) does. However, within WLH there are no reasons for keeping also derivation in the lexicon. Nothing precludes a state of affairs in which inflectional affixes carry categorial information and determine the category of a word to which they attach (cf. Myers 1984). If this were the case, then it would be possible to move all derivation to the syntax, in a vein similar to Myers' (1984) analysis of conversion as a syntactic (inflectional) process. This step would require hierarchical ordering in the syntax of inflectional and derivational affixes with respect to each other, similarly to level-ordering of affixes and derivational processes in the lexicon under lexicalism (cf. Kiparsky 1982)[11]. But if nothing in principle precludes derivation from being placed in the syntax, then WLH is further weakened and the only difference between lexicalism and anti-lexicalism lies in the fact that the former classifies words into nouns/verbs/adjectives in the lexicon whereas the latter allows only category-neutral roots in the lexicon from which nouns/verbs/adjectives are derived syntactically[12]. The choice hinges on the empirical issue which has to do with the presence of asymmetries among lexical categories, e.g. with respect to overt morphological markings and argument-taking possibilities, and the need to account for these asymmetries. For instance, given two assumptions common to syntactic approaches, viz. that syntax provides a number of structural templates which drive interpretation and determine argument structure and, second, that all roots, independent of their inherent meaning, have the equal

[11] In fact, syntactic approaches also reconstruct the 'two places' for word formation within syntax. These two places for building words correspond to the domains below and above the category-determining functional head; see below.

[12] This viewpoint on the differences between lexicalist and syntax-oriented approaches may seem to be wrong since the fundamental difference between lexicalism and syntax-oriented approaches is usually taken to be the distinction made by the former between lexicon-internal composition with its special properties (e.g. special lexicalised meanings) and syntactic composition and the lack of such distinction in the syntactic approaches because for them there is a single computational engine – syntax (Marantz 1997/2001). However, the point we wish to make here and which will be elaborated upon more explicitly later in connection with Reinhart's Theta System is that a lexicon can still be computational without appealing to any word-internal morpheme compositions (derivational morphology) if it allowed lexical operations on concepts which in no way commit one to derive derivation in the lexicon.

potential of combining with any syntactic template, no systematic asymmetries should be expected. On the other hand, in a lexicalist framework which makes use of X-bar theory with its uniform structures one can only relate asymmetries among lexical categories to the fact that these lexical categories are already encoded in the lexicon but here too one stumbles upon the fact that they are encoded in terms of the features [±noun, ±verb] which, as argued above, are too arbitrary to provide a coherent account for asymmetries and therefore not much can be hanged upon them. Arbitrariness of lexical categorial features is one of the two properties of lexicalism which explains why the latter is losing ground to syntax-oriented theories like Marantz's and Borer's. Another defeatist property of lexicalism lies in the fact that categorial information and information about argument structure are encoded separately: for each lexical item its categorial features are specified independently of its theta grid. This ignores a basic fact about language, namely, that lexical categories differ in their argument-taking possibilities: verbs are argument-taking categories par excellence, nouns are typically not, whereas adjectives show some variability. However, this defeatist property is also characteristic of Marantz's (DM) framework though not of Borer's. In DM, categorization is independent from argument structure since little x's can equally well license specifiers while other arguments are introduced by functional heads which one can stick into the structure: maybe one will admit some amount of allomorphy when functional heads are licensed in the domain of little v and not little n but that would be only meant as a mending mechanism to capture the dependence of categorization and argument structure in a framework in which these two are otherwise mutually independent. In Borer's framework this fact is captured: 1) argument structure is event structure with nominal arguments licensed as participants in events and 2) it is event structure which verbalizes roots → only verbs and nouns derived from verbs can have obligatory arguments. However, although categorization and argument structure are connected, the two of them are separated from the inherent meanings of roots which implies, as already mentioned, that any root can become anything and systematic morphological asymmetries are not expected. This latter consideration also applies to DM.

To recapitulate, we would expect a theory of categorization to provide a systematic account of systematic asymmetries among nouns, verbs and adjectives. Such a theory would have to interconnect three things in a consistent, non-arbitrary way: the inherent meaning of a concept, categorization and argument structure. Lexicalism fails in this task, in particular, 1) it connects the inherent meaning of a concept and its category in an arbitrary manner – through arbitrary features; 2) categorization and argument structure are not connected: related nouns and verbs have similar argument structures made possible by generalized X-bar theory. Syntactic approaches converge in separating the inherent meaning of a concept (root) from both categorization and argument structure but diverge in linking categorization and argument structure: for Borer there is such a link, for DM there is no link. Before we go into details concerning syntax-oriented theories of categorization and argument structure, we would like to explore from a historical point of view the premises on which a shift in interpretation took place from'part of

speech as sentential constituent' (Plato) to 'part of speech as word class' (Dionysius Thrax).

1.3.1. Regression: Nature versus convention → anomaly versus analogy → lexicon versus syntax?

As already mentioned, the term 'part of speech' was first used by Plato to denote a sentential constituent. It took the meaning 'word class' later as the number of word classes distinguished by Greek linguists increased from two (Plato) to eight (Dionysius Thrax). In these historical times language-related discussions were carried within the framework of two related controversies: nature versus convention and analogy versus anomaly. The nature versus convention argument arose earlier: an extensive discussion can be found in Plato's *Cratylus*. Adherents of the conventionalist point of view (Aristotle) maintained that language is a matter of convention and that there is no natural connection between the meaning of a word and its phonological form. On the contrary, naturalists (Cratylus and the Stoics: the former was an extreme naturalist, the latter less so) assumed that word forms arose naturally and were inherently suited to their meanings. To prove such a 'natural' status of language, much weight was placed on onomatopoeia and sound symbolism.

More importantly, the nature-convention dichotomy led to the analogy-anomaly argument. If language were conventional, governed by usage, then it would be expected to be analogous (regular) to facilitate communication whereas if it were natural, then it would not impose any regularities since communication would also proceed naturally, smoothly, without imposing too much burden on human memory. Analogists (for example, Aristotle) were busy with the search for orderliness and proportional regularity. Thus, it was pointed out by Dionysius Thrax that morphology largely consists of the 'working out of analogy' (Robins 1990:24). On the contrary, anomalists (for example, the Stoics) pointed out irregular members of nominal and verbal paradigmatic classes, arbitrary assignment of gender as well as the fallacy of any clear-cut one-form, one-meaning correspondence.

The precise nature of the analogy-anomaly controversy cannot be reconstructed now but it seems clear that this opposition later transformed itself into the opposition between inflection (analogy) and derivation (anomaly). In fact, Varro who commented more extensively than anyone else on analogy versus anomaly was also the first Western grammarian to notice the difference between derivation and inflexion. Apparently, the reason that he was able to make this significant step forward was because he was interested not in words, like other grammarians of antiquity, but in roots: "… it seems clear that what was of prime interest to Varro was the range of grammatically different words that could be formed on a single common root (e.g. *legō,* I choose, I read, *lector,* reader, *legens,* reading, one who reads, and *lectē,* choicely). All of this research, along with his etymologies, was part of his quest for an account of the way in which the word stock of a language could have grown, during the relatively short time span that the ancient world allowed, to serve the needs of an advanced civilization" (Robins 1990:59). So Varro's standpoint was quite similar to Pānini's who isolated roots and affixes from each other and whose descriptions inspired the morpheme concept in grammatical theory (Robins 1990:161).

The interest in analogy/anomaly led to the establishment of nominal and verbal paradigms on the part of analogists and to the search for exceptions to these paradigms on the part of anomalists. Presumably this focus on words per se and their paradigms was due to the dominant status of the Alexandrian school which was interested in the analysis of literary works and not in the analysis of language viewed independently from literature. Varro's work did not undermine the dominance of such word and paradigm model and the abstract root as a constant forming the foundation of all paradigms was not identified until the Middle Ages when, under the influence of Hebrew and Arabic scholarship, roots were recognized separately from the inflexions they take in paradigms although the word-and-paradigm tradition based on Dionysius Thrax and Priscian continued.

Thus, it appears that the shift from viewing a part of speech as a sentential constituent, in other words a unit of syntax, to interpreting it as a word class, in other words a unit of lexicon, took place because:

1. The number of criteria increased which made finer-grained distinctions possible but since the criteria often cross-classified they did not define uniform word classes. Suppose one would have nouns and verbs defined syntactically and these two classes would in turn be associated with particular morphological and semantic properties – e.g. 'case'/'object' for nouns and 'tense/'action' for verbs. However, the fact that participles derived from verbs are also able to appear with case morphology would spoil the picture: morphologically they would be noun-like but semantically still verb-like. As shown above, Dionysius Thrax solved the problem by establishing a separate word class of participles. Thus, grouping the words of a language into independent classes helped maintain the balance between cross-classifying criteria.
2. A word was taken to be the minimal basic unit of grammatical description which precluded the recognition of morphemes – roots and affixes. As noted in Robins (1990:29), "a word based grammar involves three main procedures: the identification of the word as an isolable linguistic entity, the establishment of a set of word classes to distinguish and classify the words in the language, and the working out of adequate grammatical categories to describe and analyse the morphology of words entering into paradigms of associated forms and the syntactic relations obtaining between words in the construction of sentences".

This tradition came down to us and many grammar books begin with the establishment of a set of isolated word classes. Crystal (1967:25) warns against such a 'complacency': "word classes should not be taken as being in some way part of a terminological preamble to grammar, because in a real sense they assume a grammar before one can begin to talk about them". Indeed, sticking a categorial label to every item in the lexicon has little explanatory value but at the present stage linguistic theory has all the means not to worry about word classes. The morpheme concept has long been developed and morphological decomposition allows us to question the (undecomposable) root status of every word. Second, there is no need to pay attention to maintaining a balance between cross-classifying criteria because the explanatory value of making a comprehensive list of all the syntactic and morphological properties of nouns or verbs is nil. Thus, viewing parts of speech as word classes is not historically justified.

1.3.2. Syntactic categorization

The discussion in 1.3 presented the anti-lexicalist framework as one whole. This is not entirely true since the framework divides into a number of independent theories which, however, all bear the same grudge against computational lexicon. As such, they all offer the same treatment of categorization in syntactic terms: their anti-lexicalist lexicon contains nothing but sound-meaning pairings which acquire particular categories during syntactic computation. In this section we will consider two syntax-oriented treatments of categories, namely, Distributed Morphology (e.g. Halle & Marantz 1993, Marantz 1997) and Borer's (2000, 2003, 2004) exo-skeletal approach.

1.3.2.1. Marantz 1997/2001 and Distributed Morphology

Marantz 1997 argues, and indeed rightly, that *Remarks* have been misinterpreted as the 'birthplace' of Lexicalism – a theory which accounts for word formation within the lexical component. It has been shown above that Chomsky 1970 basically argues against a transformational analysis of derived nominals from underlying verbs and as an alternative advances a 'lexicalist' hypothesis – 'lexicalist' in the sense that it simplified the transformational component by adding a new NP-introducing rule into the categorial component of the base. The rule was of the form Determiner-Noun-Complement: the Noun slot could be filled by a category-neutral lexical item. Thus, Chomsky's 'lexicalism' was not lexicalist in the sense that derived nominals were entered directly into the lexicon although Chomsky's 'lexicalist' hypothesis was interpreted by later Lexicalism precisely along these lines[13].

Marantz further updates "Remarks" theory into Bare Phrase Structure (Chomsky 1995b) terms: nominalizations like 'destruction' and 'growth' are never verbs, at any stage of the derivation. Both these nominals and their corresponding verbs are derived from the same category-neutral roots √DESTROY and √GROW: the roots become nouns when placed in a nominal environment and verbs when placed in a verbal environment.

Such an approach which allows one to dispense with Lexicalism, whether Weak or Strong, is made possible when the syntactic (and, in general, grammatical) theory of the Minimalist Program (Chomsky 1995-2001) is combined with a morphological theory as conceived within the framework of Distributed Morphology (DM) officially launched in a seminal paper by Halle & Marantz 1993 and subsequently developed and explicated in more detail in (to list just a few) Halle & Marantz 1994, Marantz 1997, Halle 1997, Harley & Noyer 1999. DM is not a morphological theory as conventionally understood. Its principles and mechanisms cannot be localized within one particular, morphological module and the title of the framework makes it clear: 'distributed' over several places in the general organization of the grammar. This is expected since, being the Antagonist of

[13] Apparently, the term 'lexicalist' was chosen because the similarities in complement structures of nouns and verbs were now captured in terms of selectional and strict subcategorization features which were included, as contextual features, in the feature specification of category-neutral lexical entries. It may have been more appropriate to use the term 'The Base Structure Hypothesis', as Halle (1973:11) explicitly does.

Lexicalism, it explodes the lexicalist Lexicon and replaces it with three non-computational lists each of which performs part of the tasks previously performed by the lexicalist Lexicon, namely, the narrow lexicon, the Vocabulary and the Encyclopaedia. The direct analogue of the lexicalist Lexicon is the narrow lexicon interfacing with the conceptual system and containing only sound-meaning pairings (atomic roots) and atomic bundles of grammatical features drawn from the universal feature set. This impoverished lexicon is denied all power of computation which the Lexicon possesses[14]. However, it is generative in the sense that it allows grammatical features to bundle together freely to form sets. The second non-computational list is the Vocabulary: it contains the phonological forms for bundles of grammatical features. The Vocabulary is non-generative but expandable. The Encyclopaedia is also non-generative but expandable: it lists special meanings of roots relative to the syntactic context. For example, the Encyclopaedia entry for *cat* is expected to include (in addition to the regular meaning "Felis catus") a special meaning "… means 'secret' in the environment 'out of the bag' …" (Harley 1998).

All computation including word derivation takes place in the syntax with the result that the same syntactic principles determine both the combination of morphemes into words and the combination of words into phrases and sentences: hence, **Syntactic Hierarchical Structure** goes **All the Way Down** . This is one of the three defining properties of DM shared by the various DM-trends which distinguish DM from other morphological theories (Harley & Noyer 1999).

The two other properties are **Late Insertion** and **Underspecification**. Understood under Late Insertion is the hypothesis that syntax operates on syntactic trees whose terminal nodes (morphemes) are bundles of morphosyntactic features with no phonological content. Supplying these nodes with phonological features is a function of Spell-Out when Vocabulary Items (phonological expressions; VI's) are inserted replacing morphosyntactic features. However, roots are exempt from late insertion because "they may not have multiple underlying phonological forms (= suppletive allomorphs). This difference follows from the fact that phonological features are part of the language system while root meanings fall under the extra-linguistic conceptual systems of mind. Phonological features form a space for possible root "labels" within a language; the semantic properties of the conceptual system, to the extent that they do define a semantic space, do so outside the linguistic system and cannot serve to create "labels" for roots" (Marantz 2001a). Therefore alternations like *go – went* involve not roots but functional morphemes (a light verb 'go').

Underspecification of VI's with respect to the features of syntactic positions where these VI's are inserted ensures the competitive nature of vocabulary insertion: since VI's are not fully specified, several will be competing for insertion under one syntactic node with the most highly specified VI eventually winning.

DM advances a number of arguments against lexicalism. Here we would like to review the ones presented in Marantz (1997/2001). The first, conceptual, argument goes against the fundamental lexicalist assumption that there are two places of composition, two distinct modules with completely distinct properties –

[14] For ease of exposition, from now on we will refer to the lexicalist lexicon as the *Lexicon* using capital 'L' and to the impoverished lexicon as the *lexicon* using small 'l'.

lexicon and syntax (see the caveat in footnote 11). To prove this assumption wrong, Marantz 1997 argues in detail that items of the lexicon do not have special sound nor special meaning nor do they display special structure/meaning correspondences. In addition, as shown in Marantz 2001b, alternation between periphrasis and affixation to express various meanings could not be captured if there were two modules with completely different atoms, structures and methods of combination inside and outside words.

(20) a. John cried.
b. Did John cry?

(21) a. John is bigger.
b. John is more intelligent.

(22) a. John took a leap.
b. John leapt.

Three more arguments are offered in Marantz (2001a) each dealing with a specific morphological phenomenon which can be captured in DM but cannot be captured under standard lexicalist assumptions. The phenomena in question are underspecification, asymmetrical blocking across positions and ordering of morphemes.

Let's take a closer look at the specifics of executing the idea of syntactic categorization and syntactic word derivation in DM. Consider the following passage from

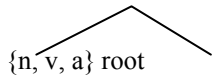
(23) Harley & Noyer (1999:4):

> "Specifically, the different "parts-of-speech" can be defined as a single l-morpheme, or Root (to adopt the terminology of Pesetsky 1995), in certain local relations with category-defining f-morphemes. For example, a noun or a nominalization is a Root whose nearest c-commanding f-morpheme (or licenser) is a Determiner, a verb is a Root whose nearest c-commanding f-morphemes are v, Aspect and Tense; without Tense such a Root is simply a participle (Embick 1997; Harley & Noyer 1998b). Thus, the same Vocabulary Item may appear in different morphological categories depending on the syntactic context that the item's l-morpheme (or Root) appears in. For example, the Vocabulary Item *destroy* is realized as a noun *destruct-(ion)* when its nearest licenser is a Determiner, but the same Vocabulary Item is realized as a participle *destroy-(ing)* when its nearest licensers are Aspect and v; if Tense appears immediately above Aspect, then the participle becomes a verb such as *destroy-(s)*".

The above passage explicitly states that the relation between a root and a category-defining head must be local. Indeed, once it is assumed that different realizations of a root as either a noun, verb or an adjective must be handled in the syntax, considerations of locality become crucial. However, whereas the relation between a

root and a verbalizing little v is local enough, assuming that a root becomes a noun when combining with a Determiner makes it difficult to maintain locality: as is well-known, determiners occur very high in the nominal structure with various functional heads allowed to intervene between D and the lower root. The asymmetry disappears once other little x's are introduced: n and a, of which no mention is made in (23). Once the set of little x's is augmented, (23) can be updated into Marantz's (2001) terms diagrammed as in (24) which states that in order to be used in the syntax a root must merge with a functional head bearing category features.

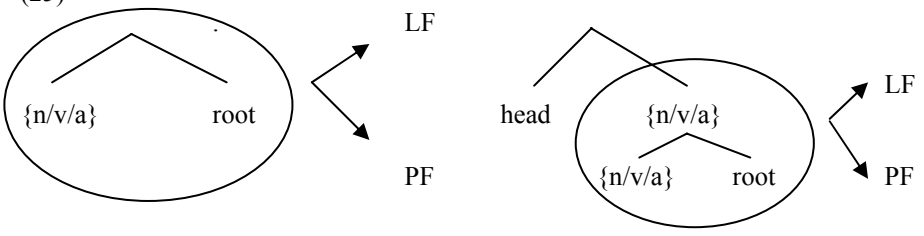
(24)



As noted in Marantz 2001, a challenge for DM is to reconstruct the two places for word formation within syntax: one associated with special meanings and lack of productivity, the other – productive, with regular predictable meanings. The contrast between the two types of derivation can be seen in idiosyncratic *–er* suffixation as in *donor, rotor, debtor, malefactor, benefactor,* etc. versus productive agentive *–er* suffixation which creates "occupational" nouns such as *donator, rotator, driver, writer*, etc.

The solution offered follows from the structure in (24). A categorial head defines the edge of a cyclic domain corresponding to Chomsky's phase which means that (24) is sent to LF/PF for semantic and phonological interpretation (cf. the first diagram in (25)). Therefore an x-root combination is no longer visible for subsequent derivation. It also follows from the phase-based approach that the meaning of the root, whether regular or special, is already negotiated with the Encyclopaedia. Hence, special idiosyncratic meanings are only available in a strictly local domain, in the context of a category-determining functional head and no element which attaches above the x-root combination can trigger or force a special meaning on the root. Such a head can only see the features of x {n/v/a} and nothing below x.

(25)



From the structures in (24)-(25) the two places for word building emerge. The first one is the domain of the root: a morpheme attaches to a root below a little x. The second place is outside the root domain: a morpheme attaches above a little x. Assuming these two places of word formation within the same syntactic module without assuming a lexical/syntactic dichotomy should meet the challenge mentioned above. The differences between the two types of derivation ('predictable

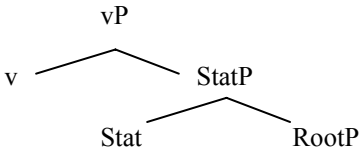
meanings/productive' versus 'irregular meanings/not productive') follow from the syntactic properties. The structural (position in a tree) and derivational (phases) aspects of syntax ensure the following correlation of properties (Marantz 2001b):

(26) If a head/morpheme merges directly with a root:
- A root can acquire a special meaning negotiated with the Encyclopedia in the context of the morpheme
- Apparent semi-productivity (better with some roots than others)
- Meaning of construction cannot be an operation on "argument structure" but must depend on root semantics independent of argument structure
- Merger cannot involve the "external argument" of a verb (follows from the previous property)

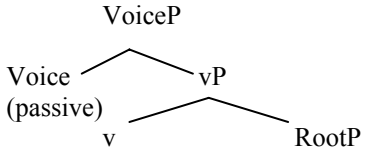
(27) If a head/morpheme merges above a category-determining head/morpheme:
- Compositional meaning predicted from meaning of stem
- Apparent complete productivity
- Meaning of construction can involve apparent operation on argument-structure
- Merger can involve the "external argument" of a verb

These two places are claimed to be implicated in the formation of adjectival and syntactic passives. Adjectival (stative) passives are created with a functional head merging below the agentive head while syntactic (eventive, agentive) passives are created with a functional head merging above the agentive head: respectively, (28a) and (28b) (irrelevant structure omitted). One piece of evidence is that passive verbs inside idioms can only have a stative interpretation but not an eventive one (Marantz 1997).

(28) a. Adjectival passives

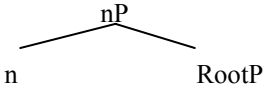


b. Syntactic passives

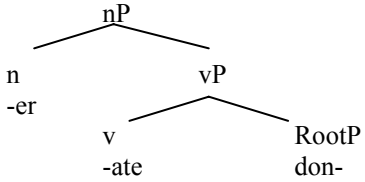


The alternations between idiosyncratic –er and agentive –er can be captured as below.

(29) a. Donor/rotor



b. Donator/rotator



A related challenge is to account for the traditional distinction between derivation and inflection, whereby:

(30) a. inflection is paradigmatic, derivation not
b. inflection is productive, derivation not
c. inflection is transparent, derivation not
d. inflection creates things that can't be mono-morphemic, derivation creates the same kinds of things (Ns, Vs, As) as mono-morphemes already are (from Marantz 2001)

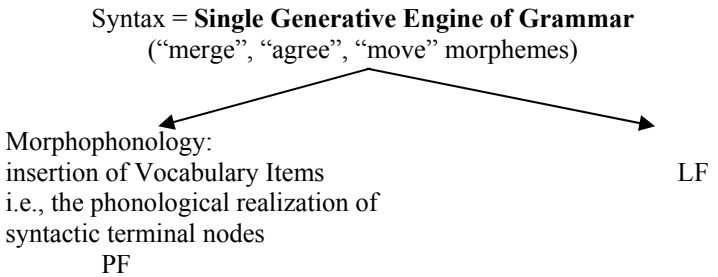
The challenge is met in the same way as the one presented by two types of derivation. For DM there is no distinction between inflection and derivation. Inflection is analyzed in the same way as the first, productive type of derivation which takes place outside the root domain and consequently both share the properties in (27). Hence, the first three properties in (30) should be stated as in (31):

(31) a. syntactic derivation outside the root domain is paradigmatic, e.g. participle forms of verbs used as nouns or as modifiers (As)
a'. syntactic derivation inside the root domain is not paradigmatic
b. syntactic derivation outside the root domain is productive
b'. syntactic derivation inside the root domain is semi-productive
c. syntactic derivation outside the root domain is transparent
c'. syntactic derivation inside the root domain is not transparent

As for the last property (30d), it cannot be true at all since it follows from (24) that Ns, Vs and As cannot be monomorphemic, only roots can: all 'lexical verbs', 'lexical nouns' and 'lexical adjectives' are in fact complex phrasal units (at least bimorphemic).

We end our discussion of DM with the diagram in (32) from Marantz 2001b.

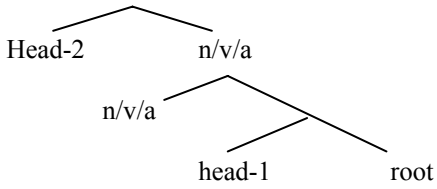
(32) Structure of grammar: the Distributed Morphology/Minimalist Syntax model



1.3.2.2. Some objections to categorization in DM

The basic idea behind DM-categorization is to introduce functional heads which determine the category of a root. Other functional heads are allowed to attach both below and above n/v/a but, since n/v/a determine a categorial boundary, those heads which attach below (of the head-1 type) cannot influence the category of the root.

(33)



Although at first glance such an approach might seem adequate, on further consideration it turns out to have the same amount of explanatory power as the approach based on categorial features. In fact, (33) merely translates Chomsky's original account into syntactic terms: cf. Chomsky's "what makes a root a noun is a [+noun] feature and what makes a root a verb is a [+verb] feature" versus DM's "what makes a root a noun is a little noun and what makes a root a verb is a little verb". DM provides no independent account of what it is to be a verb or a noun.

1.3.2.3. Borer's (2000, 2003, 2004) exo-skeletal (XS) approach

Borer also adopts the strong computational position that syntax is the single locus of computation but that seems to be all similarity with DM[15]. Her structure-driven ('exo-skeletal'/'XS') model is the opposite of lexicalist ('endo-skeletal') approaches which 'build structure around the lexical item as the skeleton'. Within the XS-framework it is the 'outside' syntactic structure that drives the interpretation of lexical items that are inside this structure; lexical items themselves only modify structures and do not determine them.

Before we go into the specifics of this model, let's consider three main arguments advanced by Borer against lexicalist/endoskeletal approaches. The first has to do with redundancy present in such models. For example, the traditional lexical entry for the verb *run* includes, apart from its meaning, the specification that it is a verb and that it has one external argument interpreted as agentive. The same information is also repeated in the syntactic structure: in Borer's (2000) words, "why should the information that *run* is verb be encoded twice, once in the lexical entry, and once in the structure? Why should the interpretation that *Kim* is its subject and that it has particular interpretation be encoded twice, once in the entry, and yet once more, in projecting *Kim* as a specifier of VP?" So there are two ways to go: either to eliminate what is encoded lexically from the syntax or to eliminate what is encoded syntactically from the lexicon. Since syntactic representation has effects on word order, c-command and other purely structural phenomena, "doing away with

[15] Points of divergence between XS and DM will be pointed out where necessary in the course of discussion that follows.

the syntax flies in the face of facts. It therefore follows that we should try to do away with the redundancy by eliminating from the lexicon anything that is syntactically encoded" (ibid.).

A second difficulty with lexicalist approaches lies in the fact that some canonical properties of lexical items listed in their lexical entries can be overridden in the syntax (coercion). For example, nouns lexically specified as common can be made proper and vice versa. In a similar vein, lexically mass nouns can be countified syntactically and lexically count nouns massified. Examples of verbal coercion are cited in (34).

(34) a. The alien stared at Kim.
b. The alien looked at Kim.
c. The alien stared Kim out of the room.
d. The alien looked Kim out of the room.

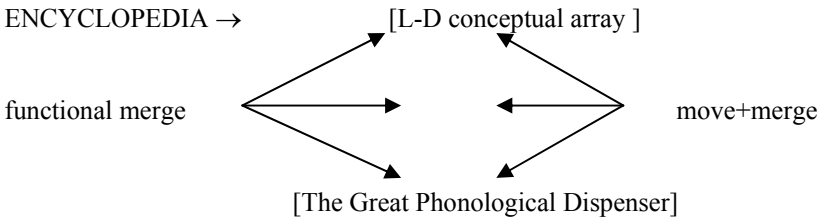
A third problem for lexicalist models is presented by the flexibility of some lexical items with respect to their insertion frames. This flexibility demonstrates itself in the existence of noun-verb-adjective conversion triplets as well as in the absence of constancy of insertion frames for a large number of verbs in English. This is shown in (35) with the help of *siren*, a categorially flexible item, used here as a verb in five distinct syntactic environments.

(35) a. The factory horns sirened throughout the raid.
b. The factory horns sirened midday and everyone broke for lunch.
c. The police car sirened the Porsche to a stop.
d. The police car sirened up to the accident site.
e. The police car sirened the daylight out of me.

These issues problematic for endoskeletal models define three major concerns of the XS-grammar: to eliminate redundancy from grammatical representations, to account for coercion and to accommodate flexibility. As already mentioned above, redundancy is eliminated by eliminating from the lexicon what is syntactically encoded anyway. Secondly and thirdly, once it is assumed that lexical items are devoid of any grammatical information, the need to accommodate coercion and flexibility disappears. Rather, category-neutral roots can be inserted into nominal, verbal or adjectival syntactic structures and no zero affixes have to be postulated. Verbal instability is treated similarly: alternations involving transitive, intransitive, middle *break* are determined not by lexical properties but by the functional structure which dominates *break*. If the structure licenses two arguments, the result will be a transitive *break*, if only one argument is licensed, either inchoative or middle interpretation will result meaning that an intransitive structure comes in two varieties, with distinct properties.

The XS-grammar is schematically represented as in (36) (Borer 2003b).

(36) Structure of grammar: the XS-model



The encyclopedia is a reservoir of sound-meaning pairs - *encyclopaedic items* which are category-less, argument-less concepts. Since Borer's encyclopaedia corresponds to Marantz's (narrow) lexicon and EI's correspond to Marantz's roots, for simplicity we shall refer to both types of reservoirs as the (narrow) lexicon and to both types of lexical items as roots. Roots are selected to form the conceptual array but since no categorical information is available they are inserted as an unordered set into an unmarked lexical phrasal domain (L-D), as in (37a).

The grammar also contains a functional lexicon which is distinct from the lexicon (encyclopedia) and which contains grammatical features (e.g., [+pl], [+pst]) and independent grammatical formatives (e.g., <*the,*[+def]>, <*will*>, <*three*>, etc.)[16]. These formatives, referred to as f-morphs, can be either free (*the, will, three*) or bound (*–ation, -ize, -al, -full,* etc.).

Concerning the projection of functional structure, the following should be mentioned. In the XS-model it is assumed that functional heads (also referred to as functional category labels) such as D, # (Quantity), T, Asp, etc. are open values – $<e>_D$, $<e>_{\#}$, $<e>_T$, $<e>_{Asp}$, etc. – which need to be assigned range. Range assignment can be direct (by an item of the functional lexicon) or indirect (by an adverb of sorts or via spec-head agreement) (shortly we will consider the two modes of direct range assignment). The inventory of functional heads and their order is fixed by UG and is a constant of all human grammars. During derivation a particular functional category label will merge with L-D and project functional structure. The particular kind of functional structure projected will categorize L-D.

Consider a specific derivation based on L-D (37a), in a language in which verbs are inflected for tense, e.g. English. Once Tense is merged, it is assigned range – in (37) by the feature <pst> – and any item from the L-D array can merge with it (abstracting away from the (c)overt nature of verb movement). Projecting Tense turns L-D into VP and whichever element merges with T, becomes V, the head of $[_{L\text{-}D}$ VP], cf. (37c-d-e). The remaining, non-head constituents in e.g. (37d) – *sink* and *dog* – will become categorized as DPs or PPs, also through embedding under appropriate functional structure (see below).

[16] Independent grammatical formatives (i.e. free/bound f-morphs) such as <*the,*[+def]> do contain phonological material, hence, during syntactic derivation not only roots are associated with phonological form but also some (but not all) grammatical features. This is in contrast with DM where only roots are exempt from late insertion.

(37) a. $[_{L\text{-}D}$ sink, boat, dog]
b. $[_{T}$ <pst>$_{T}$ [L-D sink, boat, dog]]
c. $[_{T}\ [_{V}$ sink]-<pst>$_{T}$ $[_{VP}\ [_{V}$ ~~sink~~], boat, dog]] (sank)
d. $[_{T}\ [_{V}$ boat]-<pst>$_{T}$ $[_{VP}$ sink, $[_{V}$ ~~boat~~], dog]] (boated)
e. $[_{T}\ [_{V}$ dog]-<pst>$_{T}$ $[_{VP}$ sink, boat, $[_{V}$ ~~dog~~]] (dogged)

The derivations in (37c-d-e) will only converge if the post-syntactic phonological storage component will dispense a well-formed phonological representation for [sink+<pst>], [boat+<pst>] and [dog+<pst>]. Since *sank, boated and dogged* are possible, the derivations do converge. If no phonological representations were available, the derivations would have crashed.

The derivation in (37) represents one mode of assigning range to an open value associated with a functional head: by a grammatical feature which triggers the raising of a lexical item from L-D. There is a second mode of direct range assignment associated with periphrastic constructions in general and English future tense derivation in particular. If T were assigned range by <fut>, a derivation along the lines of [sink+<pst>] → *sank* would not converge because there is no appropriate phonological representation for [sink+<fut>] → *crash*!. However, a derivation along different lines is possible because there is an f-morph with a phonological index, viz. *will*, which can be merged into T assigning range to the open value in T and blocking head movement from L-D resulting eventually in *will sink*.

Thus, Borer's F-lexicon contains three types of elements – 1) phonologically abstract grammatical features; 2) phonologically specified free f-morphs such as *the, will*; 3) phonologically specified bound f-morphs such as *–ation, -ize, -al, -full*. The difference between features (1) and free f-morphs (2) reflects itself in the difference between the two modes of direct range assignment as discussed. Categorization, on the other hand, cuts between (1-2) and (3). We have just witnessed how categorization by functional structure takes place – in particular, how L-D will end up being categorized as VP both in the 'sink'- and 'will sink'-derivations. This type of categorization can also derive NPs if L-D is embedded under D or # (Quantity) which is also a nominalizer, alongside D. (38) shows VP categorization by T and NP categorization by D and #. <…> represents a range which must be assigned to a functional category – i.e. its open value.

(38) N(P)/V(P) categorization by functional structure

$[_{T}$ <…>$_{T}$ $[_{L\text{-}D}$ form]]	L-D → VP
$[_{D}$ <…>$_{D}$ $[_{L\text{-}D}$ form]]	L-D → NP
$[_{\#}$ <…>$_{\#}$ $[_{L\text{-}D}$ form]]	L-D → NP

Thus, categorization by functional structure is simply the result of merging a functional head with L-D. Categorization can also be achieved through morphological structure: this type of categorization will involve bound f-morphs (3) of the functional lexicon. For instance, *-ation* is an f-morph, it has a syntactic category N and it takes a morphological complement which, if it is not yet associated with a category, will be categorized as verbal by *–ation* (if the

complement is already categorized, its category remains unchanged) whereas the whole structure consisting of the complement and *–ation* will become a noun. The information carried by *–ation* is represented in (39a). When *–ation* applies to a bare root such as *form*, the latter will be verbalized. If the complement is already verbal such as *formalize*, nothing will change. Hence, both *form-* in *formation* and *formaliz(e)-* in *formalization* are verbs. The same considerations apply to the adjectivizer *–al* (39b).

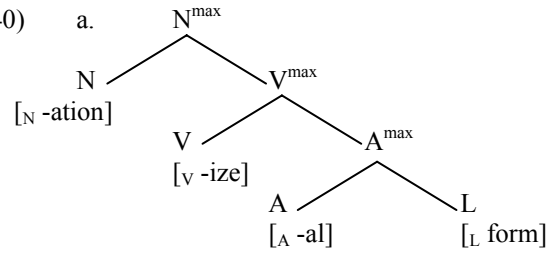
(39) Categorization by morphological structure (by bound f-morphs)

a. *–ation*, N, [[$_{V}$] __$_{N}$]

b. *–al*, A, [[$_{N}$] __$_{A}$]

Categorization by morphological structure can be implemented syntactically by e.g. assuming that –ation, -al, -ize, etc. merge in the syntax as N, A, V with subsequent head raising from L-D as in (40a-b).

(40) a.



b. [$_{NP}$ [$_{N}$ form-al-iz-ation [$_{VP}$ [$_{V}$ ~~form-al-ize~~ [$_{AP}$ [$_{A}$ ~~form-al~~ [$_{L-D}$ ~~form~~]]]]]]]]

1.3.2.4. Some objections to the XS-model

It has been shown above in 1.3.2.1 how much care DM puts into handling special versus regular meanings of lexical items and into explaining the nature of the traditional derivation versus inflection dichotomy. A clear opposition emerges within DM, both structurally and cyclically motivated, between two places of word formation – the domain of the root below the category-determining morpheme and the domain above the category-determining morpheme. The former correlates with special word meanings and irregular derivation, the latter – with regular word meanings and inflection/regular derivation. The XS-approach is radically different in its treatment of both special meanings (1.3.2.4.2) and the derivation/inflection dichotomy (1.3.2.4.3). It is also marked by considerable overgeneration (1.3.2.4.4). First, however, two objections to the XS-model of categorization.

1.3.2.4.1. Objections to XS-categorization

First, categorization by morphological structure can only be maintained in a language where noun-, verb- and adjective-deriving affixes differ from each other. Given a language in which the same affixes are used extensively in nouns, verbs and adjectives, morphological categorization would be rendered void. It will be shown in chapter 2 that indeed, categorization by morphological structure is a language-specific mechanism constrained by the affixal inventory of a particular language: for instance, Sakha, where affixal ambiguity is common, cannot make use of this mechanism[17].

If a language cannot categorize morphologically, then the only option left is to categorize functionally as in e.g. (38). But what (38) states is simply that what makes a verb a verb is a Tense node and what makes a noun a noun is a D node or a quantifier. In other words, verbs are those categories which can be inflected for tense and nouns are those categories which can occur with determiners and quantifiers. This is, however, a purely descriptive generalization repeatedly stated in descriptive grammars which is itself in need of explanation. In this dissertation we will offer an explanation for various category-specific morphosyntactic properties (e.g. tense inflection with verbs, case inflection with nouns, etc.) in line with Baker's (2003) insight that the ability of verbs to inflect for tense is connected with their thematic properties (see 1.5 below).

1.3.2.4.2. Special meanings as idioms

First, there can be no special meanings of roots. To recall, Borer's roots are sound-meaning pairings where understood by 'meaning' is a particular conceptual value associated with a root, e.g. the concept 'table'. When a root is embedded under functional structure (and any root can become embedded under any functional

[17] This is one type of affixal promiscuity when the same affix is used cross-categorially. Another type is mentioned in Marantz 2001b when the same affix can attach across domains: English *–er*, for instance, can be suffixed 1) right above the root (with no categorial head intervening) as in *donor, rotor, debtor, malefactor, benefactor* or 2) above a category-determining v as in *donator, rotator, driver, writer*.

structure), there can be no interaction between the two because roots are like phonologically stamped 'conceptual packages' which are 'hermetically sealed'. In particular, syntactic structures cannot affect the meanings of roots, nor can the meanings of roots affect structures and therefore conceptual properties of words have no grammatical reality. Where in DM we have considerate negotiations with the encyclopedia (a list of special meanings) in the root domain, in the XS-framework we have blunt coercion of roots by functional items. To be more specific, the conceptual packages can be opened and may contribute their conceptual value to the overall semantic interpretation only when the syntactic derivation is over. By this time, however, the grammar would have already assigned a particular interpretation to the syntactic structure and all that a root can do is to match the meaning of its concept to the grammatical meaning of the functional structure. In many cases, the meanings of concepts will be stretched in order to accommodate the grammatical meaning[18].

In such a system a root is a combination of a unique phonological index with a unique concept and no grammatical information can be coded on the root. Morphological derivatives are also a function of syntax. All meanings of a root are determined by syntax. However, it is impossible to expect syntax to coerce the meaning 'die' on *kick the bucket*. Whereas in DM the formation of idioms is a syntactic process (albeit in the domain of the root – the domain of special meanings) subject to general constraints of syntax, the XS-model allows a special device which can override all syntactic constraints. This device is the formation of idioms and one resorts to it whenever "there is an obvious tension between the existence of a complex hierarchy alongside non-compositional meaning" (Borer 2004, chapter 20). This is the case for *kick the bucket, cross that bridge when we come to it*, pluralia tantum like *trousers*, verb-particle combinations like *depend on, take over* and bimorphemic verbs like *remit, commit, submit,* etc. Formal properties of these fixed expressions are like formal properties of the corresponding non-idiomatic expressions: *trousers* is like *shirts*, *depend on* is like *sit on*, *kick the bucket* is like *kick the bucket* meant literally. However, the meanings of idioms are not compositional and must be listed in the narrow lexicon. The way idioms are entered in the lexicon is outlined below.

A simple root, for example *lamp*, is just a sound-meaning pair represented as in (41) where MEANING is whatever a concept means and π stands for the phonological index (p.i.).

(41) a. MEANING ⇔ π
b. LAMP ⇔ /lamp/

In idioms the pairing goes as in (42). (42a) shows a simplex idiom, *trousers,* (42b) – a complex one, *kick the bucket*. In both cases, TROUSERS and KICK THE

[18] Cf. "one should never underestimate the stretching abilities of concepts. After all, even *square circles* can be assigned an interpretation. The more the conceptual system stretches, the more the utterance will appear odd, and at times, the oddity may be so extreme that it becomes difficult to distinguish from a straightforward case of ungrammaticality, where by ungrammaticality I would like to refer exclusively to the effect created by the violation of formal computational principles" (Borer 2004, chapter 1).

BUCKET are whatever the idioms in question mean as a single semantic unit: no meaning can be assigned to the constituent parts, only to the large whole. Complex structure is built not into the meaning part but into the sound part: p.i.'s are associated with pieces of functional structure that must be assigned range.

(42) a. TROUSERS $\Leftrightarrow$ [π_3+<e>$_{div}$]
π_3 = p.i. /trauzer/
<e>$_{div}$ = an open value which performs a dividing function and which heads Classifier Phrase; can be assigned range by plural inflection

b. KICK THE BUCKET $\Leftrightarrow$ [π_5+<e>$_{Asp}$]+[π_6+<$e^{\pi 7}$>$_{div}$]
π_5 = p.i. for *kick*, π_6 = p.i. for *bucket*, π_7 = p.i. for *the*
Asp = a verbalizing functional node responsible for the licensing of a direct argument

The details of derivation in (42) are not crucial for the present concerns. What is crucial is the fact that complex structure built into the lexical representation of the idioms *trousers/kick the bucket* entirely parallels functional structure implicated in the syntactic derivation of *shirts* and *kick the bucket* (on its literal interpretation). The only difference is that in the former case functional structure is encoded lexically and in the latter it is derived syntactically.

The postulation of such a specific idiom-forming device and the presence in the lexicon of hierarchical functional structure undermines greatly the strength of the strong computational position adopted by the XS-model. Borer (2004) acknowledges the validity of objections against idiom formation and, pending further XS-research into the nature of idioms, leaves the matter as it is.

1.3.2.4.3. The derivation/inflection dichotomy

As shown above, in DM this traditional distinction has no theoretical value. The relevant distinction is between, on the one hand, irregular derivation placed in the domain of the root and, on the other, regular derivation and inflection which occur outside the domain of the root. In the XS-framework the derivation/inflection dichotomy also has no direct translation[19]. Inflection is considered regular, but only from a functional point of view: if PAST and PROGRESSIVE are functions, the interpretation of words inflected for PAST and PROGRESSIVE will be entirely compositional. However, when one tries to predict form from function, inflection bifurcates. One type of inflection associated with e.g. PROGRESSIVE is fully predictable and involves *ing*-suffixation. Another type associated with e.g. past tense derivation in English is unpredictable: it yields forms as divergent as *ate, drove, put,* etc. Based on these observations Borer proposes to view irregular, unpredictable inflection with no form-function correspondences as non-morphemic and not

[19] Since many issues with respect to derivational morphology still remain unresolved in the XS-approach pending further research by XS-minded syntacticians, an exhaustive comparison of the two morphological frameworks (DM and XS) cannot yet be undertaken.

involving hierarchical structure. Thus, she subscribes to the amorphous (in accordance with Anderson 1982, 1992) view of irregular inflection and to the morphemic view of regular inflection (e.g. progressive –ing). This distinction is formally encoded as the distinction between features and bound f-morphs. Recall that the elements of the functional lexicon are classified into phonologically abstract grammatical features and phonologically specified f-morphs, bound (*-ation, -al, -ize*, etc.) and free (*the, will, all, every, three*, etc.). The final picture that emerges treats irregular inflection as amorphous [feature]-based and regular predictable inflection as morphemic [bound f-morph]-based. There is one point of convergence between the two, however: both require L-head support and therefore trigger the movement of some L-head from L-D. To sum up, the [L-head.<feature>] combination such as V.<pst> spelled out as *ate* or *put* is a morphological simpleton. On the contrary, the [L-head.<bound f-morph>] combination such as V.<ing> spelled out as *eating* or *putting* is bimorphemic.

The final picture can be sketched as in (43) and (44). In (43a)-(44a) a lexical head is embedded under a syntactic structure. The open values of functional heads F1, F2 and F3 can be assigned range either by features (43b) or by bound f-morphs (44b). In both cases the L-head raises to support either features or bound f-morphs. The resulting syntactic representations are (43c) and (44c). (43d) and (44d) are the respective inputs to the phonological component. (43d) is a morphological simpleton and nothing precludes it from being spelled out by a single morpheme: "there is no expectation for either linear or hierarchical correlations between the syntactic structure and the placement of inflectional marking" (Borer 2004, chapter 2). On the contrary, such an expectation is clearly present in (44d). If we substitute *–al, -ize* and *–ing* for, respectively, <f-morph3>, <f-morph2> and <f-morph1>, the actual form would be *verbalizing* and not **verbingalize, *verbalingize* or **verbizealing*.

(43) Range assignment by features:

a. $[_{F\text{-}1}\ \langle e\rangle_{F1}\ [_{F\text{-}2}\ \langle e\rangle_{F2}\ [_{F\text{-}3}\ \langle e_{F3}\rangle\ [_{L\text{-}D}\ \textit{L-head}\ ]]]]$

b. $[_{F\text{-}1}\ \langle \textbf{\textit{f1}}\rangle.\langle e\rangle_{F1}\ [_{F\text{-}2}\ \langle \textbf{\textit{f2}}\rangle.\langle e\rangle_{F2}\ [_{F\text{-}3}\ \langle \textbf{\textit{f3}}\rangle.\langle e_{F3}\rangle\ [_{L\text{-}D}\ \textit{L-head}\ ]]]]$

c. $[_{F\text{-}1}\ \textit{L-head}.\langle \textbf{\textit{f3}}\rangle.\langle \textbf{\textit{f2}}\rangle.\langle \textbf{\textit{f1}}\rangle\ \langle e_{F1}\rangle\ [_{F\text{-}2}\ \sout{\textbf{\textit{L-head}}}.\langle \textbf{\textit{f3}}\rangle.\langle \textbf{\textit{f2}}\rangle\ \langle e_{F2}\rangle\ [_{F\text{-}3}\ \sout{\textbf{\textit{L-head}}}.\langle \textbf{\textit{f3}}\rangle\ \langle e_{F3}\rangle\ [_{L\text{-}D}\ \sout{\textbf{\textit{L-head}}}\ ]]]]$

d. *L-head*.<***f3***>.<***f2***>.<***f1***> (with {<***f3***>.<***f2***>.<***f1***>} as an unordered set)

(44) Range assignment by bound f-morphs:

a. $[_{F\text{-}1}\ \langle e\rangle_{F1}\ [_{F\text{-}2}\ \langle e\rangle_{F2}\ [_{F\text{-}3}\ \langle e_{F3}\rangle\ [_{L\text{-}D}\ \textit{L-head}\ ]]]]$

b. $[_{F\text{-}1}\ \langle \textbf{\textit{f-morph1}}\rangle.\langle e\rangle_{F1}\ [_{F\text{-}2}\ \langle \textbf{\textit{f-morph2}}\rangle.\langle e\rangle_{F2}\ [_{F\text{-}3}\ \langle \textbf{\textit{f-morph3}}\rangle.\langle e_{F3}\rangle\ [_{L\text{-}D}\ \textit{L-head}\ ]]]]$

c. $[_{F\text{-}1}\ \textit{L-head}.\langle \textbf{\textit{f-morph3}}\rangle.\langle \textbf{\textit{f-morph2}}\rangle.\langle \textbf{\textit{f-morph1}}\rangle\ \langle e_{F1}\rangle$

[$_{F\text{-}2}$ ~~*L-head*~~.<***f-morph3***>.<***f-morph2***> <e$_{F2}$>

[$_{F\text{-}3}$ ~~*L-head*~~.<***f-morph3***> <e$_{F3}$> [$_{L\text{-}D}$ ~~*L-head*~~]]]]

d. *L-head*.<***f-morph3***>.<***f-morph2***>.<***f-morph1***>

In the XS-system, if sequences *L-head*.<***f3***>.<***f2***>.<***f1***> and *L-head*.<***f-morph3***>.<***f-morph2***>.<***f-morph1***> were always spelled out as they are, not only reflecting the surface order but also preserving the scope of affixes, such a state of affairs would be expected only for the latter, for the former this would be purely accidental. Again, it would be entirely accidental if the same affixes that are classified as bound f-morphs were employed to spell out sequences such as the ones in (43d). More testing ground for the XS-model of morphology is presented by the possibilities of mixed range assignment: if in (43/44-a) F1 were assigned range by a feature, F2 by an f-morph, F3 again by a feature, how would this be spelled out? In fact, the very existence of such mixing (morphologically reflected in affix mixing) would undermine the XS-treatment of inflection because the XS-model should not allow a sequence *L-head*.<***f3***>.<***f-morph2***>.<***f1***>, where the two features are separated by an f-morph, because such a sequence will not receive a phonological representation. This is because the XS-grammar endorses the Word & Paradigm model: *L-head*.<***f3***>.<***f-morph2***>.<***f1***> is not a morphological simpleton/singleton because the feature sequence is disrupted by an intervening f-morph with a phonological index, therefore the search for an appropriate member of the relevant paradigm will also be disrupted.

The division between features and f-morphs explains not only language-internal variation pertaining to inflection and derivation but also plays an important role in deriving interlinguistic variation. Since the inventory of functional heads and their order is fixed by UG, interlinguistic variation has nothing to do with functional hierarchy: instead, it has to do with the mode of direct range assignment. For instance, <e>$_{d}$ can be assigned range by the feature <def> as in Hebrew or by a free f-morph *the* as in English. Thus, the issue of inter-language variation ultimately turns on the language-specific aspects of the functional lexicon, in particular: which features are phonologically abstract and which are phonologically specified and therefore count as f-morphs; among f-morphs, which are bound and which are free. These considerations allow one to transpose the system into a different language and check if the three expectations discussed in the previous paragraph hold. The exoskeletal morphological model will be flawed 1) if *L-head*.<***f3***>.<***f2***>.<***f1***> were always spelled out reflecting affixal hierarchy, just like *L-head*.<***f-morph3***>.<***f-morph2***>.<***f-morph1***> → such regularities cannot be purely accidental; 2) if the same affixes would regularly spell out *L-head*.<***f3***>.<***f2***>.<***f1***> and *L-head*.<***f-morph3***>.<***f-morph2***>.<***f-morph1***> → again, such regularities cannot be purely accidental; 3) if the sequence *L-head*.<***f3***>.<***f-morph2***>.<***f1***> were allowed.

Transposing the system into Sakha, our language of interest, can give us the following insights (anticipating what is yet to come in the empirical part of the dissertation). The XS-model would assume that case and agreement are encoded with the help of features whereas causative, plural, reflexive, passive, various nominalizers, verbalizers and adjectivizers are f-morphs. As it turns out,

phonological realization of both case and agreement respects syntactic hierarchy in that the surface order of the suffixes spelling out case and agreement reflects their order of embedding in the functional hierarchy. Secondly, there are significant correspondences between, on the one hand, case and agreement suffixes and, on the other, suffixes used in derivation. Thirdly, agreement and case features are always spelled out at the right periphery separated from the lexical head by a number of f-morphs.

Finally, it has to be noted that subscription to the amorphous view of (at least some) inflection makes the XS-model susceptible to arguments against amorphous morphology in general that were levelled in the literature (e.g. Don 1993, Marantz 2001a). In particular, Don (1993:91) underlines the validity of Baker's Mirror Principle that the order of affix attachment reflects the order of derivational processes.

1.3.2.4.4. Overgeneration

The XS-system with its emphasis on explaining flexibility ignores rigidity and predicts that in principle all roots should behave like the English *siren* that can be inserted in virtually any syntactic context – as a noun, verb or adjective (for flexibility of *siren* as a verb cf. (35)). However, the behavior of the English *siren* and the like is more of an exception: generally, argument-structure and syntactic category alternations are marked with appropriate morphology in a broad range of languages. The fact that the XS-grammar results in massive overgeneration is acknowledged in Borer (2004, chapter 20) and a suggestion is made so as to curtail overgeneration.

Flexibility of English *form* (*a form*; *to form*) as opposed to rigidity of Sakha *as* 'to open' (restricted to a verbal transitive context; all other contexts require morphological marking) can be explained if one makes a distinction between a root's phonological index and a phonologically well-formed word. In the XS-grammar it is roots (combinations of conceptual values with phonological indices) which are flexible and can be embedded under any structure. Plasticity of *form* entails that *form* is a phonological index which also happens to be a phonologically well-formed word. Thus, for a large part of substantive vocabulary in English phonological indices correspond to phonologically well-formed words. An extreme opposite of the situation in English occurs in the Semitic languages "where, plausibly, (non-borrowed) phonological indices are never well-formed phonological words" (ibidem). Semitic consonantal roots must be embedded under formal structure before they can surface as independent words. Hence, all well-formed words in Semitic already have a derivational history and are therefore endowed with a syntactic category which greatly restricts their combinatorial possibilities. They are thus similar to English *formation*, also already derived and categorized, hence syntactically rigid.

These considerations do not restrict the generative power of the XS-model: flexibility is still the rule for underived, category-less roots but rigidity can be explained now by appealing to the internal complexity of anything that is rigid. Following this logic, *as* 'to open' from Sakha is inflexible because it contains some formal structure which categorizes it as a transitive verb. Similarly, inflexible *as*

'food' is also internally complex and contains nominalizing structure. Delving deeper into this internal structure, we are led to say that in both *as* 'to open' and *as* 'food' there is a certain phonological index (presumably paired with a conceptual value) which is embedded under a verbalizer/nominalizer. In the XS-framework one readily available means to treat such internally complex items is to list them as idioms but such a solution is highly unattractive (see section 1.3.2.4.2). Besides, we would have to assume that a major portion of Sakha substantive vocabulary is listed in this way – as phonological indices embedded under functional structure with a meaning assigned either to the phonological index itself or to the structure as a whole. The same effect can be achieved by listing lexical items together with categorial feature specifications.

That such an approach to rigidity based on listing idiomatic structures is unsustainable for Sakha is further emphasized by the fact that the remaining portion of Sakha substantive vocabulary is actually built on bound roots which are not independent words and in order to appear as such they must be suffixed with some nominal, verbal or adjectival morphology. For instance, √türge- can become a verb (*türget* 'make quick') or an adjective (*türgen* 'quick'), √kice- can become *kicel* 'effort, diligence' or *kicej* 'be diligent', etc. (a comprehensive treatment of bound roots is yet to come). Bound roots like √türge- or √kice- are phonological indexes paired with conceptual values, i.e. they are roots par excellence – elements listed in the narrow lexicon. Yet, even they display rigidity: some can become nouns and verbs, some → nouns and adjectives, some → verbs and adjectives and others → nouns, verbs and adjectives. Importantly, the latter type – flexible roots – are the minority.

1.4. Two alternative approaches to argument structure

After having considered DM- and XS-models of categorization, now it's time to consider their treatment of argument structure. As already mentioned in 1.3, lexical categories consistently display different thematic properties: nouns typically do not take arguments, verbs do, adjectives show variable behavior. A theory of categorization or argument structure which does not connect categorial differences to thematic ones would miss a significant generalization. Section 1.3 contained a quick general overview of DM- and XS-frameworks concerning their position on this issue. In particular, it was mentioned that the XS-approach is able to capture the interdependence of argument structure and categorization because argument-introducing functional heads are actually eventive/verbalizing heads, whence the obligatoriness of arguments with verbs. On the contrary, in DM argument-introducing functional heads do not necessarily have a verbalizing function and can be inserted in nominal structures: hence, the link between categorial and thematic properties is missed. In this section we shall consider in detail DM- and XS-accounts of argument structure. Apart from the absence of the categorial/thematic link in DM and its presence in XS, the approaches differ in a number of other respects. A major difference has to do with the recurrent appeal that DM makes to the lexical semantics of roots whereas in the XS-model the lexico-semantic information carried by roots plays no role whatsoever.

There is, however, a fundamental point of convergence: both DM- and XS-models deny the lexicon any computational power to alter thematic properties of its entries and therefore share the same configurational/structural/syntactic approach to argument structure. As such, they are both in opposition to a conceptual/thematic account advanced in Reinhart (2000, 2001, 2003) which makes use of theta features and thematic arity operations parameterized to take place either in the lexicon or in the syntax.

The discussion to follow is organized as follows: section 1.4.1 will concentrate on Hale and Keyser's, Marantz's and other DM-work, section 1.4.2 on Borer's work and section 1.4.3 on Reinhart's Theta System.

1.4.1. DM's approach to argument structure

The conservative lexicalist view maintains that information on argument structure is listed in the lexical entries of individual lexical items. Thus, the lexical entry for *laugh* would contain information that it is an intransitive verb which takes an agent argument. This information coupled with some mapping principles would ensure that a particular syntactic structure is built for *laugh* with the agent argument projected externally in the appropriate specifier position. The view on argument structure entertained within DM and within configurational approaches in general is radically different from the conservative view. The relation is not "a particular thematic role → a particular syntactic position" but rather "a particular syntactic position → a particular 'thematic role', i.e. particular interpretation of an argument". For instance, as proposed in Harley 1995, an argument merged in the specifier of Event Phrase is assigned the interpretation of Agent.

An important step in this direction was undertaken in Hale & Keyser's (1993) work which proposed to encode thematic role information present in the lexical entry in syntactic, configurational terms. Each lexical category (V, N, A, P) would project an unambiguous structure conforming to the universal specifier-head-complement format[20] - a lexical argument structure, or lexical relational structure (LRS). The traditional thematic roles are eliminated: in the new framework they would correspond to specifier-head or head-complement relations within verbal, nominal, adjectival or prepositional LRS's[21].

As an example, we can consider the contrastive derivations of, on the one hand, denominal location and locatum verbs and, on the other, deadjectival unaccusative verbs in English within the framework of H&K 1993. Location and locatum verbs are always transitive and have no intransitive alternates. In contrast, deadjectival verbs like *clear* have both transitive and intransitive alternates. Both types of verbs, however, can participate in the middle formation.

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[20] The presence of a specifier is not obligatory and dictated only by the principle of Full Interpretation which forces the appearance of a subject only if the complement position is predicative: if no subject were present, the predicative complement would be left uninterpreted.

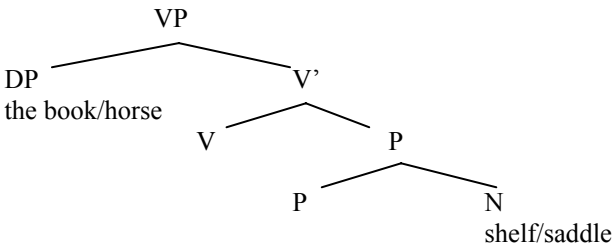
[21] H&K use the limited size of the inventory of lexical categories (restricted to V, N, A, P) to explain the previously unexplained traditional observation that the inventory of thematic roles is also small (agent, experiencer, goal, source, location, theme, patient and possibly a few others): this follows from the limited number of relations (specifier and complement) within four types of lexical projections (VP, NP, AP, PP).

(45) a. I shelved the books.
b. *The books shelved.
c. These books shelve easily.

(46) a. I cleared the screen.
b. The screen cleared.
c. This screen clears easily.

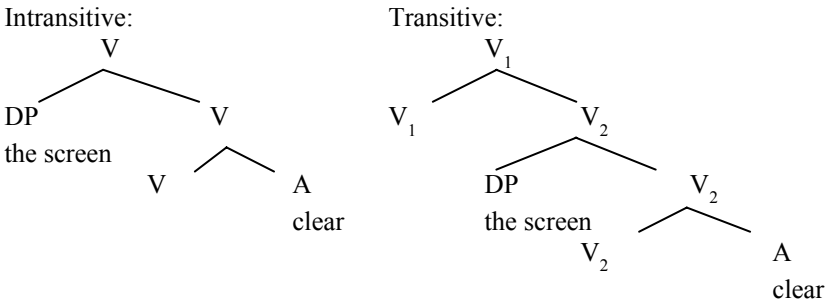
The structure assigned to location and locatum verbs is as in (47). These verbs involve a VP built on top of PP and for this reason they fail to detransitivize: under detransitivization the upper V must be omitted but this would leave a PP, not a verbal projection. The formation of location and locatum verbs proceeds similarly: the noun complement of P incorporates into P, then the whole P+N complex incorporates into V. If P were not null, N-incorporation would be blocked which explains the ungrammaticality of **he shelved the books on*. The LRS representation of location verbs is also shared by the English verb *put (a book on a shelf)* and of locatum verbs – by *provide/fit (a horse with a saddle)*.

(47) Location verbs: *shelve, corral, box*
Locatum verbs: *saddle, hobble, blindfold, harness, shoe*



In contrast, verbs which allow transitive-intransitive alternations involve two V-layers: a causative/transitive V on top of intransitive VP. Such are, for instance, unaccusative deadjectival verbs in (48).

(48) Unaccusative de-adjectival verbs: *clear, narrow, thin, widen, redden*:



Middle formation is possible both for strictly transitive location/locatum verbs and for transitive/intransitive alternating verbs. This is because middles are analyzed as derived from transitive verbs: if they were derived from intransitives, location and locatum verbs which lack intransitives would disallow middles. H&K view middles as lacking an external argument: the driving force behind Middle Formation is the inability of the verb to assign Case to the specifier (*the book, the horse, the screen*). Since the DP has to be Case-licensed, it will raise to the sentential syntactic subject position blocking the appearance of the external argument.

Thus, restrictions on argument structure alternations are purely syntactic. Here, however, one important point must be mentioned. Lexical relational structures (e.g. those shown in (47) and (48)) are lexical in the sense that their formation takes place in the lexicon and not in the syntax. At the same time, they are syntactic in the sense that they are subject to the same principles operative in the syntax, for instance, the same restrictions which govern syntactic head movement apply in the lexicon to the P-N-V incorporation implicated in the derivation of *to shelve/to saddle*. Therefore H&K make a distinction between l-syntax (syntax in the lexicon) and s-syntax (syntax as normally understood). One important difference between the two is that no functional categories are involved in structures and processes which occur in l-syntax and movement is from one lexical head to another (and never to a functional head) whereas strictly syntactic phenomena make reference to functional categories (I, Case, etc.).

A number of important assumptions made in H&K 1993 were revised in later work (H&K 1998, 2000). For instance, H&K 1998 note the need to extend the theory which derives argument structure solely in terms of specifier/complement relations. Such a theory is too restricted and cannot derive e.g. the differences between *splash*- and *smear*-type verbs. The extension offered in H&K involves reference to bound features (agent-manner, patient-manner, obviative, proximate): these features do not stem from syntactic configurations but are present in lexical items themselves, as an integral part of their lexical meaning. Thus, lexical semantics of agent-manner verbs like *smear, daub, rub, wipe* includes an adverbial feature which describes the actions of the external argument. On the contrary, *splash*-type verbs (*splash, drip, dribble, spill*) include in their lexical-encyclopedic entries an adverbial semantic feature which is associated with the internal argument[22]. Similarly, psych nouns such as *respect* and *anger* which give rise to, respectively, subject- and object-experiencer verbs, bear the «part» relation to some entity – the «whole» (i.e. the emotions 'respect' or 'anger' are attributed to the experiencer). This part-whole relationship is also lexically present in the meanings of psych nouns and their related experiencer verbs and not syntactically derived. It is informally captured by attributing to a psych noun an anaphoric index (in need of binding) which is obviative in the case of *respect* and proximate in the case of *anger*.

The extension of H&K's framework based on bound features is in fact a departure from their original research agenda which attempts to derive argument

[22] Such a solution based on manner features is outlined already in H&K (1993).

structure solely in terms of syntactic configurations. The need for such an extension shows that argument structure cannot be reduced to syntactic configuration only.

In H&K (1993) it is assumed that denominal/deadjectival verb formation involves lexical incorporation. This analysis is modified in later work which differentiates between conflation (previously lexical incorporation) and syntactic incorporation. Conflation is now viewed as a concomitant of the Merge operation: it is a relation between Merge-partners and involves only lexical heads. E.g., unergative verbs like *laugh, sneeze,* etc. involve a verbal head with no phonological features (in other words, with a defective p-signature symbolized by ∅) plus the complement with a substantial p-signature, [laugh] in (49). When these items are selected and Merged, the nominal p-signature is copied into the empty slot in the verbal head in (49).

(49) Head Complement
{V, [∅]} {N, [laugh]}

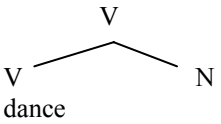
In (49) the verbal head is entirely empty whereas in (50) the verbal head is –en which combines with the empty root [∅]. When Merge takes place, [∅] is replaced by (conflated with) [thick]. Under spell-out, both in (49) and (50) the p-signatures will be spelled out under the verbal head and will be deleted from the N/A-complement position.

(50) Head Complement
{V, [[∅]en]} {A, [thick]}

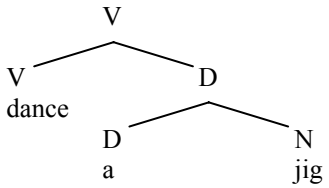
The theory of conflation elaborated with additional complications can also handle true cognate object constructions such as *he laughed his last laugh*. However, the whole edifice of Conflation collapses under the weight of the hyponymous argument constructions such as *he danced a jig* or *he bagged the potatoes in a gunnysack* leaving us with the final picture in which 'denominal' verbs are not derived by zero morphology from the corresponding nouns as suggested in (49).

Instead, it is proposed that the Vocabulary already contains e.g. the verb *dance* which is not derived from the noun *dance* and nothing prevents it from being inserted in the verbal slot in (51a) or (51b) taking a nominal complement on a par with a straightforward verb such as *make* (52). H&K maintain that the nominal complement must be licensed: in (51b) and (52b) the overt nominal complement is licensed as a DP. In (51a) and (52a) the complement is a bare null N. The contrast in grammaticality between (51a) and (52a) suggests that the bare N is licensed in the former but not in the latter. What licenses the null N in (51a) is the classificatory relation between the certain semantic features of the verbal head and the nominal argument (classical semantic selection). The same kind of classificatory relation is involved in (51b) where *jig* is classified as a kind of dance and not as a kind of tune as in *whistle a jig*. In contrast, *make* as a light verb is devoid of the relevant 'nominal' component necessary in order to establish a classificatory relation with the bare N.

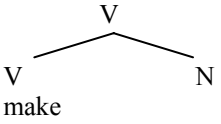
(51) a. John danced.



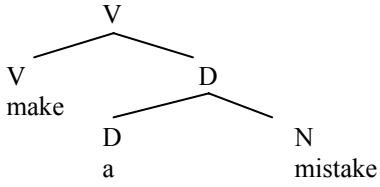
b. John danced a jig.



(52) a. *John made.



b. John made a mistake.



Comparing (51a) to (49) shows that, in a way, the licensing relation is reversed. Whereas in (49) the nominal complement licenses the empty verbal head, in (51a) the overt verbal head licenses the empty nominal complement. This licensing reversal is important in one respect: it is a further[23] departure of H&K's system from its original goal of deriving argument structure from syntactic configurations only. Although the meaning of (51a) is indeed entirely predictable from the syntactic configuration, the asymmetry between (51a) and (52a) still must be explained and it cannot be explained without making reference to the semantic component of verbs such as *dance*: it is their lexical semantics which enables them to enter the classificatory relation binding the empty N and therefore licensing object omission. If *laugh* or *dance* were derived as in (49), there would be no asymmetry between *dance*-verbs and *make*-verbs since entirely different derivations would be involved.

The final conclusion reached by H&K is consistent with the view advanced in Marantz 1997 and other work in DM that there are no denominal verbs such as *dance, laugh, saddle, corral*, etc., rather there are roots, categorically indeterminate items, which can be inserted in different categorial contexts. This is a good point to make a transition to argument structure in DM proper but before moving on one last remark is in order. H&K do not attempt to explicate the nature of lexical categories V, N, P and A: their goal is to use these lexical categories to explicate the properties of argument structure. However, since the issue is circular here, their framework is inclined more than any other towards the view that lexical categories can be identified with the configurations they project (cf. H&K 1998, note 7). Considering that a given head may enter into {one/both/neither} of specifier/complement-head relations, there turn out to be precisely four configurations, three of which are associated with a particular lexical category in H&K's framework (the [Specifier [Head]] configuration cannot be realized for independent reasons, namely, a head cannot take a specifier without first taking a complement):

(53) a. [Head-Complement] → Head = V

[23] Cf. the discussion of bound features above.

b. [Specifier [Head-Complement]] → Head = P
c. [Head] → Head = N

Adjectives are not captured by (53): "<they> are a secondary category, morphosyntactically diverse among languages of the world, with the special property that they must be attributed of some argument, attained parasitically and accounting for one class of exceptions to the otherwise general, specifierless, configuration associated with verbs" (H&K 1998, note 7).

However, (53) is criticized in Marantz 2001a who takes these configurations to be too restricted and therefore unable to fully account for the attested variety of roots and arguments. One needs more possibilities for structures without resorting to bound features (see above). E.g. if agent/patient-manner adverbial semantic features cannot be used to draw argument structure distinctions, one way to bring about the same effect would be to encode them as manner roots in which case there must be a place in H&K's relational structures to accommodate such manner roots but this turns out to be problematic in the restricted framework of (53). So Marantz concludes that more classifications of roots are needed and more possibilities for structures. This conclusion was substantiated in Marantz 2001 as follows.

Roots, independent of whether they eventually become nouns, verbs or adjectives, are all classified in the same way as states (*clean*), manners (*hurry, sweep*), count and mass entities (*hammer; water*). Other possible classes may include events (*trip*). One particular version of root classification is presented in (54).

(54) Classification of roots from Harley 2001 (cited in Marantz 2001a):

	No complement		Complement	
	Bounded	Unbounded	Bounded	Unbounded
Event	*Hop*	*Sleep*	*Kick*	*Push*
Thing	*Foal*	*Drool*	N/A	
State	*Clear*		(prepositions)	

The implementation in (54) shows that the semantic category of the root helps predict the aspectual class of the verb. An investigation of whether DM-roots should encode aspectual information is undertaken in Harley 1998 who gives a positive answer to this question. As evidence she uses denominal verbs for which an incorporating analysis à la Hale & Keyser is adopted: whether a denominal verb will be telic or atelic depends on the count (bounded) or mass (unbounded) nature of the incorporated root (a noun in H&K's terms).

(55) a. Telic: count/bounded √*saddle*
John saddled the horse in 5 minutes/*for 5 minutes.
b. Atelic: mass/unbounded √*water*
John watered the garden in an hour/for an hour.

Harley's classification assumes that roots either take complements (*kick, push*, prepositions) or don't (*sleep, foal*). This seems to diverge from the basic spirit of DM which assumes that roots cannot encode any argument structure information because arguments are introduced syntactically. In fact, Harley & Noyer (1999:7) note that DM is also compatible with a model "in which there were different types of [Root], corresponding to the verb classes of the world's languages, which assigned different sets of theta roles to elements in certain structural relations to them. What is not possible, in DM, is for one type of [Root] to be mapped onto another via a pre-syntactic lexical operation." Thus, we are confronted with two versions of DM: one which denies that roots encode argument structure information and the other which allows such encoding. The two versions, however, converge on the issue of pre-syntactic lexicon-internal computation which is impossible for both. Since the latter version tends towards Lexicalism which DM denies, here we are more interested in the stricter version of DM which preserves in full the original anti-lexicalist spirit[24].

A strictly anti-lexicalist approach to argument structure is entertained in Marantz 2001. In particular, both the external and internal arguments are separated from the verb: there is in fact no lexical category verb which can convey information about what kind of external argument (e.g. an agent, causer or experiencer) it takes or what kind of object because, to reiterate once again, all lexical items are roots which can end up being either verbs, nouns or adjectives. There are, however, functional category verbs, nouns and adjectives (i.e. vocabulary items such as CAUSE, BE, DO, light verbs, -ITY, -NESS, -OUS, etc. which are inserted into little v, n and a functional nodes) which combine with roots in order to turn the latter into meaningful words and which introduce verbal, nominal and adjectival arguments. Thus, any argument is introduced syntactically and licensed by a functional head. For instance, direct internal arguments (canonical objects) are structurally licensed as either subjects of internal predicates (resultatives, states, 'aspectual' particles, prepositional relations) or as objects of prepositional relations. Structure of VP can be represented as in (56) (from Marantz 2001b).

(56) PASS – VOICE – APPL – CAUS – v – STAT – RootP

- PASS creates syntactic (eventive) passives
- VOICE projects an external argument
- APPL relates an event to an individual (e.g., a benefactive)
- CAUS adds a causative event (e.g. in the case of morphologically derived causative verbs)
- STAT creates adjectival (stative) passives
- Little v turns a root into a verb and may be involved with objective Case

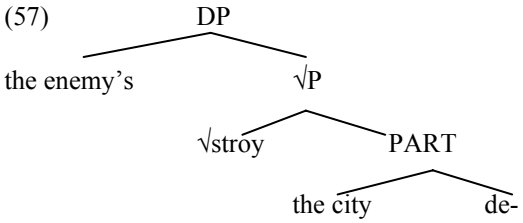
[24] Such a state of affairs is not at all unusual, as within any recent theory. Thus, various works on DM differ from each other concerning the deletion of ms-features at the point of Vocabulary Insertion which has repercussions for proper treatment of allomorphy as discussed in Bobaljik 1999 and Trommer 1999. The different approaches to allomorphy within DM are compared on the basis of the Sakha data in Vinokurova 2003.

As evidence for separating the external argument the following phenomena are cited: 1) the disappearance of the external argument in root nominalizations (e.g. *growth of tomatoes*) and causative/inchoative alternations (e.g. *break*); 2) agentive/causative alternations with psych verbs; 3) causatives without agents (Pylkkänen 1999); 4) high applicatives/adversative causatives (Pylkkänen 2000).

The interpretation of some roots in root nominalizations which obligatorily requires either an external argument or an object or both presents a difficulty for such an approach. Marantz assumes that if a root appears to require an external argument, it is a manner root which implicates an external argument. This is the case with e.g. *leap*, an agentive manner root which implicates an obligatory agent. If a root requires an experiencer external argument as is the case with *know*, then such a root is necessarily bimorphemic consisting of a combination of a pure argumentless root plus a functional head which licenses an experiencer. If a root is interpreted with an obligatory internal argument, then such a root must also be bimorphemic combining a pure root and a functional head – either 1) a preposition that takes an object resulting in e.g. *hit* or 2) a particle that takes a subject resulting in e.g. *control*.

A case when a root apparently requires two arguments is presented by *destroy* as witnessed by the root nominalization *the enemy's destruction of the city*. The presence of the internal argument entails the presence of a functional head – the particle *de-* which licenses *city* in its specifier position. This particle incorporates onto the manner root √STROY[25] which induces 'agentive' interpretation on the possessor *the enemy*.

(57)



Thus, in (58) we have two qualitatively different *enemies*. *The enemy* of (58a) is a possessor open to all interpretations which are available to possessors inside DP's independently. The 'agentive' interpretation of the possessor is not genuinely agentive (i.e. not structurally conditioned) but is simply a semantic implicature of the manner root √STROY. On the contrary, *the enemy* of (58b) is a genuine agent introduced syntactically by the functional head Voice or, alternatively, agentive little v.

(58) a. The enemy's destruction of the city
b. The enemy destroyed the city

[25] In nominalizations we are dealing with the allomorph of √STROY – √STRUCT. √STROY itself appears in contexts triggered by the little v.

Marantz shows that other nominals built on the same root √STROY also allow their possessors to be interpreted 'agentively': *John's construction of the building, John's instruction of the children, John's obstruction of justice*. Similarly, verbs involving *de-* incorporation have internal arguments – structural subjects of the particle *de-* (transitive *demote, detain*, unaccusative *descend, decline*).

The original analysis in Marantz 1997 involved less radical decomposition of radicals. It has been briefly mentioned above in section 1.3.2.1 and needs a more detailed consideration here because it will be shown that a more radical decomposition à la Marantz 2001 is indeed required if one wants to introduce all arguments syntactically[26].

To recall, the original problem in Chomsky 1970 was the lack of correspondences predicted to exist, on the transformational analysis, between sentences and their nominalizations. If (58a) and (59a) were the transformed, nominalized versions of, respectively, (58b) and (59b), then the asymmetry between (58a) and (59a) would be impossible to derive.

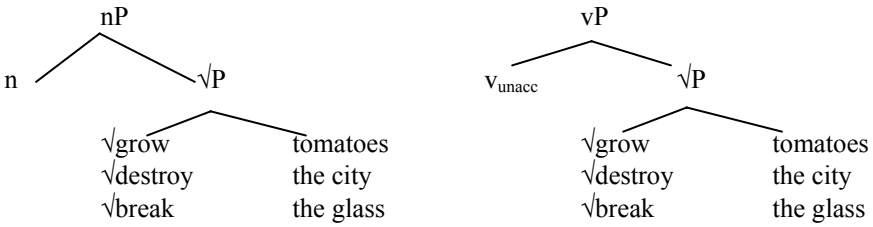
(59) a. *John's growth of tomatoes
b. John grows tomatoes

Instead, Chomsky proposes to enter *grow* and *destroy* in the lexicon as unspecified categorially but with selectional and subcategorization features which express that *destroy* but not *grow* takes a noun phrase complement (both in its nominal and verbal instantiations). Thus, the same lexical entry underlies both *tomatoes grow* and *the growth of tomatoes*. (59b) is derived by adding a causative feature to *tomatoes grow*.

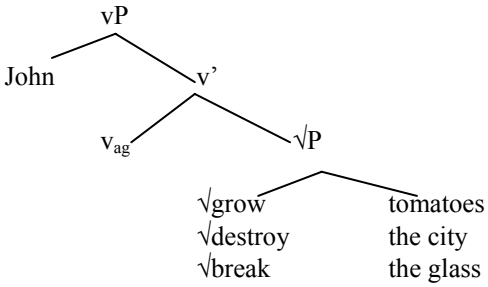
Marantz adopts and adapts this basic analysis: when the root √GROW is inserted in the nominal environment (60a), there can be no agent because little n is not responsible for introducing one. √GROW can also be inserted either in the intransitive (60d) or in the transitive (61a) verbal contexts. (60d) is intransitive because the particular verbalizer used here – call it v_{unacc} – does not project an external argument resulting eventually in *tomatoes grow*. On the contrary, in (61a) the little v does introduce an agent. The structures in (60d) and (61a) can be further embedded under little n yielding nominalizations of verbalizations: *tomatoes grow → tomatoes' growing, the growing of tomatoes; John grows tomatoes → John's growing tomatoes, John's growing of tomatoes*.

(60) a. the growth of tomatoes
b. the destruction of the city
c. *the break of the glass
d. Tomatoes grow.
e. *The city destroyed[27].
f. The glass broke.

[26] More radical decomposition in Marantz 2001 is based on Harbour's (2000) "Radical Decomposition" manuscript cited and discussed ibidem.
[27] As pointed out in McGinnis 2000 (note 4), (60e) is possible with a 'middle' interpretation which, though, must involve a causative v head in her analysis and hence cannot arise from the structure below (60d-e-f).



(61) a. John grows tomatoes.
b. John destroyed the city.
c. John broke the glass.



Other examples in (60b, c), (60e, f) and (61b, c) show that the roots √DESTROY and √BREAK do not display the same uniform behaviour as √GROW in relation to the three structural contexts (n, v_{unacc}, v_{agent}). In an approach which promotes syntactic determination of argument structure roots should be insertable in any kind of syntactic context and, preferably, morphosyntactic explanations should be offered for ruling out certain combinations. However, when trying to explain the ungrammaticality of (60c) and (60e) Marantz 1997 appeals to the lexical semantics of roots such as √DESTROY and √BREAK invoking the classification independently put forward in Levin and Rappaport Hovav 1995.

(62) Semantic categories for roots (which predict their varying behaviour in nominal and verbal environments) (Marantz 1997:217)

Root	**Class**
√DESTROY	Change of state, not internally caused (implies external cause or agent)
√GROW	Change of state, internally caused
√BREAK	Result (of change of state)

Thus, (60e) is impossible because roots of the √*destroy*-class which imply an external argument (cause or agent) are incompatible with a verbalizing functional head which does not project an agent/cause. Such a combination might force a

middle reading (cf. footnote 26 above), as in *These carefully constructed sets will destroy easily during the crucial earthquake scenes of the movie*, otherwise it will have no semantic interpretation (ibid. p. 217).

As for the ungrammaticality of (60c), it is not the case that roots from the √*break*-class cannot be nominalized, cf. the grammatical *the break in the glass*. Rather, (60c) is impossible because √BREAK names an end state, not an event of change of state like √GROW, and therefore no complement to the root (*the glass* in (60c)) can appear. When √BREAK is placed in a verbal environment, a change of state interpretation will be forced syntactically and consequently a theme will be licensed.

The final picture which emerges from the discussion in Marantz 1997 is one in which argument structure, in particular, the presence/absence of external/internal arguments is determined by the lexical semantics of roots which includes specification of whether a root names a change of state or result thereof and whether causation involved is external or internal. The latter notion governs the behaviour of the root with respect to an external argument: obligatory (63) or optional (64).

(63) Roots whose lexical semantics implies external causation (*destroy, purchase, kill, cut*) are
   1) capable of inducing quasi-agentive reading on the possessor in nominal contexts
   2) incompatible with a little v which does not project a causer (unless middle interpretation is tolerated)

(64) Roots whose lexical semantics implies internal causation (*grow*) are
   1) incapable of inducing quasi-agentive reading on the possessor in nominal contexts
   2) compatible with a little v which does not project a causer

The former notion (whether a root names a change of state or result thereof) governs the behaviour of the root with respect to an internal argument.

(65) Roots which name a change of state (*destroy, grow*) imply a theme and can therefore take a complement which will be interpreted as a 'theme' (cf. Harley & Noyer (1999:7): " 'Theme' corresponds to the interpretation given to any argument projected as a sister of Root")

A problem is caused by roots of the √*break*-class which name an externally caused end state (result of change of state). Since they name the end result no theme undergoing change of state is implied, hence these roots take no complements, at least in the nominal context of (60c). However, when they are used verbally, "the verbal environment will yield, syntactically, a change of state and consequently a theme" (Marantz 1997:220). Hence, roots can take complements either because they lexically/semantically imply a theme undergoing a change of state (√*destroy,* √*grow*) or because a theme is required syntactically when an end state root (√*break*) is

embedded in a verbalizing context forcing a change of state reading. Another inconsistency is presented by the fact that √*break* is externally caused, yet unlike √*destroy* it is compatible with an unaccusative little v. This asymmetry is not touched upon: in particular, Marantz makes no use of Levin and Rappaport Hovav's (1995:102-6) notion of 'spontaneous occurrence'.

These inconsistencies are caused by appealing to the lexical semantics of roots in order to explain their appearance in some but not other syntactic structures. Such an appeal leads to an even greater inconsistency of a deeper, theoretical nature: an approach which declares Lexicalism dead, now makes extensive use of semantic information lexically encoded on particular roots. Apparently, all these inconsistencies taken together led to full separation of an internal argument from the root and a more radical decomposition of some roots (e.g. √*destroy*) in Marantz 2001. In this revised version all semantic implications are not taken at their face value but are subjected to the process of further disintegration whose goal is to yield a pure argumentless root plus syntactic, functional heads which license whatever arguments, external or internal, are semantically implied. Such a revised version, consistently stated in syntactic terms, is indeed more attractive than the original (1997) account. In 1997 one could only wonder why intuitive semantic implicatures unexpectedly resulted in strong ungrammaticality judgements given that humans are perfectly capable of metaphoric extensions. 2001 opened an avenue for pursuing purely structural explanations. In particular, the ungrammaticality of **The city destroyed* would follow not because √*destroy* involves external causation and therefore requires the projection of an external argument (which leaves unexplained the grammaticality of *The vase broke* since √*break* also implies external causation) but because √*destroy* can be further broken up into constituent parts one of which is the manner root √*stroy*: Marantz's (2001) assumption that 'manners implicate agents' can be reformulated as 'manners must incorporate into an agentive v head'. Such an analysis would account for the grammaticality of *The vase broke* since √*break* does not contain a manner root.

The full separation of arguments from the root was also undertaken by other DM-researchers in other areas. For example, we can compare the investigation of Experiencer predicates in McGinnis 2000 versus McGinnis 2001a. The former allows roots such as √fright (underlying the derivation of *The rumblings frightened Bill*) to take an experiencer argument. McGinnis 2000 also assumes that the T/SM argument (Target/Subject Matter of Emotion such as *thunderstorms* in *Bill fears thunderstorms*), although not an argument of the root, is still merged as a structural complement to the psych-root (e.g. √fear) because it cannot be structurally accommodated in the vicinity of its theta assigner v_{perc}/a_{perc} (stative non-causative perceptive v and its adjectival counterpart). Therefore, T/SM must be licensed by v_{perc}/a_{perc} from higher up in a configuration such as [v_{perc}/a_{perc} [$_{\sqrt{P}}$ √ [T/SM]]]. In McGinnis 2001a the root is left bare with no true arguments or false ones appearing as structural complements. The experiencer is now introduced as the specifier of an aspectual head. Another aspectual head introduces and licenses the T/SM argument.

1.4.2. The exo-skeletal approach to argument structure

Unlike DM, the exo-skeletal approach to argument structure dispensed from the very beginning with any possibility of connecting lexical semantics of roots to their syntactic behavior (Borer 2000, 2003, 2004). The interpretation of a particular argument does not depend on the specific verb used but on the syntactic position it occupies. Hence, its interpretation would not shift if a different verb is used: its interpretation would only shift when it is put in a different syntactic position. The burden of argument interpretation is carried entirely by the syntactic event structure and the relationship between the two is fixed. (66) shows four possible types of event structures (from Borer 2003a, example 2). EP stands for an eventive node, ASP_Q for a telicity-inducing quantity node, therefore it is lacking in atelic structures.

(66) a. Transitive telic:
$[_{EP}\ DP_1\ [_{TP}\ \sout{DP_{1\text{-}NOM}}\ [_{ASPQ}\ DP_{2\text{-}ACC}\ [_{VP}\ V\ ]]]]$ (in two hours/*for two hours)

b. Transitive atelic:
$[_{EP}\ DP_1\ [_{TP}\ \sout{DP_{1\text{-}NOM}}\ [_{FP}\ DP_{2\text{-}PARTITIVE}\ [_{VP}\ V\ ]]]]$ (*in two hours/for two hours)

c. Intransitive telic:
$[_{EP}\ DP_1\ [_{TP}\ \sout{DP_{1\text{-}NOM}}\ [_{ASPQ}\ DP_1\ [_{VP}\ V\ ]]]]$ (in two hours/*for two hours)

d. Intransitive atelic:
$[_{EP}\ DP_1\ [_{TP}\ \sout{DP_{1\text{-}NOM}}\ [_{VP}\ V\ ]]]$ (*in two hours/for two hours)

Linking between structural positions and argument interpretation is unique and innate. In particular, some of the linking correlations are given below in (66) (Borer 2003a, example 25).

(67) a. Originator ⇔ [Spec,EP][28]
b. Subject-of-quantifiable change ⇔ [Spec,ASP_Q]
c. EP dominates ASP_Q

Consider, in particular, the derivation of (37) repeated below in (68). In the course of the derivation any of the three roots *sink, boat, dog* can raise to any position in the functional structure; for instance, as (68) shows any root can become a verb. Similarly, any root can become the subject or object. Some of the possible options are given in (69)[29].

(68) a. $[_{L\text{-}D}$ sink, boat, dog]

[28] DP in Spec,EP will be assigned the Originator role only if it has not yet been assigned some other role down in the structure. For instance, a DP which raises from Spec,ASP_Q to Spec,EP preserves its 'Subject of Quantifiable Change' role assigned in Spec,ASP_Q.
[29] *the* and *three* are functional elements just like *will* and therefore appear above the lexical domain in (68a).

b. $[_T$ <pst>$_T$ [L-D sink, boat, dog]]
c. $[_T [_V$ sink]-<pst>$_T$ $[_{VP} [_V$ ~~sink~~], boat, dog]] (sank)
d. $[_T [_V$ boat]-<pst>$_T$ $[_{VP}$ sink, $[_V$ ~~boat~~], dog]] (boated)
e. $[_T [_V$ dog]-<pst>$_T$ $[_{VP}$ sink, boat, $[_V$ ~~dog~~]] (dogged)

(69) a. the boat will dog three sinks
b. the dog will sink three boats
c. the boat will sink three dogs
d. three sinks will boat the dog, etc.

(Borer 2003b, ex. 12)

The derivations in (69) will be assigned a transitive telic event structure of (66a) and interpreted in accordance with the linking correlations of (67). E.g. in (69a) *boat* will be assigned DP structure in Spec,TP and merge with the determiner *the*. It will then move to Spec,EP where it will be interpreted as the Originator of a non-stative event. *Sink* in (69a) will move to Spec,ASP_Q where it will also be assigned DP structure subsequently merging with the functional element *three* and it will be interpreted as the Subject of quantifiable change.

1.4.3. A different conception of argument structure: Theta System

An entirely different approach to argument structure is entertained within the Theta System developed in Reinhart (2000, 2001, 2003). Contrary to the DM- and XS-approaches which assume that lexical entries are argumentless creatures, lexical entries within the Theta System specify the number of arguments they take and thematic properties of their arguments. A brief introduction to the framework follows.

Theta System (TS) is the interface between the conceptual systems and the computational system (CS; syntax). Through syntax, TS interfaces indirectly with the semantic inference systems. TS contains: 1) lexical entries, which are coded concepts, with formal features [±c] (Cause change) and [±m] (Mental state) defining θ-relations of verb-entries (the assumptions of TS were elaborated for the verb category only; TS has not yet been extended to cover argument structure involving category shifts and going outside the verb category); 2) a set of arity operations on lexical entries which generate either new options of realization or new entries; 3) marking procedures which assign ACC(usative) feature to the verb (if applicable) and determine merging properties of arguments. Thus, when a lexical item is selected from TS and enters syntax, it comes together with merging indices, ACC (if applicable) and θ-features. Merging indices and ACC are only legible to CS and are erased in the course of syntactic derivations. θ-features are not legible to CS but are legible to the Inference module and therefore passed on to it through CS.

In TS the traditional theta roles such as agent, experiencer, theme, patient, etc. are not viewed as basic units but are further decomposed in terms of binary features [c(ause change)] and [m(ental state)]. These two features define eight feature clusters given in (70). There is no one-to-one correspondence between (70a-h) and the traditional theta roles because the feature clusters have varying contextual interpretation

except for (70a) (fixed interpretation as agent) and (70d) (fixed interpretation as theme/patient). (70b-c) correspond most typically to 'instrument' and 'experiencer' but can also have other uses. The unary clusters in (70e-h) enjoy the greatest interpretative freedom because they are consistent with either positive or negative value of the other feature which is left unspecified. For instance, [+c] of (70e) can be realized as either a [+c+m] agent argument or as a [+c-m] instrument argument, depending on the context. It can also realize the way it is – as an unspecified cause [+c].

(70)	a.	[+c+m]	agent
	b.	[+c-m]	instrument …
	c.	[-c+m]	experiencer …
	d.	[-c-m]	theme/patient
	e.	[+c]	cause …
	f.	[+m]	…
	g.	[-m]	subject matter/locative source …
	h.	[-c]	goal/benefactor …

The underlying motivation for the θ-features comes from human perception of causality. Based on Shen's (1985) study, Reinhart identifies three basic causal relations used by humans to organize their perception of events – **enable, cause** and **motivate**. The relation **enable** holds when one event is perceived as a necessary condition for another event to occur. For instance, in order to drown in the pool one has to enter the pool and so entering the pool is viewed as a necessary condition but not a sufficient one since one can enter the pool without drowning. When the first event is perceived as a sufficient condition for the occurrence of the second event as in the case of a glass falling and immediately breaking, the relation **cause** holds. The relation **motivate** holds when either **enable** or **cause** hold and in addition a mental state mediates the events. Reinhart proposes that **cause** and **motivate** correspond to the features [+c] and [+m], respectively (**enable** does not correspond to anything – all selected arguments can be viewed as necessary (enabling) conditions for the event). Consider (70g): a [-m] argument such as *her health* in the sentence *Lucy worries about her health* can be interpreted as [+c-m] if *her health* is the cause of Lucy's worry and hence a sufficient condition; if, however, the context makes clear the presence of another cause such as a doctor, then *her health* cannot be perceived as a sufficient condition and must be [-c-m].

Verbal concepts can originate in the lexicon with one, two or three feature clusters and depending on the number and the internal composition of these clusters various basic verb classes can be established inside the lexicon some of which are listed below.

(71) One-place verbs

a) Agent-unergatives V[+c+m]: walk, run, march, gallop, hurry, wander, dance, work

b) Theme-unergatives V[-c-m]: glow, shine, beam, glare, glimmer, sparkle, babble, flash, buzz, click, whistle, squeal, stink, bleed, drip, sweat, radiate; shudder, tremble, flower

c) Other unergatives V[+m]: laugh, cry, sleep (require an animate argument which does not have to be an agent or a causer)

(72) Two-place verbs
a) Verbs with [+c] subjects which select a theme/patient as their second argument V([+c], [-c-m]): open, roll, break
b) Verbs with [+c] subjects which select an experiencer as their second argument V([+c], [-c+m]: worry, amuse, scare, surprise
c) Agentive verbs V([+c+m], [-c-m]): eat, shave, dress
d) [-] verbs (two-place unaccusatives) V([-c-m], [-c]): escape, elude, occur, belong, lack, miss, suffice, appeal, live, appear

(73) Three-place verbs
a) 'Manner' verbs V([+c+m], [-c-m], [+c-m]): drill, peel, cut, screw, sow; fill, stain
b) *Empty/clean*-verbs (semantic complements of the *fill/stain*-verbs) V([+c], [-c-m], [-c])

The verbs above are the basic entries listed in the lexicon. They undergo marking procedures which provide them with merging instructions for syntax, namely, assign an index to the feature clusters (the arguments). The relevant notation and mapping generalizations follow (1 marks an external argument, 2 – an internal one).

(74) Notation:

[α]	=	Feature cluster α
/α	=	Feature (and value) α E.g. the feature /+m occurs in the clusters [+c+m], [-c+m] and [+m]
[/α]	=	A cluster one of whose features is /α E.g. [/-c] clusters are [-c+m], [-c-m] and [-c]
[+]	=	A cluster ALL of whose features have the value + E.g. [-] clusters are [-c-m], [-c], [-m]

(75) Lexicon marking:
Given an n-place verb-entry, n>1,
a. Mark a [-] cluster with index 2.
b. Mark a [+] cluster with index 1.
c. If the entry includes both a [+] cluster and a fully specified cluster [/α, /-c], mark the verb with the ACC feature.

(76) CS merging instructions:
a. When nothing rules this out, merge externally.
b. An argument realizing a cluster marked 2 merges internally; an argument with a cluster marked 1 merges externally.

The marking procedures of (75) and the merging instructions of (76) ensure the correct lexicon-to-syntax mapping of the basic verbs in (71-73) (for detailed explanations see Reinhart (2001, 2003)). Consider, for example, (71) which represents one-place verbs: since n=1, (75) cannot apply and no indices are assigned → as a result by (76a) these verbs have an unergative derivation. (72a), on the other hand, contains both a [+]-cluster (the [+c] argument) and a [-]-cluster (the [-c-m] argument). By (75a-b) these clusters are assigned indices 1 and 2, respectively, and by (75c) the verb is marked with the ACC feature. By (76b) the [-c-m] argument marked 2 merges internally and the [+c] argument marked 1 merges externally. The mapping of other verbs proceeds along similar lines (more detailed discussion will follow in subsequent chapters when the theory is applied to the Sakha data).

TS also contains arity operations on the theta grid of verbs which derive their reflexive, unaccusative, experiencing, passive and causative alternates. Arity operations apply after the marking procedures just described. The basic motivation for assuming arity operations is to avoid postulating many separate verb entries for the same verbal concept, such as *break-unaccusative, break-causative, break-passive,* etc. This is stated in Reinhart (2000:(6)) as the Lexicon Uniformity Principle:

(77) Lexicon Uniformity Principle:
Each verb-concept corresponds to one lexical entry with one thematic structure → The various thematic forms of a given verb are derived by lexicon-operations from one thematic structure.

There are three types of operations that can alter thematic properties – saturation, reduction and expansion. Saturation, which is responsible, among other things, for passive and middle formation, existentially closes one of the arguments. The saturated argument will not project syntactically but will be present in the semantic interpretation. Saturation is assumed to eliminate accusative case. The operation applies as represented in (78).

(78) **Saturation**:
a. wash (θ_1, θ_2)
b. Saturation: $\exists x$ (wash (x, θ_2)
c. Max_i was washed $t_i \equiv \exists x$ (x washed Max)

(Reinhart 2003, (12))

Another operation is reduction which reduces the verb's arity by one. It can only apply to verbs which have at least two arguments, one of which must be external. Like saturation, reduction eliminates the accusative feature of the verb. Reduction can delete either the internal or external argument argument. The former (reduction of an internal argument) is reflexivization schematized in (79a). (79b) shows the semantic interpretation of the reduced (one-place) reflexive verb obtained by applying (79a). (79c-d) give the basic and the reduced forms of the verb *shave*.

(79) **Internal Reduction (SELF-function)**:

a.	$V_{ACC}\ (\theta_1, \theta_2)$	$\rightarrow$	$\underline{R_S(V)}(\theta_1)$
b.	$\underline{R_S(V)}(\theta_1)$	=	$(\lambda x\ (V\ (x,x)))(\theta_1)$
c.	$\underline{shave}_{acc}([+c+m]_1, [-c-m]_2)$:		Lucie shaved him.
d.	$\underline{R_S(shave)}([+c+m]_1)$:		Max shaved.

(Reinhart 2003, (13)-(14))

Reinhart assumes that the argument reduced by reflexivization is still present in the interpretation (79b). The second type of reduction, which applies to the external [+c] role, is different from internal reduction precisely in this respect: it eliminates (expletivizes) the external argument altogether and can therefore be viewed as a semantically null function (80b). The result of expletivization is a one place verb with the remaining argument.

(80) **Reduction of an external [+c] role (Expletivization)**:

a.	$V_{acc}\ (\theta_{1[+c]}, \theta_2)$	$\rightarrow$	$\underline{R_e(V)}\ (\theta_2)$
b.	$\underline{R_e(V)}(\theta_2)$	=	$V(\theta_2)$

(Reinhart 2003, (15))

(81) illustrates the result of applying external reduction to the basic verbs in (72a-b) with [+c]-subjects. Although (81a) and (81b) are derived by the same lexical operation, they have different syntactic derivations: *open* is unaccusative, *worry* is unergative. The different merging positions of the remaining arguments of *open* and *worry* are ensured by the mapping procedures. Consider the unreduced transitive *open* and *worry*: by (75b) their [+c] argument is marked 1; the [-c-m] argument of *open* is marked 2 by (75a); however, the [-c+m] experiencer argument of transitive *worry* does not fall under any marking convention being a mixed-value cluster. After reduction, the remaining [-c-m] argument of *open* is still marked 2 and merges internally, by (76b). The remaining experiencer argument of *worry* has no merging index and is therefore free to merge externally, by (76a).

(81)

a.	$\underline{open}_{acc}\ ([+c], [-c-m]$	$\rightarrow$	$\underline{R_e(open)}[-c-m]$
b.	$\underline{worry}_{acc}\ ([+c], [-c+m]$	$\rightarrow$	$\underline{R_e(worry)}[-c+m]$

(Reinhart 2003, (16))

The third type of arity operation available in TS is expansion, or causativization. It adds a [+c+m] agent argument to the verb's θ-grid. The operation itself is a complex procedure involving two steps.

(82) **Causativization**: (Reinhart 2003, (21))

a.	Decausativize:	Change a /+c feature to a /-c feature.	
	$\underline{walk}([+c+m])$	$\rightarrow$	$\underline{walk}([-c+m])$
b.	Agentivize:	Add an agent role.	
	$\underline{walk}([-c+m])$	$\rightarrow$	$\underline{walk}([+c+m], [-c+m])$

One more issue that needs to be addressed in this introduction to TS has to do with cross-linguistic variation. Reinhart and Siloni (R&S) address this issue in the domain of reflexive verbs. Assuming that arity operations are universal, they propose that differences among languages in the distribution of reflexives derive from the level at which the arity operation in question takes place – lexicon or syntax. The proposal is generalized from reflexivization to other arity operations and stated as the Lexicon-Syntax parameter.

(83) **The Lex-Syn Parameter**:
UG allows thematic arity operations to apply in the lexicon or in syntax.

With respect to reflexivization, among the languages investigated in R&S the parameter is set onto Lexicon in Hebrew, English, Dutch, Russian and Hungarian and onto syntax in German, Serbo-Croatian, Greek and in Romance languages. Other operations which can be parameterized concern reciprocal- and middle-formation (see Siloni 2001 on reciprocals and Marelj 2002 on middles). However, not all arity operations can be parameterized. For an arity operation to be parameterized along the lines of (83) it must be able to take place also in the syntax. However, syntax is different from lexicon in one important respect: it cannot manipulate θ-grids of predicates with the effect of eliminating, adding or modifying a θ-role; such thematic alternations are possible only in the lexicon – the locus of new concept formation. For that reason causativization (82) which forms new concepts by modifying the underlying external role and adding a new agent role on top of that cannot be parameterized and can only take place in the lexicon. Such an approach predicts that languages should be able to have both lexical and syntactic causatives. The prediction is borne out by the English data.

(84)	a.	They ran/galloped/walked.	(basic)
	b.	He ran/galloped/walked them.	(lexical)
	c.	He made them run/gallop/walk.	(syntactic)

Another consequence of the lexicon/syntax dichotomy is that the external role reduction deriving unaccusatives and experiencers also cannot be parameterized. These two operations must universally take place in the lexicon.

Since the same considerations apply to internal role reduction – reflexivization (79) and prevent it from applying in the syntax, R&S propose to view reflexivization not as reduction but as bundling which involves the unification of external and internal θ-roles resulting in the complex θ-role [Agent-Theme]. This captures what (79) was meant to capture: valency reduction as a result of which the external argument comes to be associated with both θ-roles of the underlying transitive verb. Bundling reduces accusative case and the bundled argument is mapped externally.

(85) **Reflexivization in the Lexicon**:
a. Bundling: $V(\theta_1, \theta_2) \rightarrow V[\theta\text{-}\theta]_1$
b. Accusative Case reduction

(R&S 2003, (25))

The application of bundling is illustrated with *wash* in (86). The bundled, complex θ-role is discharged to the external argument in (86c). (86c) is assigned the semantic representation in (86d): a bundle of θ-roles is interpreted as a distributive conjunction of θ-roles.

(86) a. Verb entry: wash($[+c+m]_1$, $[-c-m]_2$)
b. Reflexivization output: wash[[+c+m][-c-m]]
c. Syntactic output: $Max_{[[+c+m][-c-m]]}$ washed
d. Interpretation: Max (λx ∃e (wash(e) & [+c+m](e)=x & [-c-m](e)=x))

(R&S 2003, (28))

Such an approach brings reflexivization inside the scope of the Lex-Syn parameter for bundling can also apply in the syntactic component. In syntactic reflexivization, however, [+c+m] and [-c-m] cannot form a complex θ-role: once a θ-role forms part of the theta grid of a verb which enters syntax, it must be assigned and cannot be manipulated. The canonical way to do that is to merge it as an argument by selecting a DP and assigning the role to the latter. Another (non-canonical) way involves bundling. How syntactic bundling proceeds can be illustrated on the basis of the derivation R&S give for (87a). The derivation includes a transitive verb *laver* 'wash' with Agent and Theme roles, the clitic *se* and the DP *Jean*. The clitic morphology reduces accusative Case. The Theme role cannot be mapped onto its canonical object position due to lack of Case and is retained on the verb: at the VP-level the verb has two unassigned roles (87b). The three of them move to I, at which point the external argument is merged in Spec,IP and bundling can take place (87c). The interpretation (87d) obtained by syntactic bundling is equivalent to the one obtained by lexical bundling (86d).

(87) a. Jean se lave.
Jean se washes
b. VP: [se $lave_{\theta 1\text{-Agent}, \theta 2\text{-Theme}}$]
c. IP: [$Jean_{<\theta 1, \theta 2>}$ [$_{I'}$ se $lave_i$ [$_{VP}$ t_i]]]
d. Jean (λx ∃e (wash(e) & Agent(e)=x & Theme(e)=x))

R&S schematize syntactic bundling as in (88).

(88) **Reflexivization in syntax**:
a. Case reduction
(enabled by Case reducing morphology, e.g. the clitic *se*)
b. Syntactic Bundling: External Argument[θ_1]+[θ_2]

> Bundling applies upon merge. At the merge of an external argument, a stored unassigned θ-role is bundled with it so both end up assigned to the same argument.

In this introduction we have not touched upon a very important issue of Case and its elimination effected by arity operations. This question will be considered later when the relevant Sakha data are discussed in chapter 6. Also addressed in the same chapter are reciprocal formation (a parameterized arity operation in TS – see Siloni 2001) and dative reflexivization.

To recapitulate, what sets TS apart from DM and XS is the assumption that the lexicon is computational in allowing arity operations to derive various thematic structures of a single verbal concept from a basic underlying entry. Another assumption presupposed by the previous one is that a subset of lexical entries bear thematic information about their arguments: contrary to DM/XS for which lexical entries are simply roots, with no shoots.

1.5. The extended proposal

We have concepts and everyone would agree that lexical items encode concepts, in one way or another. It is also well-known that every concept can be encoded as either a noun, or a verb. For instance, the 'urchin' concept can be expressed as a noun (*a cute sea urchin*) or as a verb (*They often go shrimping, lobstering and urchining*)[30]. This flexibility of concepts is best exemplified with English but also applies to other languages (abstracting away from the morphology involved). An important consequence of this conceptual flexibility for theories of categorization is that we cannot derive differences among lexical categories from their semantic content such as whether they denote things, properties, events, etc. Therefore theories like DM and Borer's start with the right assumption that lexical entries are not nouns, verbs and adjectives encoding, respectively, nominal, verbal and adjectival concepts but are simply generalized roots which encode concepts. The challenge, then, is what to do next with this assumption. The DM/XS answer to the challenge is to categorize roots by functional structure. However, above we have criticized both the DM- and XS-implementations of syntactic categorization. To recapitulate, the DM-implementation lacks explanatory power: it says that what makes a root a noun is a little noun, what makes a root a verb is a little verb and the same for adjectives. This merely translates Chomsky's original account into syntactic terms: what makes a root a noun is a [+noun] feature, etc. As for Borer's

[30] That the urchin-concept can equally well be expressed as a verb seems to contradict the spirit of the opening lines of the introduction where it was stressed that, intuitively, verbs are inherently relational whereas urchins are not, which makes them typical nouns: "When one is asked to imagine such a typical noun as 'urchin', one would imagine an urchin. But if one is asked to imagine such a typical verb as 'eat', one would imagine, for example, a person putting a sandwich in his mouth. Thus, it seems that it takes a noun or two to recreate a verbal concept in one's mind". This issue will be addressed below but going a bit ahead the following can be said: 1) indeed, verbs are relational, nouns (e.g. instantiated by *urchins*) are not relational; 2) urchin-concepts, just like any other concepts, can equally well become verbs or nouns; 3) the first and second assumptions are reconciled by the intervening thematic properties keyed in to the inherent meaning of the urchin-concept and translating it into the noun *urchin*.

account, it was mentioned above that given affixal promiscuity, her categorization by morphological structure cannot be maintained. Secondly, her categorization by functional structure simply translates into syntactic terms descriptive generalizations about category-specific morphosyntactic possibilities. For instance, the generalization that verbs, unlike nouns, can be inflected for tense is reformulated as 'what makes a root a verb is a Tense node'. Even if such observations are descriptively accurate (depending on the language), they describe phenomena of a higher (in structural terms) level (such as DP, TP, CP) and usually high-level issues originate at a much lower level. This is in fact the basic spirit of the approach adopted by Baker (2003) in his cross-linguistic account of lexical categories. Baker plunges deep beyond the superficial observation that tense sets verbs apart from nouns and adjectives. The underlying nature of the tense constraint cannot be semantic: both nouns and adjectives are compatible with temporal interpretations, cf. *yesterday, today, past, present, future*, etc. Baker argues that the nature of the constraint is purely syntactic: in order to be embedded under Tense, nouns and adjectives but not verbs require some additional structure in the form of the functional category Pred which blocks the attraction of the noun or adjective by T. The obligatory presence of Pred with nouns and adjectives when they are used as predicates but not with verbs reflects differences in the thematic properties of lexical categories: verbs are defined as taking subjects to which they assign a theta role, hence verbs are natural predicates which can be embedded under T with no supporting nodes intervening and blocking movement; nouns and adjectives,on the contrary, are not natural predicates (they do not take subjects or other arguments at all) and therefore must be first embedded under Pred before they become embedded under T (this is a rough outline of Baker's proposal sufficient for now; the specifics will be elaborated later). Thus, the tense constraint which has puzzled linguists since antiquity finds its resolution if we look 'down' to thematic properties of predicates whereas it was so difficult to resolve when linguists kept looking 'up' to the semantic component. Baker also suggests that other similar constraints on lexical categories involving functional categories can be explained in a similar vein. We will take him up on this issue in explaining the case constraint. The case constraint (that case morphology can attach to nouns directly whereas it either cannot attach to verbs at all or if it can, it does so through intermediary participial morphology) has likewise puzzled linguists since antiquity. In fact, the case/tense opposition was sometimes equated with the noun/verb opposition and such equation does appear simple and elegant. In chapter 6 we shall offer an analysis of Case in Sakha which is based on and offers additional empirical support for the account advanced in Reinhart, Reuland and Siloni's work in progress (summarized in Reinhart & Siloni 2003). In particular, straightforward evidence will be provided for the TS-view of accusative Case as having both thematic and structural components. We will also argue along with TS and against DM that accusative Case assignment is not contingent on projecting a certain type of light verb or other functional head as DM/XS-models assume. Rather, whether a verb assigns accusative case or not is determined already in the lexicon by its thematic properties, as the TS-model assumes.

The account of lexical categories we would like to develop in this dissertation is therefore configurational, construed in relational terms but strictly

anti-morphosyntactic. By the latter we mean that the various morphosyntactic characteristics (Case (markers); Tense (markers), Determiners, plural markers and so on) with which lexical categories are associated and by which they are sometimes defined are of no explanatory value and in need of explanation themselves. Ideally, they should be analyzed as the syntactic correlates of the underlying thematic properties.

We assume that lexical entries are category-less roots which encode concepts which, in turn, encode thematic properties. It is both plausible and natural for a concept to be associated with thematic properties as understood in the Theta System framework where thematic properties reflect the necessary and sufficient conditions for the concept to hold as well as specify the presence/absence of mental motivation. Such an approach derives thematic properties of a concept (not yet categorized) from its inherent meaning. We have seen above in the introduction to the TS-theory how this proceeds for concepts which later become verbs. The defining characteristic of such concepts was that they were all associated with θ-feature clusters, in other words, they all had arguments. This is consistent with a rather general view that verbs are relational categories which take arguments and nouns are not. Precisely this view will be expounded in this dissertation.: verbs have arguments, nouns do not. This brings us to the question of noun/adjective contrast which also needs to be explained. Baker 2003, who draws the verb/non-verb distinction in terms of argument structure, invokes an entirely different dimension, viz. the criterion of identity, in drawing the noun/non-noun distinction. The reason for this inconsistency (the use of a different dimension for each distinction) is necessitated, in Baker's view, by the cross-linguistic observation that nouns and adjectives do not differ from each other in terms of argument structure. We will show that in Sakha the noun/adjective distinction has a number of morphosyntactic reflexes which cannot possibly be explained in terms of the identity criterion but can be explained in terms of underlying thematic differences between nouns and adjectives. It will be argued that, unlike nouns, adjectives are one-place predicates.

This view of lexical categories which can be schematized as in (89) does not assume that the notion of a lexical category is contentful: in fact, it implies that the term 'lexical category' is deficient and can only acquire meaning in relation to others. In other words, what makes nouns nouns are verbs and vice versa: there are nouns, because there are verbs and there are verbs because there are nouns[31]. Such an approach is entirely different from feature-based accounts which make lexical categories self-sufficient by endowing them with some inherent content. It is also different from syntactic approaches such as DM which assumes that what makes a root a noun is a light noun (similarly for verbs and adjectives); in other words, what makes nouns nouns are nouns contrary to our assumption that what makes nouns nouns are verbs.

(89) Inherent meaning of a concept → thematic properties → category

[31] To complete the word game: if there were no verbs, there would be no nouns since there would be nothing to relate nouns to and vice versa.

As already discussed above in section 1.3, it is a well-attested fact that there are extensive asymmetries among lexical categories, both with respect to overt morphological markings and argument-taking possibilities. These asymmetries are expected to follow from a theory of categorization which integrates three components in a consistent, non-arbitrary way: the inherent meaning of a concept, categorization and argument structure (thematic properties). The connection between the latter two is evident from the above discussion: inside and across languages, lexical categories display consistent behaviour with respect to argument structure, e.g. nouns consistently do not take arguments, verbs do. This regularity suggests that the two must be connected. The present approach presents one way of integrating these three components. First of all, it is clear that, given the direction of entailments in (89), the approach should easily derive asymmetries in argument structure (thematic properties) for it is precisely these asymmetries which give rise to different categories. (89) captures correctly that conceptual meanings are not connected to categorization and therefore any concept can be encoded as any kind of lexical category.

A question, however, would still arise as to what is the need of connecting the inherent meaning of a concept to argument structure as in (89). Such a connection seems to be necessitated by the need to avoid arbitrariness. Concepts do have inherent meanings and if we can connect argument structure to these meanings, we can avoid a certain amount of arbitrariness. This seems to be the only way to place principled restrictions on the number and type of arguments associated with predicates. Otherwise, assuming that syntax has the means of introducing arguments (highly developed in some languages where noun phrases otherwise performing adjunct, adverbial functions can be turned into arguments by special applicative morphology), one can introduce an arbitrary number of arguments. Yet, it is well-known that predicates are highly restricted as to the number of their original (i.e. non-applied) arguments so it seems natural to connect the number of these arguments and their properties to the inherent relational nature of a concept. Consider, for instance, the concept of eating which is associated with two necessary (enabling) conditions – someone to perform the eating process and something to be eaten. The person to do the eating also provides a sufficient condition for eating to take place. In addition, the mental state of the eater matters. Translating these causal relations into θ-features, one obtains a concept associated with two arguments – $eat_{([+c+m], [-c-m])}$. Since this is a relational concept, it will translate as a verb. On the contrary, the concept of urchin is not relational so it would translate as a noun. In terms of perception-based causality, there seem to be no necessary or sufficient conditions for being an urchin. An urchin is just an urchin: it does not require a lobster to be an urchin[32]. This should answer a concern voiced in footnote 30 above. The inherent meaning of a concept is not directly connected to categorization and therefore any concept can become any lexical category. This would be indeed so if concepts entered the syntax directly but they don't because the conceptual systems interface with the syntax through the Theta System where thematic properties of

[32] A possible counterexample to our assumptions is presented by relational nouns: if 'uncle', 'Monday', etc. are relational concepts, why don't they turn out as verbs? We shall address this issue presently in 1.5.1 in connection with Fodor's (1998) atomistic theory of concepts.

concepts are encoded. Within the Theta System the (non-)relational nature of concepts is examined allowing relational concepts to be translated into the computational system as verbs and non-relational ones – as nouns. Therefore a non-relational concept like 'urchin' can only become a noun and cannot become a verb. At this point, compatibility with the opening lines of the introduction is enforced ("When one is asked to imagine such a typical noun as 'urchin', one would imagine an urchin …") but a blatant disagreement arises with the opening lines of the proposal section 1.5: "… the 'urchin' concept can be expressed as a noun (*a cute sea urchin*) or as a verb (*They often go shrimping, lobstering and urchining*)". However, an important caveat was placed in the same paragraph: "abstracting away from the morphology involved". The following paragraphs examine the implications of this caveat.

So far for deriving asymmetric thematic properties of lexical categories. In deriving asymmetries concerning morphological marking, one has to make a distinction between category-preserving (inflectional) and category-changing (derivational) morphology. With respect to inflection, we have followed Baker's lead and pledged to derive morphosyntactic asymmetries among categories pertaining to tense, case, etc. from their underlying thematic properties. With respect to derivation, care is required in handling.

Let's go back to the Lexicon Uniformity Principle (section 1.4.3:(77)) repeated in (90).

(90) Lexicon Uniformity Principle:
Each verb-concept corresponds to one lexical entry with one thematic structure → The various thematic forms of a given verb are derived by lexicon-operations from one thematic structure (Reinhart 2000:6)

As already mentioned, the basic motivation behind (90) is to avoid proliferation of lexical entries for the same verbal concept. But how does (90) fare if there are no verbal concepts (i.e. no concepts which are inherently verbs)? The answer is it fares well both if it is particularized to verbs qua relational concepts as formulated in (90) and if it is generalized to apply to all concepts. The results booked by the Theta System remain valid because TS was originally defined over lexical entries with thematic structure – verb-concepts, i.e. concepts which become verbs due to their inherently relational nature. When the basic thematic structure of a concept is altered (expletivized, reflexivized, causativized, passivized), such modifications are expected to find morphological reflections. An obvious prediction made by such an approach is that the basic entry will be the unmarked one and the derived ones will be morphologically marked. For instance, when *sie* 'to eat' is causativized in Sakha, it attaches a causative suffix → *sie-t* 'to make eat'.

TS-operations are not only restricted to apply to verbs: the outputs of operations are also verbs but with different thematic structures than the original one. If TS is viewed as the system which enables interface between conceptual systems and the computational system, it needs to say something about noun-concepts as well. The present dissertation attempts such an extension in very simple terms: inherently relational concepts are encoded in TS as having thematic structures (formalized in terms

of θ-features) whereas non-relational concepts, being non-relational, cannot have thematic structures. It is the latter that TS says nothing about whereas the proposal advanced in the present work says that such non-relational concepts devoid of thematic structures are translated as nouns.

The preliminarily final picture is thus the following. The Theta System enables the interface between the conceptual systems and the syntax by encoding relational concepts as lexical entries with thematic structures and non-relational concepts as lexical entries without thematic structures. Thus, conceptual bifurcation [relational/non-relational] is translated as lexical bifurcation [+thematic structure/-thematic structure] leading, in turn, to syntactic bifurcation [+verb/-verb]. The approach predicts that there will be primary/primitive verbs (relational concepts → lexical entries with thematic structures → primitive verbs) and primary/primitive nouns (non-relational concepts → lexical entries without thematic structures → primitive nouns). The arity operations as stated in TS will apply to primitive verbs since only these have thematic structures. On the other hand, it should be possible to nominalize primitive verbs. Since verbs have arguments and nouns don't, turning a verb into a noun can either eliminate verbal arguments or leave them intact. In the latter case what we get is like English gerundive nominals. A priori, one would expect such an operation which leaves thematic properties of the underlying verb intact to take place in the syntax. This is in accordance with one of the TS-tenets, namely, that θ-grid manipulations resulting in elimination/modification of θ-roles are only allowed in the lexicon. In line with this assumption the null hypothesis is to draw the lexicon/syntax distinction in the same place as where the distinction between θ-grid manipulating and θ-grid non-manipulating operations is drawn and to place the former in the domain of lexicon and the latter in the domain of syntax. Therefore in the former case when nominalizing a verb alters its argument structure, we would expect such an operation to take place in the lexicon. Similarly, primitive nouns should also be verbalizable. Just as in the case of verbs we have one basic entry whose thematic alternants are derived from this basic entry by arity operations, so in the the case of noun-verb pairs such as *a carpet – to carpet, an urchin – to urchin, a cut – to cut, a break – to break*, we have one basic entry from which the other is derived: (N→V) *a carpet → to carpet, an urchin → to urchin*; (V→N) *to cut → a cut, to break → a break*. And just as in the case of basic entry verbs and their thematic alternants we predict the former to be morphologically unmarked and the latter to be marked, so in the case of [primitive noun→derived verb] and [primitive verb→derived noun] pairs, we predict primitive nouns and primitive verbs to be morphologically unmarked and derived nouns and derived verbs to be morphologically marked. The prediction works correctly for Sakha, our main testing ground: nouns such as 'carpet', 'urchin' and verbs such as 'cut', 'break' are indeed morphologically primitive whereas verbs corresponding to 'carpet', 'urchin' and nouns corresponding to 'cut', 'break' are morphologically complex involving 'carpet$_{noun}$', 'urchin$_{noun}$', 'cut$_{verb}$', 'break$_{verb}$' plus some affixes.

Concluding this discussion of derivational asymmetries, they are predicted to exist because it is predicted that some concepts (viz. relational ones) will be encoded as verbs from scratch, whereas others (viz. non-relational ones) – as nouns. These primary nouns and verbs will be morphologically unmarked basic lexical categories. A stronger prediction is that whenever we have a noun-verb pair built on the same concept, one of

them must be primary, the other derived because one and the same concept cannot possibly be both relational and non-relational simultaneously. Going back to the first paragraph of this section, it is a bit misleading but not false. Every concept can indeed become either a verb or a noun because it is not the concept's semantic content which helps predict category. Rather, there is a go-between which determines the primary categorial route a given concept will take: this mediator is thematic structure (alternatively, thematic information, or thematic properties). If it were not for thematic structure, any concept could become directly a verb or a noun but because of thematic structure a concept must commit itself to one particular category as it enters syntactic computation. Thus, the 'urchin' concept could become both a primary noun and a primary verb but is prevented from that by thematic structure: being non-relational, it has no arguments and can only become a noun. Nevertheless, the 'urchin' concept can be expressed as a verb as in *they went urchining*, but only through subsequent recategorization which, in the case at hand, turns a primary noun into a secondary verb. Therefore it is true that the 'urchin', 'carpet', 'break', 'cut' or any other concepts can be expressed equally well as nouns or verbs. To use an example from Sakha: the noun-verb pair *yŋyyr* 'a saddle' – *yŋyyrdaa* 'to saddle' is built on the same 'saddle' concept which clearly shows that the conceptual content is perfectly compatible with both nominal and verbal structures. However, 'saddle' is not relational, therefore has no thematic structure, therefore becomes a primary noun. It cannot possibly become a primary verb because for that it needs thematic structure which it cannot have by virtue of being a non-relational concept. For that reason in the above pair the noun is primary, the verb is secondary: the verb is recategorized/verbalized primary noun. This direction of derivation is appropriately reflected in the accompanying morphology: *yŋyyr* 'a saddle' is unmarked, *yŋyyr-daa* 'to saddle' is derived from the noun by attaching the verbalizer –LAA. The nature of verbalization raises interesting questions which will be addressed in detail later in subsequent chapters. Anticipating this discussion the following can be mentioned. The framework currently under exploration specifies one way of getting at verbhood: relational concepts → thematic structures → verbs. However, the structure of the verb *yŋyyrdaa* 'to saddle' contains nothing relational: it consists of the non-relational noun *yŋyyr* 'a saddle' plus the verbalizer –LAA which is not a concept, hence not relational (see chapter 7). So, apart from verbhood conditioned by inherent relationality, there must be a second way of becoming a verb, namely, syntactic introduction of thematic structure. Introducing arguments syntactically is the only option because lexical introduction of arguments is banned with nouns. In TS it is possible to manipulate θ-grids by adding extra arguments but such operations can only apply if there is a θ-grid already present which is not the case with nouns. Therefore it is impossible for a noun to become a verb already in the lexicon, this can only happen in the syntactic component. On the contrary, with verbal concepts which have θ-grids an extra argument can be added by causativization lexicon-internally.

A couple of general remarks to finalize this examination of morphological asymmetries exhibited by noun-verb pairs built on the same concept. Overt morphology can be of great help in deciding many things, e.g. the direction of derivation (but not always so, as the study of causative-unaccusative alternations in Sakha will reveal). Abstract, null morphology, although highly ambiguous and misleading, also offers some clues. An obvious solution to which it points is to generalize across categories and

assume that in zero-related noun-verb pairs there is no direction of derivation. This is a line of research taken up by DM/XS.

It is important to emphasize here that all three (TS, DM and XS) models are driven by their variant of the Lexicon Uniformity Principle: whenever a single concept underlies different lexical categories with varying thematic structures they try to find the least common denominator which can be listed in the lexicon. The approaches differ however in their domain of application: whereas Theta System is primarily interested in verb concepts, Distributed Morphology and Borer generalize their theories to all concepts. As a result the latter two must find a common denominator behind different thematic realizations of a particular verb and its related noun. Since nouns do not require arguments, the lowest common denominator must be argument-less. It must also be category-less because this is the only way to unite both verbs and nouns in a single basic lexical entry. The only option DM/XS is left with is to categorize lexical entries syntactically and to introduce arguments syntactically.

Thus, there are two avenues one can take in the search for the least common denominator (=basic lexical entry): either to stay within a single category or to look across categories. The latter decision is easy to make in a language like English prompted by its null morphology and large-scale use of zero conversion. But when such an approach is generalized to languages which make minimal use of zero conversion and maximal use of overt morphology, e.g. an agglutinative language like Sakha, extensive asymmetries result. DM and XS assume that in zero-related noun-verb pairs both nouns and verbs are derived by attaching, respectively, nominalizers and verbalizers to the acategorial base (=root √). Hence, all nouns and verbs are derived (not primitive) and must have at least the following internal structure: √-nominalizer; √-verbalizer. On the contrary, TS assumes that there will be primitive verbs and primitive nouns: if a noun in a noun-verb pair is primitive (N), then the corresponding verb is derived (N-verbalizer); if a verb in a noun-verb pair is primitive (V), then the corresponding noun is derived (V-nominalizer). This can be schematized as in (91).

(91) Noun-verb pairs and their mutual relations in TS, DM, XS

	Noun member : structure	**Verb member: structure**
TS	N	V
DM/XS	√-nominalizer	√-verbalizer
Example from Sakha	Tyyn ‘breath’ Kös ‘migration’ Saat ‘shame’	Tyyn ‘breathe’ Kös ’migrate’ Saat ’be ashamed’
TS	N	N-verbalizer
DM/XS	√-nominalizer	√-verbalizer
Example from Sakha	Uot ‘fire’ Bas ‘head, master’ Baqa ‘desire’	Uot-taa ‘fire’ Bah-yj ‘master’ Baqa-r ‘desire’
TS	V-nominalizer	V
DM/XS	√-nominalizer	√-verbalizer

Example from Sakha	Tüm-ük 'conclusion' Kepsee-n 'story, narration' Taraa-x 'comb'	Tüm 'conclude' Kepsee 'tell, narrate' Taraa 'comb'

1.5.1. Relational nouns

In this section we would like to address the issue of relational nouns as promised in footnote 32. Kinship terms and body parts are usually referred to as relational nouns. Yet, as noted e.g. in Partee and Borschev (2003), it is a controversial issue whether clearly basic, non-deverbal nouns such as *sister* take arguments. Whichever way the controversy is resolved, the underlying question remains the same: if relational nouns are relational concepts, why don't they turn out as verbs? There are two ways to render this question harmless. First, relational nouns do not denote relations: they only denote one of the arguments of a relation, e.g. *sister* which refers to one of the arguments of the 'sister-sibling' relation where the second argument can be either a sister or a brother. In this respect, *sister* is not relational like *break* which does denote a relation between two arguments ('X break Y').

A second answer to the question invokes Fodor's (1998) atomistic theory of concepts (see also Fodor and Lepore 1998). These works object to viewing concepts (=lexical entries) as complex, internally structured objects – bundles of inferences such that knowing *dog* $\rightarrow$ *animal* is an integral part of knowing what the word *dog* means. They thus oppose the view advocated e.g. in Pustejovsky 1995 that the lexicon is semantic, generative and instead, argue in favour of a denotational lexicon in which lexical meaning is atomistic and identified with denotation: the lexical entry/concept *dog* is an atom which means just *dog* and knowledge of *animal* is not required[33].

With respect to relational nouns, if one assumes that their relationality (i.e. that *sister* implies *sibling (brother or sister)*, *head* implies *body*, or maybe *neck*) is part of their lexical, conceptual content and therefore must be reflected in their thematic properties, then one becomes susceptible to the criticisms raised by Fodor and Fodor and Lepore. A simplified exposition of the criticism would run as follows. Relational nouns are usually organized into families, e.g. chess terms (*king, queen, bishop, knight, castle, pawn*), kinship terms, days of the week, etc. Such families are characterized by intuitions of conceptual connectedness among the members such that knowing what *pawn* means presupposes the knowledge of *queen*. It would be problematic for Fodor's conceptual atomism if such intuitions were definitional, detecting the complex internal structure of concepts, for instance, if the concept PAWN had the concept QUEEN as a constituent or vice versa. Fodor denies that such intuitions detect constituents of concepts. He shows that if conceptual connections were to be incorporated in the conceptual structure, it would be extremely hard to decide which ones to take as definitional. If PAWN has its content in virtue of its position in a network of chess terms, it is absolutely unclear which

[33] Strictly speaking, it is Fodor and Lepore 1998 who talk about lexical entries, lexicon and lexical atomism whereas Fodor 1998 is concerned with the metaphysical aspect of the question and talks about concepts and conceptual atomism but since the authors operate within the same theoretical framework, the assumptions are intertranslatable (concepts=lexical entries, conceptual atomism=lexical atomism).

concepts out of this network one must have in order to have PAWN: is it KING, QUEEN, BISHOP, KNIGHT or ROOK? It would also be difficult to determine which concepts should be taken as primitive. For instance, there will be "the worry which *Tuesday*-related concepts are primitive and which are defined. Is it that Tuesday is the second day of the week (in which case TUESDAY is the definiendum and … WEEK …is the definiens)? Or is it that a week is seven consecutive days, of which the second is Tuesday (in which case, the primitive/defined relation goes the other way around)? The same sort of question crops up, of course, with regard to kinship terms, chess terms, and the like" (Fodor 1998:85).

Fodor does not deny the intuitions themselves, connecting members of conceptual families but he argues that such intuited connections are not semantic, meaning-constitutive. Rather, they belong to what we shall freely paraphrase here as 'world knowledge'. Thus, the relevant intuition is "that there is a *necessary* connection *between being a dog* and *being an animal,* or between *being a bachelor* and *being unmarried,* or between *being a Tuesday* and *being the day before Wednesday*. … these necessities might all be viewed as *metaphysical* rather than semantic. (For example, they might be supposed to arise out of property identities.) The problem … comes not from intuitions that the connection between *being Tuesday* and *coming before Wednesday* is *necessary*, but from intuitions that it's *constitutive* in the sense that one can't have one of the concepts unless one has the other. Compare *water is H_2O* and *two is prime*. Presumably though both are necessary, neither is constitutive. Accordingly, it's possible to have the concept WATER but not the concept HYDROGEN, and it's possible to have the concept TWO but not the concept PRIME" (p. 74).

As mentioned by Fodor on p. 36, language is not like a chess game. In the latter, like in any closed system of symbols, nothing from 'outside' can determine the value of separate elements/symbols inside: their meaning must be defined system-internally which is only possible if it is defined in relation to the other symbols. If language also functioned like this, then conceptual meaning would also be determined entirely language-internally and language-internal conceptual connections would have to replicate world knowledge resulting in a situation "that concepts (/words) are like chess pieces: just as there can't be a rook without a queen, so there can't be a DOG without an ANIMAL. Just as the value of the rook is partly determined by its relation to the queen, so the content of DOG is partly determined by its relation to ANIMAL" (ibid. p. 36). Fodor opposes such an analogy; he subscribes to informational semantics which says that the content of a concept is "constituted, exhaustively, by symbol-world relations" (p. 14) and "having a concept (concept possession) is constituted, at least in part, by *being* in some sort of nomic, mind-world relation" (p. 121).

Thus, intuitive relationality of concepts like SISTER is not lexically represented, i.e. not encoded as part of their meaning. However, what is the difference between a concept like SISTER whose relationality is part of world knowledge and a concept like BREAK whose relationality is inherent to the concept? Relationality of BREAK is also part of world knowledge. So what is the need of taking it to be concept-internal? An answer can be sought in the applicability criteria of concepts. Concepts must be true/hold of something. Thus, the concept

TABLE applies to those things which are tables, the concept GREEN applies to those things which are green, etc. We can see that the application of concepts hides an important asymmetry: 'nominal' concepts like TABLE are reflexive and apply to themselves whereas 'adjectival' concepts do not apply to themselves directly, rather they apply to those things which possess the relevant property. The same kind of indirect, mediated application holds of 'verbal' concepts. We will take this asymmetry inherent in the application of concepts as plausibly indicating the correctness of the assumption that relationality of nominal concepts is not inherent but indeed part of world knowledge whereas relationality of verbs constitutes part of their conceptual meaning.

The same results obtain if these considerations are translated into Theta System where thematic properties of concepts are motivated in terms of causality. We have seen above that a verbal concept like EAT is associated with two necessary conditions – someone to perform the eating process (also a sufficient condition) and something to be eaten. These causal relations are translated into θ-features yielding two arguments of the verb *eat*. With relational nouns like *sister*, on the contrary, it is not motivated in terms of causality that they should take an argument. This is because a necessary and sufficient condition for being a sister is being a female sibling. However, the concepts FEMALE SIBLING and SISTER are coextensive. Therefore with relational nouns it is impossible to translate their causal relations into distinct feature clusters – the potential arguments. As for 'adjectival' concepts like GREEN, a necessary condition for them to hold is the presence of a bearer of this property, e.g. a table. However, since a table constitutes a necessary but not sufficient condition, this causal relation will be translated as [-c-m].

Thus, the following picture emerges. Causal relations into which concepts enter determine their thematic properties: necessary/sufficient conditions associated with a given concept are translated as θ-feature clusters which will be assigned to arguments[34]. Thematic properties of a concept, i.e. the number of feature clusters (arguments), determines how the concept will be categorized as it enters syntax: ∅ arguments → N(oun), 1 argument → A(djective), (at least) 2 arguments → V(erb).

This triple split is a familiar one. However, in other frameworks it is not clearly motivated in terms of argument structure. Thus, in standard semantic literature both nouns and adjectives are taken to be one-place predicates. In prototype theory this three-way distinction is usually motivated semantically: concepts referring to events will be categorized as verbs, those referring to properties as adjectives and those referring to entities as nouns. A framework which comes closest to the current one is Baker's (2003). Cf. the following statement from Baker (2003:293-294): "I am inclined to agree with the medieval grammarians (Robins 1989:88-90), with Sapir (1921:117-19), and with Langacker (1987): the lexical category distinctions correspond not so much to ontological distinctions in the kinds of things that are out there in the world, but rather to the *different perspectives we can take on those things*, the different ways our linguistic capacities give us of describing them" (italics supplied). However, Baker does not formalize

[34] However, if a necessary/sufficient condition associated with concept A yields a coextensive concept B, then B cannot be translated into θ-features. This bans relational nouns from having arguments.

his theory of categorization in terms of perception but votes for a syntactic solution to the issue: although the verb/nonverb distinction is thematically motivated, this thematic motivation is syntactically and not perceptually grounded (verbs take only one argument and are therefore not relational).

In this work, drawing the adjective/verb distinction in thematic terms necessitates a difference in the number of arguments and forces us to view verbs as inherently relational (two-place) which brings us to the question of intransitive verbs. According to the present hypothesis, no verbs are inherently intransitive: they all must be derived and cannot be primitive. To prove this point, several classes of verbs must be considered: unaccusatives, unergatives, weather and raising verbs. In this dissertation we will restrict our attention to the first three classes. For unaccusatives a TS-view will be defended which derives them from underlyingly transitive verbs. For unergatives (cf. the list in (71)) a denominal derivation in Hale & Keyser's style will be adopted. Weather verbs will be treated as unergatives.[35]

1.5.2. A note on concepts in TS, DM and XS: Conceptual coercion and on the necessity of theta features

In the previous section we have used Fodor's atomistic view of concepts as part of the argument against viewing relational nouns as taking arguments. By doing this we have endorsed the theory so the next question is whether or not encoding thematic features on concepts violates conceptual atomism. The answer seems to be negative and hence compatible with Fodor's atomistic view of concepts. First, the association of thematic features with verbal concepts does not entail conceptual decomposition. Second, thematic features do not constitute a concept: they become associated with (assigned to) it within the Theta System component. For Fodor having features is acceptable. What is unacceptable is being a feature bundle, being decomposable into constituent features: "no doubt, the lexical entry for 'boy' includes the syntactic feature +Noun. This is *entirely* compatible with 'boy' being a lexical primitive at *every level* of linguistic description. Saying that lexical items *have features* is one thing; saying that lexical items *are feature bundles* is quite another. *Do not conflate these claims*" (p. 63n.; emphasis in the original).

Compatibility with Fodor's theory is less likely to be claimed for DM which adopts conceptual atomism (cf. Marantz 2001b who takes roots to be further undecomposable atomic concepts).[36] The reason for this incompatibility lies in indiscriminate categorization. For example, the root 'cat' has an equal potential of becoming noun, verb or adjective. Depending on the particular category used, its meaning will vary (in DM's terms, contextual meaning negotiation will take place). A quote from Marantz 2001b demonstrates DM's stand on this issue: "The interaction of root semantics and the semantics of the heads that create nouns, verbs and adjectives determines how good a combination of a root and such a head will be.

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[35] As for raising verbs (which are omitted from the current study), consider the clearly adjectival nature of raising predicates such as *likely, certain*. *Seem* is historically related to the adjective *same* so it may be a 'hidden' adjective.

[36] Although Borer admits extensive conceptual coercion in her exo-skeletal framework, the same criticism is inapplicable because conceptual atomism is explicitly denied in Borer 2004 (chapter 1, section 1).

So, while "cat" as a noun is fine, as is "cat" as an adjective ("catty"), "cat" as a verb has no obvious meaning/use, although it can be given fine meanings contextually ("Meowing and scratching in imitation of his pet feline, Fred catted around the house for hours")". Such conceptual coercion appears to deny conceptual atomism. According to the latter the denotation of the concept CAT should remain the same but conceptual coercion (meaning negotiation) brings about manipulation of CAT's denotation: the concept CAT embedded under small *n(oun)* clearly has a denotation different from the concept CAT when it is embedded either under small *v(erb)* or small *a(djective)*. Therefore in DM a concept like CAT would have to specify more than just the denotation of 'cat': it would have to include enough information for CAT to function both as a verb and as an adjective and therefore will have to be complex. Complexity, however, is incompatible with conceptual atomism. Moreover, manipulating the denotation of a concept to fit its nominal, verbal and adjectival uses violates surface integrity of the concept which also goes against conceptual atomism. In theta system such problems do not arise because one of the concepts is always primitive. It is not the case that a given concept will be simultaneously realized as any of the three lexical categories and therefore there is no need to include complex information (apart from denotation), nor is there any need to manipulate the meaning of the concept to fit three different categorial uses.

1.6. The proposal in a nutshell

This dissertation presents an extension of the Theta System as developed in Reinhart 2000-2003 into the domain of categorization. The main claim is that the three syntactic categories – nouns, verbs and adjectives – arise out of thematic properties of concepts which are, in turn, motivated by the basic causal relations into which the concepts enter. Thematic encoding takes place within the Theta system which enables an interface between conceptual systems and syntax. Therefore concepts do not enter syntax directly: when they are submitted to the syntactic component, they already carry information about their argument structure represented as feature clusters, with a feature cluster corresponding to an argument. Concepts with no feature cluster enter syntax as nouns, concepts with one feature cluster – as adjectives and concepts with at least two feature clusters – as verbs.

Theta system corresponds to the lexicon. However, it differs from the lexicon as understood in DM. The latter is a simple list of concepts (=roots) whereas in TS concepts are associated with thematic features (θ-grids). This difference is closely connected with another one, namely, that TS allows lexicon-internal operations on θ-grids whereas DM, by definition, cannot.

Here we will make an important assumption which is incompatible with the original conception of the Theta system. TS places the following restriction on thematic operations: a predicate's θ-grid can only be manipulated in the lexicon, where manipulations include eliminating, adding or modifying a θ-role. Syntax is not allowed to carry out such thematic alternations. This difference between lexicon and syntax is motivated by the special status of the lexicon as the locus of new concept formation. This restriction will be adopted in the current work but with one modification. Like TS, we will assume that θ-role elimination or modification is

only possible in the lexicon and ruled out in syntax. As for θ-role addition, we will claim that it is possible in the lexicon as well as in the syntax, contrary to TS. The assumption will be empirically motivated by the data to come. In particular, possessor introduction in noun phrases and benefactive introduction in verb phrases will be treated as instances of syntactic θ-role addition. Consider, for example, a two-place concept like *buy* associated with an agentive [+c+m] and a non-agentive [-c-m] feature clusters. Adding a benefactive in the syntax is allowed (cf. *Mary bought John a book*) because it does not form a new concept of buying something for someone: the original concept of buying something remains the same.

Although syntactic introduction of arguments contradicts TS as originally conceived, it is a standard procedure in syntactic theories of argument structure like DM. Therefore the novelty of the approach defended in this dissertation lies mainly in the reconciliation of the two frameworks, DM and XS, which initially may seem irreconcilable. We will claim that the two frameworks do meet – in the idiosyncratic domain of the root. In general, independent of theoretical framework, category determination should take place as early as possible since it is crucial for syntactic computation. In extended TS adopted here this is indeed the case: syntactic category depends on thematic properties which are determined in the lexicon. In DM some allowances must be made. Although roots are embedded under category-determining functional heads, what happens below such heads is highly idiosyncratic. In part, these idiosyncrasies help recapture what has been missed out by indiscriminate categorization, namely, thematic and morphosyntactic categorial asymmetries. In TS these asymmetries are already captured – within the lexicon. It seems advantageous to have one lexicon subject to well-motivated constraints on concept-formation rather than to have a lexicon which is simply a list of items and a highly idiosyncratic domain of the root.

Reconciliation is also motivated by the fact that, as mentioned above, both DM and TS are driven by a common goal (stated in TS as the Lexicon Uniformity Principle): whenever a single concept underlies different lexical categories with varying thematic structures, the least common denominator must be found which can be listed in the lexicon. Considerations of argument structure are crucial in this search for the common denominator. DM generalizes across argument structures of all three categories and, as a result, the least common denominator turns out to be a category-less and argument-less root. TS, on the contrary, is keyed in to deeper conceptual differences which yield a three-way thematic asymmetry, hence there is no need to generalize across all three categorial realizations. The existence of morphosyntactic asymmetries helps settle the issue in favour of TS which motivates these asymmetries by thematic properties whereas in DM they remain unaccounted for (see 1.6.1).

The present proposal is inspired by Reuland's (1986) theory of Arguments and Functors. Reuland 1986 constructs a purely configurational theory of grammatical categories which holds that the syntactic category of a lexical item is fully determined by the combinatorial properties of that item and, conversely, determines a significant number of other lexical properties of the item in question. The differences in combinatorial possibilities between syntactic categories are expressed in terms of the basic parameters 'being an argument' and 'taking an argument' encoded, respectively, by the features A(rgument) and F(unctor). Reuland suggests

that these syntactic features can be related to notions 'bearer of a θ-role' and 'assigner of a θ-role'. Apart from formalization, our approach differs from Reuland's in that it does not generalize to functional categories such as D, T, C.

1.6.1. Contrasting the predictions

Basically, the predictions made both by TS and DM should be contrasted along two major dimensions: argument structure and morphosyntax of verbs, adjectives and nouns. The approach taken by TS can be summarized as in (92) repeated from (89). TS predicts not only three-way thematic and morphosyntactic asymmetries: it also predicts that it is the former which give rise to the latter.

(92) Inherent meaning of a concept → thematic properties → category → morphosyntactic properties

On the contrary, DM assumes that the category of a concept does not depend on its thematic properties, nor does it claim that morphosyntactic properties must be determined by thematic ones. As a result, no asymmetries on either side are expected.

Thus, in DM any root can become an argument if it is embedded under *n* and D. Within a TS-based framework defended here nouns are arguments par excellence whereas verbs and adjectives must be turned into arguments which will be reflected in the appropriate morphological marking (e.g. nominalizing suffixes). The same lack of symmetry carries over to predicative uses of categories: adjectives and verbs can be used as predicates directly, nouns should require support of functional categories.

Within TS, systematic differences are expected among various operations on argument structure depending on their domain of application – lexicon or syntax. TS predicts the existence of parameters regulating the application of argument structure operations cross-linguistically. One such parameter concerns structural accusative case. For DM, accusative case is a purely structural phenomenon so no dependence of accusative on thematic properties of predicates is predicted. On the contrary, for TS accusative decomposes into thematic and structural components, the latter being obligatory and reflecting argument structure information inherent in verbal predicates whereas the former captures the structural character of the phenomenon.

So far for the thematic side of the predictions. With respect to morphosyntax, DM predicts that Ns, Vs and As cannot be monomorphemic (only roots can but they cannot be used in the syntax by themselves). On the contrary, current approach predicts the existence of morphologically unmarked primary/primitive verbs, adjectives and nouns. We also predict that both lexical and syntactic derivation are possible since both lexicon and syntax are computational modules. It is predicted that word formation which reduces arguments (adjectives → nouns; verbs → adjectives; verbs → nouns) takes place in the lexicon. However, syntactic nominalization and adjectivization are not ruled out: it is also possible to nominalize adjectives and nominalize/adjectivize verbs in the syntax but such

nominalizations and adjectivizations are predicted to preserve the initial number of arguments. Word formation which adds arguments can be both lexical and syntactic although lexical argument addition is only possible if a concept has an initial theta grid. Hence, although adjectives can be verbalized both in the lexicon and syntax, syntactic verbalization and adjectivization is the only option available for nouns.

In this dissertation the predictions will be tested primarily using Sakha as the empirical domain. We will demonstrate the correctness of the TS-predictions and develop an argument structure-based approach to categorization in Sakha. It is to be hoped that a detailed investigation of lexical categories in Sakha, their distribution, mutual interactions and argument-taking possibilities as well as a study of argument structure alternations and the morphology involved should contribute to a better understanding of the broad theoretical issues involved, namely, categorization, argument structure, their relationship to each other and to the lexicon/syntax controversy.

1.7. Structure of the dissertation

The dissertation consists of 9 chapters and 5 appendices. Chapter 2 is an investigation of lexical categories in Sakha at the level below zero: nouns, verbs and adjectives are decomposed into roots and suffixes and the properties of each are examined. It will be shown that a strictly morphological approach to categorization is untenable. It will also be demonstrated that lexicon has generative power: differences between lexical and syntactic derivation will be stated. Chapter 3 looks into nouns proving their argumental, non-predicative nature. The goal of Chapter 4 is to defend the thesis that adjectives are one-place predicates. In addition, it offers a detailed treatment of tense, embedded predication, relative clauses, attributive and adverbial modification. Verb-related chapters 5, 6 and 7 are devoted to verbal relationality. Chapter 5 is concerned with causativization in Sakha and argues in favour of the reduction analysis of unaccusatives. Chapter 6 defends the TS-view of accusative case as decomposable into universal thematic and parameterized structural components. The phenomena considered include passives, reflexives, benefactives, reciprocals and embedded accusative subjects. Chapter 7 deals with denominal verbs. Chapter 8 concludes. The data relevant to particular chapters are provided in separate appendices: 1) bound roots in Sakha; 2) root words in Sakha; 3) word formation in Sakha; 4) unaccusatives and causatives in Sakha; 5) n-marking in Sakha.

2. DECOMPOSING LEXICAL CATEGORIES IN SAKHA

In this chapter we will argue the following:

(1) There are primitive nouns, verbs and adjectives (sections 2.1 and 2.2)

(2) Word formation (WF)[1] is possible both in the lexicon and in the syntax (section 2.3)

(3) Properties of lexical WF:
1. LWF results in meaning change
2. LWF can manipulate argument structure by deleting, adding or modifying a θ-role
3. Thus, there are two types of lexical WF: argument-structure-manipulating and argument-structure-preserving
4. AS-manipulating LWF can only apply if a concept is associated with a θ-grid, hence AS-manipulating LWF can take as its input verbs and adjectives but not nouns
5. AS-preserving lexicon-internal manipulation can take as its input any concept irrespective of the presence or absence of a θ-grid

(4) Properties of syntactic WF:
1. SWF does not induce meaning change
2. SWF can only add an argument, it cannot modify or eliminate the original θ-feature clusters (=arguments)
3. SWF can also apply while preserving the original argument structure which results e.g. in syntactic nominalizations

In this chapter we will concentrate on the morphological aspect of the problem of category resolution which, in turn, has two facets. One is more general: if there are three categories, the presence of three-way asymmetries in morphological marking is expected and the above assumptions can be defended on morphosyntactic grounds. The second is more specific: if there are three categories, there must be three types of markers, for each category, i.e. nominalizers, verbalizers and adjectivizers. It will be shown that the first facet indeed holds true but not so for the second. One of the outcomes of the chapter will be that due to suffixal ambiguity there are no clear-cut morphological means of accounting for the existence of three categories and therefore a more optimal solution is to derive categorial distinctions in terms of thematic properties. A consideration of thematic properties of the three categories is the subject of subsequent chapters.

[1] The terms 'word formation' and 'derivation (both lexical and syntactic)' will be used interchangeably. The term 'concept formation', on the contrary, will be restricted to apply to lexical derivation.

As is clear from above, only one criterion is invoked in distinguishing derivation from inflection – that of meaning change, conditioned by viewing the lexicon as the locus of new concept formation, as is done here. It will be shown in section 2.3 that such approach avoids the many inconsistencies of other criteria[2] whose relevance is moreover not clear. Thus, the approach entertained here can be summed up by the following quotation from Beard (1998:64): "Derivational morphology differs from inflectional morphology in that it provides new lexical names for objects, relations, and properties in the world".

The chapter has the following structure. In section 2.1 root and suffix inventories of Sakha will be investigated. The results support the existence of a three-way distinction among the basic/primitive lexical categories. Section 2.2 will argue against the view that roots can become nouns, verbs or adjectives by virtue of being embedded under/attaching appropriate category-determining heads/affixes. Section 2.3 will offer various kinds of evidence against the DM-tenet "all derivation in the syntax". Sections 2.4 and 2.5 will explore, respectively, lexical and syntactic derivation of nouns and adjectives. Section 2.6 concludes.

2.1. The inventory of roots and suffixes

Appendices 1-2 list a sample of primary/basic/underived words from Sakha, i.e. words which do not contain a base capable of functioning as an independent word. The morphology of these primary words sanctions dividing them into two classes: one consisting of bound root plus suffix combinations and another consisting of roots which are used as independent words. A bound root is a root which cannot be used by itself and needs a suffix in order to become a noun, verb or adjective: e.g. √il- which becomes the noun *ilii* 'hand' when suffixed with the nominalizing suffix –YY; on the contrary, √tar- and √bos- become, respectively, a verb and an adjective → *taraa* 'to comb', *bosxo* 'free'. A root word is a root which can be used by itself as a noun, verb or adjective; e.g. *ap* 'noun: magic', *as* 'verb: open', *teŋ* 'adjective: equal'. The fact that root words already have either nominal, adjectival or verbal category but not that of prepositions or adverbs and that bound roots also acquire one of these three categories after suffixing is consistent with Baker's framework but argues against the categorial feature approach which yields a four-member (N/V/A/P) system.

However, within the Theta system we would expect that a given concept can only be categorized in one way because its categorization depends on its thematic properties which, in turn, depend on the causal relations into which the concept enters. If one and the same concept in one case were associated with no feature cluster (thus becoming a noun), in another case with one feature cluster (becoming an adjective) while in yet another case with two feature clusters resulting in a verb, then the theory would be rendered void. If we take a look at the distribution of roots across the three categories, we can see that the theory is supported by the existence of 1) root words which are primarily nouns; 2) root words which are primarily verbs; 3) root words which are primarily adjectives; 4)

[2] Listed and discussed e.g. in Stump 1998; see section 2.3 below.

bound roots which primarily become nouns after suffixing; 5) bound roots which primarily become verbs after suffixing and 6) bound roots which primarily become adjectives after suffixing. However, this is not the end of the story. Given a double classification of roots and a triple classification of categories, we get 14 logically possible combinations as outlined in (5) and (6). Out of these, the only combination which is not encountered is that of root words which are capable of functioning simultaneously as nouns, verbs and adjectives. Cases which are problematic for TS are boldfaced.

(5) Bound roots:
1. Bound roots which become nouns
2. Bound roots which become verbs
3. Bound roots which become adjectives
4. **Bound roots which can become nouns, verbs and adjectives**
5. **Bound roots which can become nouns and verbs**
6. **Bound roots which can become nouns and adjectives**
7. **Bound roots which can become verbs and adjectives**

(6) Root words:
1. Root words which become nouns: nominal roots
2. Root words which become verbs: verbal roots
3. Root words which become adjectives: adjectival roots
4. Root words which are ambiguous between nouns, verbs and adjectives
5. **Root words which are ambiguous between nouns and verbs**
6. **Root words which are ambiguous between nouns and adjectives**
7. **Root words which are ambiguous between verbs and adjectives**

Before these classes are addressed in more detail in section 2.1.3, we would like to consider the nature of roots in general and the nature of the suffixes which we encounter in the appendices.

2.1.1. The evolutionary routes of roots

It is possible to think of bound roots as having a rather general meaning and as capable of going in different categorial directions which would result in the modulation of the basic conceptual meaning. Depending on how flexible/rigid a given conceptual meaning is, one would account for the existence of seven possibilities in (5). Thus, a root like √tüöl- can only become a noun resulting in *tüölbe* ‘remote place; dialect’ whereas the meaning of the root √xapta- can be adjusted so as to fit all three categorial meanings: *xaptahyn* ‘flat wooden board’; *xaptaj/xaptat* ‘become/make flat’; *xaptaqaj* ‘flat’ and so on for the other classes in (5). This would be the track taken by approaches like DM which take the lexicon to be a list of bare roots. However, as argued in chapter 1 (section 1.5.2), coercing a single concept to fit three types of meaning violates conceptual atomism (to which Bare Root theories are most likely to subscribe). On the contrary, the route we are going to follow which is made possible within the Theta system does not require

conceptual coercion (as discussed in 1.5.2). We will argue that a given concept can only be categorized one way and that other categorial meanings are derived from that basic one.

A derivational view does not deny the fact that concepts expressed by bound roots have a rather general meaning. For instance, compare the root √byr- which connotes something small and useless and becomes the noun *byrdax* 'mosquito' after attaching the suffix –TA-x. A variant of this root √byt- is encountered in words like *bytaryj* 'crumble up', *bytarxaj* 'small, minute', *bytyryys* 'scrap', *bytahyt* 'mouse' (all marked by unpredictable morphology). Sometimes a single root is associated with only one independent word, sometimes it can give rise to a number of different phonologically well-formed words which belong to the same or distinct categories and the meanings of which are distantly related. However, it is never the case that a bound root by itself can express an independent meaning. Usually, the meaning of a bound root is too general to draw with any certainty a conclusion as to what it refers to in the world outside our minds: whatever a bound root expresses boils down to some implication or connotation. Consider, for instance the triplet *köŋül* 'freedom', *köŋöö* 'restrict, limit' and *köŋös* 'greedy' which all involve √köŋ-. As can be gleaned from the meanings of the independent words and not from √köŋ- itself, the latter implies something which has to do with freedom or restriction thereof. In such cases it is hardly plausible to claim that √köŋ- is a root listed in the lexicon which expresses a vague meaning having to do with freedom and when the root is submitted to the syntactic computation and becomes embedded under a category-determining functional head, this meaning gets modulated. Note that all three members of the triplet involve completely productive and regular morphology: /-AA/ as a verbalizer, /-l/ as a nominalizer and /–s/ as an adjectivizer.

Therefore we will not claim that bound roots with extremely general meanings like "something which has to do with this or that" are listed in the lexicon which seems to be a common assumption in DM which is forced to admit general meanings in order to accommodate concept stretching/coercion[3]. If the bound root √köŋ- were listed as a lexical item, it would have to correspond to a concept, hence have some denotation. However, this denotation would have to be calculated as a common semantic denominator behind the three members of the above triplet, namely, 'freedom', 'restrict, limit' and 'greedy', which is highly implausible. Within the extended Theta system there is no need to extract a common meaning from the meanings of the members of noun-verb, noun-adjective or verb-adjective doublets or noun-verb-adjective triplets. Therefore we will assume that it is not bound roots (see appendix 1) which are listed in the lexicon but the words to which they give rise, i.e. root-suffix combinations. One possible exception to this may be the root √xan- or its variant √xaj- which occurs consistently in a number of wh-words, cf. (7). However, since here we are dealing with a member of the functional lexicon, i.e. a lexicon

[3] Cf. Marantz 2001b for whom √STROY is a manner root that underlies such verbs as *destroy, construct, instruct, obstruct, restructure* all of which are derived in the syntax as a result of incorporating to the root √STROY an appropriate particle the role of which is to introduce an external argument. The meanings of the verbs arise as a result of an interaction between the functional particle and the semantics of √STROY.

which contains functional elements, no problems are presented for the lexicon which lists concepts.

(7) The bound wh-root √xaj-/√xan-[4]

Suffixes	-AA	-A	-Dax	-LYk	-TA	-Tan
xaj-/xan-	Xajaa	Xaja	Xajdax	Xannyk	Xanna	Xantan
Gloss	Do what	Well; what now	How	Which	Where	From where

Note that these considerations do not apply to root words which already have an independent usage and can be easily equaled with concepts/roots listed in the lexicon. Thus, the following conclusion emerges: the (conceptual) lexicon lists roots which must correspond to concepts which must have meanings/denotations (note that the term 'meaning' is not used in the technical sense, as *intension*). This conclusion has implications for extended TS because it offers a way to account for the problematic cases in (5) and (6). Before this topic is taken up in section 2.1.3, we will consider evidence for the existence of bound roots and the nature of suffixation in Sakha.

2.1.1.1. Evidence for bound roots

The seven classes of bound roots listed in (5) are real. In order to establish that we are dealing with a bound root plus an affix combination a number of dictionaries of Sakha and related Altaic languages were consulted (see references). Whereas in classes 4 through 7 it makes perfect sense to postulate bound roots, classes 1, 2 and 3 might raise some questions as to the necessity of extracting a bound root. One might object that, since in these cases a root has only way to go, classes 1, 2 and 3 of (5) may be collapsed with classes 1, 2 and 3 of (6). Such collapsing may also be justified by the assumption we have made in the previous section that in classes 1, 2 and 3 of bound roots it is not the bound root itself which is listed in the lexicon but the bound root plus suffix combination. For instance, *ahyy* 'molar' (√ah- plus the suffix -YY) will be listed as it is and not as √ah-. However, apart from historical and typological considerations which lie outside present concerns, extracting bound roots in classes 1-3 is important because, as we hope, it represents the real picture better. The arguments which follow are valid not only for classes 1-3 in (5) but they offer evidence for the psychological salience of bound roots in general.

[4] The following triplet can also be considered as containing a bound root √ki- which refers to human referents: *ki-m* 'who', *ki-hi* 'human, person', *ki-ni* 'he/she (personal pronoun: human reference only)'. The suffixes –m and –hY do function as nominalizers; but the suffix –ni does not seem to be encountered elsewhere. One more triplet is presented by *tuo-x* 'what', *tuo-j* 'say what; blabber; sing' and *tuo-hu* 'witness, evidence'. Again, the suffixes are possible nominalizers and verbalizers. The root √tuo- may be related to the question particle *duo* (given that t/d-alternations in stem-initial consonants appear elsewhere). In these two triplets involving √ki- and √tuo- we are also dealing with functional elements, e.g. the feature [human] for √ki- and another [wh] for √tuo-. *Tuohu* can be excluded from the second triplet: it probably got reanalyzed as a concept with an independent meaning of its own and is now a full-fledged member of the conceptual lexicon.

First of all, the separate status of classes 1-3 reflects dialectal differences among the speakers of Sakha: in different dialects bound roots from the first three classes sometimes appear with the same or related meaning as in the literary language but with a different suffix. The same applies to bound roots from other classes. The table below gives some examples.

(8) Dialectal differences in Sakha concerning suffix attachment to bound roots

Literary	**Gloss**	**Dialectal**	**Gloss**
Bal-ys	Younger sibling	Bal-ty	Younger sibling
Ad-aqa	1) Foot restrainers for horses 2) Burden, load	Ad-al-qa (also: ad-ar-qa-na, ad-yl-qa)	1) Foot restrainers for horses 2) Wooden tool which resembles *adaqa* 'foot restrainers for horses'
Xaax-ynaj	Species of fish	Xaax-a	1) The same species of fish 2) Dried fish
Suor-at	Yoghurt	Suor-qa (also: suor-aka)	1) Yoghurt 2) Brain, bone marrow
Ardj-aa-x	Large fish-trap with a wide opening	Ardj-aŋ	Large fish-trap with a wide opening
Köl-ö	Working cattle	Köl-gö (also: köl-gö-m)	Working cattle
Mannj-a	Favour	Mannj-y	Benevolence
		Mannj-yl-ba	Reward
Il-ij	Become wet	Il-ime-x	Wet sponge
		Il-ip-te	Last year's wet grass
Meen-e	Futile, purposeless, loose	Men-ee-k	Wild reindeer
Men-ik	Naughty	Men-ex	Musk deer

Second, bound root extraction (in all classes) shows that there is nothing special about the suffixes which attach to bound roots: they are drawn from the basic suffix inventory (see section 2.1.2).

Third, extracting bound roots is also important from a comparative point of view (with respect to Altaic/Turkic studies). For instance, a perusal of Sakha and Turkish dictionaries yields a large number of correspondences between the two languages when one and the same bound root with the same/related meaning (modulo morpho-phonological modifications) appears in both languages with related or different suffixes. (9) presents just two of such examples.

(9) Böl-öx (S) Group; division, compartment; section …
Böl-ük (T) Part, division; compartment; group …
Böl-üm (T) Portion, slice, division, chapter, part, section …
O-ho-x (S) Stove, oven, furnace

O-ca-k (T) Fireplace, hearth, oven, furnace …

A fourth piece of evidence for bound root vitality concerns degree intensification with adjectives and therefore has restricted applicability (for class 3 only). Adjectives in Sakha can be subjected to two types of reduplication – either of the initial syllable or of the whole word – both of which have the same degree intensifying effect. It is the latter type – full reduplication which is relevant for the present argument. When full reduplication takes place, it can detect internal structure if the adjective is a bound root plus a suffix and modify the vowel of the suffix (third row in (10)). The vowel of the root cannot be modified which explains the impossibility of a third row in (11): adjectival root words are pure roots which are capable of becoming adjectives directly, without the mediation of any suffixes.

(10) Degree modification with bound root adjectives (class 3 in (5)):

A√-suffix	√-suffix-√-suffix	√-suffix$_{\text{MODIFIED}}$-√-suffix
Ücügej	*Ücügej-ücügej*	*Ücügiij-ücügej*
‘good’	‘very good’	‘very-very good’
Cugas	*Cugas-cugas*	*Cuguus-cugas*
		Cugyys-cugas
‘close’	‘very close’	‘very-very close’

(11) Degree modification with independent root adjectives (class 3 in (6)):

A	A-A	*A$_{\text{MODIFIED}}$-A
Ciŋ	*Ciŋ-ciŋ*	**Ciiŋ-ciŋ*
‘dense’	‘very dense’	
Kieŋ	*Kieŋ-kieŋ*	**Kiiŋ-kieŋ*
‘wide’	‘very wide’	

A fifth piece of evidence for the vitality of bound roots comes from the restricted use of some bound roots in modern language. This is typically possible inside fixed expressions. For example, √kys- is a bound root occurring inside the following independent words – *kyhyn* ‘winter’, *kystyk* ‘winter house’, *kystaa* ‘spend winter’. It can also be used by itself in three contexts: *kys xaar* ‘snow which will stay until May (lit. √winter snow)’, *kys mas* ‘wood prepared in the autumn to last for the whole winter (lit. √winter wood)’ and *kys buolla* ‘winter began (lit. √winter become-past.3)’.

A final piece of evidence is considered in the next section.

2.1.1.2. Evidence from word coining for the psychological salience of bound roots

That bound roots are psychologically salient is supported by the fact that word coining can make use of them. Inventing neologisms not only from independent words but also from roots which are otherwise bound and appear embedded under (often highly idiosyncratic) suffixes emphasizes the ability of native speakers to detect and extract these bound roots. This ability has proven to be quite useful in the

recent years when a number of new words have been coined to replace loanwords: a bound root is extracted and combined with a different suffix or combination of suffixes than previously accepted resulting in a new word. Such new words appear regularly in newspaper language[5]. Whether they will be eventually incorporated into the conservative literary language and accepted by all native speakers, time will show. One such word which has been invented quite recently and already accepted is *oŋ-ku-l* 'plan, scheme, model' derived with the suffixes /-KI/ and /-l/ from the bound root √oŋ- which forms the basis of *oŋor* 'to make' and *oŋohuk* 'thing made'. The table below lists five more fully integrated neologisms which are no longer considered controversial.

(12) Neologisms derived from bound roots

Existing words	**Gloss**	**Neologism**	**Gloss**
Ol-ox	Life; seat	Ol-omto	Basis, foundation
Ol-or	Live; sit		
Möl-bö-j	Become large	Möl-üü-k	Profit
Ül-ler	Divide, partition, distribute	Ül-ük	Share, stock
Ül-ex	Reservation, contract, order		
Ura-n	Refined, exquisite	Ura-mnjy	Art
Buo-j	Forbid, prohibit	Buo-qu	Prohibition

It is important to mention here that we disagree with Beard 1998 who makes a distinction between grammatically determined derivation and conscious, extragrammatical irregular phenomena which may look like derivation but are not subject to principles of grammar. The processes which Beard treats as extragrammatical are listed in (13); they all expand the lexical stock of a language, just like derivation.

(13) **Back formation**: difficulty → difficult, sculptor → sculpt
Clipping: telephone → phone
Blends: smoke + fog → smog
Acronymization: laser, scuba
Analogical formation: workaholic, shopaholic, fishburger
Borrowing: sputnik, thug
Loan translation
Commonization: aspirin, quisling
Semantic narrowing: percolator, escalator
Folk etymology: crawfish

[5] An informal inquiry on word coining was conducted at the Viluysk Pedagogical College by I. Vinokurov in March 2003: 20 students were asked to invent native substitutes for 15 loanwords from Russian. The students came up with 75 new words, of which 17 were minted on the basis of bound roots, the rest were derived from independently existing, phonologically well-formed words.

Out of these mechanisms, the one most relevant to our present concerns is back formation when a word is (falsely) analyzed as consisting of a 'root' plus a 'suffix' and the 'root' is extracted and made into an independent word. For Beard this is an extragrammatical process: cf. "The point is that these processes tend to be conscious, extagrammatical, and hence grammatically irregular. Rather than filling a position in some lexical paradigm, they create new lexical bases which then generate their own paradigms" (ibid. p. 57). However, the point of excluding this type of derivation from the grammar is not clear. A sentence like *I saw an interesting movie yesterday* is also created intentionally: one pronounces it if one intends to say what it means. Yet this sentence is not created extra-grammatically. This type of argument in fact demonstrates that the boundary between the lexicon and syntax should not be drawn in terms of transparency, regularity or consciousness (see 2.3 below).

2.1.2. Simplex and complex suffixes

A study of suffixation in Sakha shows that the basic inventory consists of simplex suffixes and that all complex suffixes are made up of combinations of simplex ones. Examples of simplex suffixes are reflexive/passive /–n/; reciprocal/comitative /-s/; verbalizing /–AA/; nominalizing /-k/, /-l/, /-m/, /-x/; etc. Examples of complex suffixes are verbalizer /-LAA/ combining /–l/ and /-AA/; adjectivizer /-LAAx/ combining the previous suffix /-LAA/ plus /-x/; nominalizer /-AAx/ containing /-AA/ and /-x/ and so on.

The preceding examination of bound roots showed that in order to become an independent, full-fledged word a bound root needs to be saturated by an affix. There are roots which require just one, simplex suffix and there are roots which require a complex suffix which combines a number of simplex suffixes (usually two but can be more). Whenever we have categorial doublets or triplets built on the same bound root, e.g. noun-verb or verb-adjective pairs, it is impossible to draw any inferences about the direction of derivation from the composition of suffixes since this composition is highly idiosyncratic. For instance, a given bound root can evolve into two distinct categories and both evolutionary routes may extend over the same distance (measured in terms of suffixes). To consider a specific case, the pairs *küüs* 'N: strength' – *küür* 'V: strain/exert oneself' and *ajdaan* 'N: noise, uproar' – *ajdaar* 'V: be noisy, make a fuss' are derived from the bound roots √küü- and √aj-. In the former case there is one simplex suffix: -s for the noun, -r for the verb. In the latter case the suffix is complex involving three simplex ones, the first two of which are identical for both the noun and the verb and only the last one is different: the pair *ajdaar/ajdaan* should be parsed as *aj-L-AA-n* versus *aj-L-AA-r*. The suffixes may also be homonymous. The bound root √san- can become both a noun and a verb and both categorizations involve the same simplex suffix –AA: *sanaa* 'N: thought' versus *sanaa* 'V: think'. Homonymous suffixes can also be complex as in the case of *kujaar* 'N: outer space' versus *kujaar* 'V: fly up, soar' derived from √kuj- with the help of –AA-r.

However, sometimes one of the evolutionary routes may be longer. The root √xal- related to the concept of the sky has the primary potential of becoming

either a verb or a noun. The former road requires only one suffix resulting in *xalyn* 'clear up (about the sky)'. On the contrary, becoming a noun, *xal-l-aa-n* 'sky', requires three steps – the suffixes /–l/, /-aa/ and /–n/ and there is no cut-off point in between: *xal-yl, *xal-laa are not possible words. The reverse holds in the pair *elie* 'N: kite (bird)' – *eleer* 'V: kite (go in a rapid, flighty manner)' derived from √el- where becoming a verb requires one step (i.e. one suffix) more than becoming a noun.

These and other examples show that one cannot attach much value to the nature of √-suffixation when it comes to determining which member of a √-based doublet/triplet is the basic one and which ones are derived.

2.1.2.1. Suffixal promiscuity

Two types of suffixal promiscuity can be distinguished. The first has been analyzed in DM as reflecting different levels of attachment: English *–er*, for instance, can attach either right above the root categorizing the latter as a noun or above a verbalizing functional head. Low level of attachment is shown by *donor, rotor, debtor, malefactor, benefactor* whereas in *donator, rotator, driver, writer* the affix is attached high. Under DM, the possibility of different attachment levels is conditioned by the existence of two different places of word formation: the domain of the root (when a particular affix attaches either below a categorial head or as a categorial head itself) and the domain above categorial heads. Within the Theta system, this first type of suffixal promiscuity would also be analyzed as reflecting two different domains of word formation but the relevant opposition will be that of lexicon versus syntax. The occurrence of suffixes across domains will be considered later in sections 2.3-2.5.

More important for the issue at hand, namely, deriving the existence of three basic/primary categories, is the second type of suffixal promiscuity when one and the same suffix is used across categories. For instance, if we take a look at the bound roots in appendix 1, we encounter some suffixes saturating bound roots in all three categories. The suffixes are listed in (14). Assuming, as we have done in section 2.1.1, that bound roots are psychologically salient and that native speakers can detect the √-suffix internal structure in words built from bound roots, one must answer the question of what drives successful categorization in these cases if morphological information cannot be relied on.

(14) Ambiguous categorial suffixes appearing on bound roots

Nouns	Verbs	Adjectives
√-AA/-YA	√-AA	√-AA/-YA
√-j	√-j	√-j
√-l	√-l	√-l
√-n	√-n	√-n
√-r	√-r	√-r
√-s	√-s	√-s
√-t	√-t	√-t

√-x	√-x	√-x

The same question arises for some of the suffixes listed in the table above when they are used in category-changing derivation from independent bases. The most ambiguous and therefore problematic is the suffix /-s/: it displays nominalizing, adjectivizing and verbalizing functions. As a nominalizer, it can attach to nouns, verbs and at least one adjective (15). As an adjectivizer, it attaches to verbs and a couple of nouns (16). As a verbal suffix, it has two uses: one is to mark reciprocal and comitative voices (see chapter 6) and another is to derive some verbs from other verbs as shown in (17)[6].

(15) /-s/ as a nominalizer

Base	**Gloss**	**Base-s → N**	**Gloss**
Kün	N: Day	Künüs	Afternoon, midday
Üge	N: Fable	Üges	Tradition, custom; habit
Saŋa	A: New	Saŋas	Daughter/sister-in-law
Xamnaa	V: Move	Xamnas	Salary
Kyrbaa	V: To cut into pieces	Kyrbas	A piece
Xat	V: Twist, weave (a rope)	Xatys	Leather rope

(16) /-s/ as an adjectivizer

Base	**Gloss**	**Base-s → A**	**Gloss**
Aŋardaa	V: Divide in two	Aŋardas	Single, alone
Kuttaa	V: Frighten	Kuttas	Fearful
Kylgaa	V: Shorten	Kylgas	Short
Kömüskee	V: Defend	Kömüskes	Defensive, protective
Baaqynaa	V: Speak in a low voice	Baaqynas	Low (of voice)
Ös	N: Spite, hostility	Öhös	Stubborn
Alyp	N: Magic	Albas	Cunning (also noun: trick)

(17) /-s/ as a verbalizer

V	**Gloss**	**V-s → V**	**Gloss**
Baaj	Tie	Baajys	Carp/cavil at
Iir	Go mad	Iiris	Quarrel with
Yl	Take	Ylys	Undertake
Bier	Give	Beris	Share
Ketee	Watch, keep an eye on	Ketes	Wait

[6] On verbs which allow idiosyncratic s-marking (i.e. neither reciprocal nor comitative or in addition to these two voice meanings) see chapter 6.

Sit	Catch up with	Sitis	Succeed, achieve
Tap	Hit (one's aim)	Tabys	Get along
Üŋ	Worship, revere	Üŋüs	Complain
Xas	Dig	Xahys	Rake/search through, ransack

It can be objected that s-nominalizer is not as productive as s-adjectivizer/verbalizer and therefore does not have to be taken into account. However, this would still leave unsolved the problem of ambiguity between /-s/ as an adjectivizer and /-s/ as a verbalizer. Second, it is not clear if productivity or lack thereof should be considered a serious threat. On the one hand, productivity is not an absolute notion (see discussion in section 2.3). On the other hand, suffixes which are treated as unproductive in Sakha (labeled in appendix 3 as sporadic) are often invoked in word coining. For instance, the suffixes which form *ura-mnjy* 'art' and *buo-qu* 'prohibition' in (12) are otherwise not productive at all. Also recall footnote 5 which mentions an informal inquiry on word coining conducted in Viluysk: the majority of 75 neologisms were derived with highly idiosyncratic and unproductive suffix combinations.

The suffixes /-x/ and /-k/ from (14) are also problematic because both of them function as extremely productive adjectivizers and nominalizers. Two more suffixes of interest are /-YY/ which derives nouns from verbs and /-A/ which derives adjectives from verbs (see appendix 3 for examples: (23) in section 2 and (21) in section 8). Since these two suffixes are less ambiguous than others, they would be likeliest contenders to claim the titles of a nominalizer and an adjectivizer. However, this would not solve the morphological aspect of the problem of category resolution (mentioned in the opening lines of this chapter) since, on the one hand, not all nouns and adjectives are marked with these two suffixes and, on the other, /-YY/ and /-A/ display promiscuity of the *donor/donator* type (i.e. across domain boundaries) by deriving simultaneous gerunds from verbs.

We can continue this morphological exercise but the upshot of the overall discussion will nevertheless be that, if we cannot rely on clear-cut morphological means of accounting for the existence of three categories, a thematic solution offered by the Theta system, as outlined in the introduction, is a better alternative.

2.1.2.2. Suffixal instability

One property of suffixes in Sakha is their instability. Take, for instance, the bound root √y- from which two independent words can be derived: *ynax* 'N: cow' and *ya* 'V: to milk'. The latter is derived with the verbalizer –AA and the former with the nominalizing suffix –na-x. *Ynax* 'cow' can be verbalized with the universal verbalizer –LAA → *ynaxtaa* 'provide with cows; go looking for cows; etc.'. It can also be subjected to a different kind of verbalization which does not respect the integrity of *y-na-x* and derives a new verb by getting rid of the nominalizing suffix –x and replacing it with either –j or –t (both verbalizers) → *y-na-j* '(intrans.) resemble a cow', *y-na-t* '(trans.) make resemble a cow'. The same thing happens with *u-ta-x* 'beverage' derived from *uu* 'water' with the suffix –ta-x: *u-ta-x* → *u-ta-t* 'become thirsty'. In these cases we cannot say that *ynaj/ynat* and *utat* are derived from bound

roots with –j and –t: there are no bound roots *√yna- or *√uta-; the relevant bases are the bound root √y- and the nominal root word *uu* 'water'. It is also impossible to claim that the verbs in question are derived from √y- and *uu* with the suffixes –na-j, -na-t or –ta-t because these are not possible verbalizers. /-na-j/, /-na-t/ and /-ta-t/ are only encountered in verbal contexts if there is a corresponding nominal context with the nominalizing suffixes /-na-x/ and /-ta-x/. Rather, in such contexts we are dealing with the instability of the nominal suffixes –na-x and –ta-x: their second (final) constituent suffix –x can be dropped and replaced with another one.

The unstable property of suffixes in Sakha can be explained by the agglutinative nature of the language. All complex suffixes are composed of simplex ones and the boundaries between suffixes are easily detected because of agglutination. Unlike fusion, agglutination does not create a strong link between the stem and the suffix by melting these two together: things glued fall apart more easily than things fused. Therefore it is not surprising that simplex suffixes can be dropped and replaced by others giving rise to rather unusual suffix combinations such as the ones mentioned above: /-na-j/, /-na-t/ and /–ta-t/.

To finalize this section on suffix instability, let's consider two specific cases of verb to adjective conversion. The verbs *djölörüj* 'get holes' and *ildjirij* 'fall to pieces' both contain the complex suffix –ryj consisting of –r and –j. In the former case the suffix –ryj derives a new verb from *djöl* 'make holes'; in the latter case it is attached to the bound root √ildji-. *Djölörüj* 'get holes' and *ildjirij* 'fall to pieces' can give rise to adjectives: *djölörköj* 'having holes' and *ildjirkej* 'falling to pieces'. Both adjectives are derived via suffixing –XA-j, a very productive adjectivizer. However, as we can see, the suffix –j of –ryj was forced to drop and replaced by –XA-j. Again, this shows that the verbalizer –ryj is not a stable suffix and word formation processes are sensitive to its constituent structure.

2.1.2.3. Not all derivation is suffixation

Since Sakha is an agglutinative language, almost all derivation involves suffixation. However, modification of a root vowel is also encountered which involves either diphthongization or vowel lengthening. For example, the word *aqabyyt* 'priest' is historically derived from *aqa-byt* 'our father (father-1pl)'. Eventually, *aqabyt* meaning 'priest' became separated from *aqabyt* 'our father', reanalyzed as an independent root and entered in the lexicon as such. To emphasize the fact that a root-plus-suffix combination has indeed been reanalyzed as a single new root, the vowel /-y/ of what was originally the first plural suffix /-byt/ became lengthened which is never possible in a genuine inflectional suffix. As a result, in modern language the original link between the two forms escapes many speakers.

There are also a number of other idiosyncratic cases where the nature of derivation involved is not straightforward suffixation. For instance, the verb *baaj* 'to tie' is apparently derived from the noun *bya* 'rope': here, in addition to j-suffixation, the vowel of the base is modified. Another unclear case is presented by the pairs of related words: *baj* 'become rich' – *baaj* 'rich' and *kur* 'dry, old, stale' – *kuur* 'become dry'. Here it is not clear if we are dealing with derivation which involves

vowel lengthening or if one and the same bound root is realized in one case with a short vowel and in another with a long one.

2.1.3. Explaining categorial ambiguities of roots in Theta system

Two conclusions at which we have arrived in the course of the preceding discussion will help explain away the problematic cases boldfaced in (5) and (6). The first one is given in (18). The second concerns suffixal instability in Sakha.

(18) The lexicon lists roots which correspond to concepts with independent meanings/denotations

First, let's consider bound roots restricting our attention to those which can become nouns, verbs and adjectives (appendix 1, section 4). Other classes of bound roots can be explained along the same lines. In class 4 there are ten cases to account for. (18) renders the following five triplets harmless for TS.

(19) N/V/A bound roots denoting different concepts

#	Root	Noun	Verb	Adjective
1.	√köŋ-	Köŋül 'freedom'	Köŋöö 'restrict, limit'	Köŋös 'greedy'
2.	√bar-	Baryl 'sketch, outline'	Baryj 'dimly appear in the distance'	Baraan 'dark'
3.	√xar-	Xarys 'care, protection'	Xaraj 'hide away, take good care'	Xaram 'thrifty, economical'
4.	√taa-	Taabyryn 'puzzle'	Taaj 'guess'	Taamax 'enigmatic'
5.	√sys-	Syhyan 'relation, attitude'	Syhyar 'attach (trans.)'	Syhyamax 'sociable'
			Syhyn 'attach oneself to'	

In the five remaining cases we have four nouns (20) and one adjective (21) referring to concepts different from those to which, respectively, the corresponding V/A-pairs and N/V-pair refer.

(20) N-concept versus V/A-concept

#	Root	Noun	Verb	Adjective
1.	√xapta-	Xaptahyn 'flat wooden board'	Xaptaj 'become flat'	Xaptaqaj 'flat'
			Xaptat 'make flat'	
2.	√njurgu-	Njurguhun 'snowdrop'	Njurguj 'be first, best, choice'	Njurgun 'first, best, choice'
			Njurgut 'glorify'	
3.	√subur-	Suburqa 'sheaf of wheat'	Suburuj 'stretch, extend, shoot up (intrans.)'	Suburxaj 'stretched, extended'

			Suburut ‘stretch, extend (trans.)’	
4.	√kyr-	Kyryy ‘furthest border, edge’	Kyyrat ‘throw very far; make soar up high’	Kyyraj ‘far away, distant’
			Kyyraj ‘soar up very far, high’	

(21) A-concept versus N/V-concept

Root	**Adjective**	**Noun**	**Verb**
√syl-	Sylaj ‘having bad appetite’	Sylaa ‘tiredness’	Sylaj ‘become tired’
			Sylat ‘make tired’

The question now is how to account for the cases which are not excluded by the principle in (18). For instance, in (20) we have a bound root giving rise to both verbs and adjectives and in (21) the same bound root seems to result in a noun and an adjective and, apparently, in all five cases the same concept underlies the different categories. For bare root theories these would be instances of concept stretching: they would assume that what is listed in the lexicon is e.g. √syl- or √kyr-. This option is precluded for the present framework, given (18): neither √syl-, nor any other bound roots denote anything by themselves. Therefore we have assumed above in 2.1.1 that it is not bound roots which are listed in the lexicon but the words to which they give rise, i.e. root-suffix combinations. With respect to (20) and (21) we will propose the following (anticipating the discussion to come in 2.3-2.5). The four V/A-pairs in (20) and one N/V-pair in (21) actually contain three members because the verb comes in transitive (=causative) and intransitive (=unaccusative) variants. Assuming the TS-analysis of causative/unaccusative alternations as discussed in chapter 1 (section 1.4.3) and as defended for Sakha in chapter 5, it is the transitive verbs in (20) and (21) which are listed in the lexicon and the five intransitives are derived by unaccusative reduction. The adjectives in (20) are derived from the intransitive verbs in the syntax by replacing the unstable suffix –j with the regular adjectivizer –XA-j or the idiosyncratic –n[7] (on deriving adjectives from intransitive verbs see section 2.5). The noun in (21) is also derived from the intransitive verb but in the lexicon because, although V→N derivation can take place either in the lexicon or syntax (section 2.4), the latter must preserve the original argument structure of the verb which is not the case in (21): *sylaa* ‘tiredness’ has no arguments.

Now let’s consider root words (appendix 2). Three classes are problematic: root words which are ambiguous between nouns and verbs (class 5); root words which are ambiguous between nouns and adjectives (class 6) and root words which are ambiguous between verbs and adjectives (class 7). After the principle in (18) combs through these classes, we are left with only six cases.

[7] The derivation *kyyraj* ‘V: soar up very far, high’ → *kyyraj* ‘A: far away, distant’ displays a promiscuous suffix.

(22) Root words which are ambiguous between nouns and verbs

#	Root Word	Noun	Verb
1.	Kös	Migration; a walking mile	Migrate, move from one place to another
2.	Saat	Shame	Be ashamed
3.	Tyyn	Breath	Breathe

(23) Root words which are ambiguous between verbs and adjectives

#	Root Word	Verb	Adjective
1.	Toŋ	Freeze	Frozen
2.	Tot	Eat one's fill, glut oneself	Well-fed, with a full stomach
3.	Köp	Fluff; rise, heave; become stronger (disease)	Fluffy

The ambiguous items in (23) are amenable to the same analysis as (20), namely, unaccusative reduction. The three intransitive verbs *toŋ* 'freeze', *tot* 'eat one's fill' and *köp* 'fluff, rise' all have irregular causatives which, as will be shown in chapter 5, is one of the diagnostics of establishing the causative verb as the basic entry in the lexicon from which unaccusative alternants are derived by reduction. Therefore in (23) the listed lexical items are transitive verbs *toŋor* 'make freeze', *totor* 'feed to the fullest, satiate' and *köbüt* 'make fluff, make rise' which, when their external argument is reduced, give rise to intransitive *toŋ, tot* and *köp*. The relevant adjectives *toŋ, tot* and *köp* are derived syntactically from these intransitive verbs. As for the three cases in (22), we will assume a V→N argument-structure reducing, hence lexical derivation. In these six cases the morphological markers involved turn out to be phonologically null. However, there is no proliferation of zero affixes and therefore the use of zero morphology in these contexts is not problematic from the point of view of learnability.

2.2. Against bare roots

In this section we will argue against an assumption maintained in Distributed Morphology and Borer's exo-skeletal framework that the lexicon lists only roots – meaning-sound pairings devoid of any other information including argument structure and categoriality. On the contrary, in TS the roots listed in the lexicon are associated with a particular number of arguments depending on their thematic properties and it is this argument structure information which determines whether a particular root will be passed on to the syntactic component as a verb, noun or adjective. In section 2.2.1 we will argue against the exo-skeletal (XS) model of bare roots, in 2.2.2 against the DM-model. Since both models of categorization have already been considered in the introduction (DM in section 1.3.2.1; XS in section 1.3.2.3) and some objections have been raised against both of them (against DM in

section 1.3.2.2; against XS in section 1.3.2.4), the following discussion will be quick.

2.2.1. Against XS-categorization

Categorization in the exo-skeletal framework can proceed along two different dimensions: either by morphological structure or by functional heads. Morphological categorization would only be possible in a language which has an inventory of nominalizing, verbalizing and adjectivizing affixes (bound f-morphs) at its disposition. Therefore this type of categorization is language-specific and cannot hold in a language like Sakha where affixes (both inflectional and derivational) are syncategorematic (i.e. promiscuous), as argued in section 2.1.2.1.

Categorization by functional structure is also problematic because it creates circularity, as shown in 1.3.2.4.1. One cannot derive verbhood and nounhood from morphosyntactic properties of verbs and nouns such as occurrence with tense or determiners because it is precisely these morphosyntactic properties which need to be derived. Assuming that a root is turned into a verb in the environment of tense simply restates the basic descriptive generalization that verbs are those categories which can inflect for tense but does not explain it.

The exo-skeletal framework results in massive overgeneration because of its prediction that in principle all roots should behave like the English *form* which can be inserted in virtually any syntactic context – nominal, verbal as well as adjectival. As shown in section 1.3.2.4.4, the proposed means to curb overgeneration is highly unsatisfactory. It is assumed that those lexical items which are not flexible like English *form* or *siren* are listed in the lexicon as internally complex: for instance, if they have a rigid verbal behaviour, they contain verbalizing structure. Taking rigid lexical items to contain nominalizers, verbalizers or adjectivizers already in the lexicon contradicts the very foundation of the exo-skeletal model because the syntactic skeleton can no longer drive the interpretation of such complex entries.

2.2.2. Against DM-categorization

We have argued in section 1.3.2.2 that categorizing roots with the help of category-determining functional heads such as n, v and a has the same amount of explanatory power as the approach based on categorial features and turns out to be merely a translation of Chomsky's original (1970) account into syntactic terms: if for Chomsky 1970 what makes a lexical item a noun is a [+noun] feature, for DM what makes a noun is small n. Such an approach is clearly circular and in the end we have no independent account of what it is to be a noun, a verb or an adjective. Apart from this, DM raises another theoretical objection discussed in chapter 1, section 1.5.2, namely, the incompatibility of conceptual coercion adopted within DM with Fodor's conceptual atomism.

If we turn away from these conceptual problems to empirical matters, the resulting picture is also not very satisfactory because it results in a proliferation of zero affixes. Let's consider root words first (repeated below in (24) from (6)). In the first three classes, the roots will be marked with overt morphology in two of their

categorial uses whereas in the third incarnation there will be a zero affix: in class 1, for instance, verbalizing and adjectivizing suffixes will be overt whereas the nominalizers will be null. The same considerations carry over to the other classes in (24) as outlined. Proliferation of zero's will clearly raise problems for learnability. On the contrary, if we compare the DM-account with the TS-account discussed above in section 2.1.3, the latter does not result in the explosion of null morphemes: with respect to phonologically independent root words, only in six cases was an appeal made to zero morphology – i.e. derivation which was not appropriately marked with overt morphological markers[8].

(24) Root words: the DM-account

1. Root words which become nouns: n – zero affix, v and a – overt affixes
2. Root words which become verbs: v – zero affix, n and a – overt affixes
3. Root words which become adjectives: a – zero affix, n and v – zero affixes
4. Root words which are ambiguous between nouns, verbs and adjectives: none
5. Root words which are ambiguous between nouns and verbs: n and v – zero affixes, a – overt affix
6. Root words which are ambiguous between nouns and adjectives: n and a – zero affixes, v – overt affix
7. Root words which are ambiguous between verbs and adjectives: v and a – zero affixes, n – overt affix

With respect to classes of bound roots which become either nouns, verbs or adjectives (see (5) above), the problem faced by DM will be even more severe for the following reason. Consider, for instance, the first class of bound roots which become nouns after attaching some affixes: the roots in this class are not phonologically independent words and therefore need an affix which would saturate them and turn them into a noun. For DM this would be a case par excellence when a root is inserted in the nominalizing context under a category-determining little n. The issue can be exemplified with the specific root *uruu* 'relative' (or any other root from appendix 1, section 1): the root in question is √ur- which is saturated by the nominalizing suffix –YY (in word formation from independent bases this suffix functions as a very regular and productive nominalizer). However, consider what happens with the same bound root in other contexts: namely, verbalizing (*uruurqaa* 'treat/consider as a relative', *uruulas* 'become relatives', etc.) and adjectivizing (*uruuluu* 'related'). Whereas in the case of the corresponding class of root words (i.e. root words which become nouns without making use of overt nominalizers) we could say that a root word would become a noun with the help of a zero nominalizing affix while becoming a verb or adjective via overt verbalizers/adjectivizers, what happens in the case of bound roots from class 1 is quite problematic for DM because when a bound root from class 1 becomes a verb (or adjective), the original nominalizing suffix is not lost despite the fact that

[8] DM will face an identical problem in the case of English flexible words like *form* or *siren* which can be inserted in virtually any context: in all of these cases there will be three types of zero affixes realizing three types of category-determining little functional heads.

suffixes in Sakha are unstable. Rather, this suffix is further accretioned with the overt verbalizer or adjectivizer resulting in a structural representation like √-n-v (√ur-uu-rqaa; √ur-uu-las) or √-n-a (√ur-uu-luu). This result clearly supports the assumption defended in this dissertation that such bound roots (√-n) are primary nouns which clearly explains why they become √-n-a when adjectivized or √-n-v when verbalized. This argument is based on the presence of morphological asymmetries in categorial marking that follows from the impossibility of conceptual coercion. The latter ensures that there will be primary nouns, verbs and adjectives and that secondary nouns, verbs and adjectives will be derived from the primary ones – a process which will be overtly marked by derivational morphology. A similar argument but the other way around is raised in Baker (2003:295): if conceptual coercion can apply freely, what is the need for derivational morphemes which do not add new meanings but only shift categories?

Moreover, if we turn to the literature we find numerous arguments against not only zero morphology[9] but also against viewing {noun-verb-adjective} triplets or doublets (where the same concept underlies different categorial incarnations) as lacking a direction of derivation. Don (1993) argues convincingly that conversion must be viewed as a directional process involving a base, a derivative and a zero morphophonological affix. The use of zero morphology in Don's model raises no objections from the perspective of learnability because it offers a number of independent ways to determine the direction of derivation, such as whether the conjugation class involved is regular or irregular, the type of nominal gender, phonological constraints on syllabification, consonant clusters, etc. Also note that the number of zero morphemes is drastically reduced: whereas DM would treat a noun-verb conversion pair as involving two zero affixes – one realizing little n and another realizing little v, within Don's model there will be one zero less: if the verb is primary/underived, there will be a zero affix realizing the nominalizer and vice versa[10; 11].

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[9] We refer the reader to an excellent argument against the proliferation of zero morphemes in DM offered in Stump (1998:40-41) (see Stump also for references to other arguments against the DM approach).

[10] Among authors who adhere to the same derivational view of conversion as Don 1993, we can mention Beard 1998, cf. the following passage from Beard (1998:62): "Transposing a lexeme from one category to another without affixation is sometimes called *conversion*. The evidence weighs against a separate operation of conversion, however, for we find precisely the same semantic relations between conversional pairs as between derivational pairs. Thus for every conversion *to dry, to wet, to empty* we find at least an equal number of affixed derivatives with the same relation: *to shorten, to normalize, to domesticate*. Moreover, precisely those stems which affix are precluded from conversion (*to *short, *normal, *domestic*), and precisely those which convert are precluded from affixation: *to *endry, *wetten, *emptify*. The simpler account of such forms is that those without affixation are null marked variants of the same derivation which is otherwise marked by a variety of affixes". For review of literature on conversion and various other authors for whom conversion is directional, see Don 1993.

[11] However, Don 2003 gives an account of conversion in Dutch and German in accordance with DM which involves two zero affixes. For instance, it is not the case that a root like √feest is a primary noun which can be converted to a verb with the help of a zero affix. Rather √feest is first nominalized through insertion under little n and then the n-√feest structure is verbalized by being embedded under little v: both little v and little n are realized by zero affixes (ibid. p. 42). Still, Don's (2003) account in DM-terms is different from our interpretation of DM-treatment of conversion which maintains that for DM any root is insertable in any syntactic context (under any category-determining head) whereas for Don 2003 a root like √feest apparently cannot be inserted directly under v.

In the next two subsections we would like to consider two apparent pieces of evidence against bare roots in general.

2.2.3. Against bare roots in general: Onomatopoeic words in Sakha

Onomatopoeic words in Sakha may be argued to provide an argument for the categoriality of roots. Sakha has a large number of onomatopoeic roots which can be mono- and disyllabic (trisyllabic roots are also possible but are not frequent). The vocabulary of onomatopoeic roots is freely expandable: the coinage of new roots is one of the distinctive features of epic poems and other kinds of folklore as well as everyday colloquial speech. The table below lists some of the onomatopoeic roots and their suggestive meanings which are to some extent subject to idiolectal variation.

(25) A sample of onomatopoeic roots in Sakha

Root	**What it imitates**
Baa	Low voice, bass
Njaa	Squeaking/meowing
Daa	Croaking
Xaa	Hoarseness
Buu	Wheeze
Küü	Buzzing
Ta	Tapping
Ca/sa/ha	Laughing
Ar	Growling
Bar	Roaring

What is important for the issue at hand is that these roots, whether already existent or newly coined, always come with a category – as nouns. Two points illustrate their categoriality. First, they can appear in light verb constructions involving the verb *gyn* 'do' which can only take an NP as its direct object: *njaa gyn* 'to squeak', *bar gyn* 'to roar', etc. Second, the roots in question cannot function as verbs unless they are converted into verbs with the verbalizer –(L)AA as in *lihirdee* (lihir-LAA) 'to tramp, walk heavily'[12]. Thus, an onomatopoeic verb has the following template:

[12] -(L)AA can attach directly to di- or trisyllabic onomatopoeic roots. With monosyllabic roots, it is (almost) always the case that an onomatopoeic formant from a limited inventory (given below) is inserted between the root and the verbalizer as in *baaqynaa* (√baa-qY-LAA) 'to speak in a low voice', *kykkyraa* (√kyk-KYr-AA) 'to creak', *kylyrqaa* (√kyl-YrG-AA) 'to rattle'.

(i) The inventory of onomatopoeic formants in Sakha

Onomatopoeic formant	Suggestive meaning
-qY-; -gY-; -kY-	Extended duration of sound
-djY-; -cY-	Energetic sounding
-KYr-	Energetic vibrating sound
-YrG-	Rhythmic sound

$\sqrt{}_{\text{onomatopoeic}}$ – (onomatopoeic formant(s)) – (L)$AA_{\text{verbalizer}}$. As for onomatopoeic adjectives, they must be derived from the corresponding verbs.

The following route emerges for sound-imitating roots: root (=noun) → verb → adjective. That these roots which expand the language's lexical vocabulary always get categorized as nouns is in line with the fact that loanwords which are also an instance of lexicon enrichment are always borrowed as nouns independent of their category in the source language (for details and explanation see 3.5).

2.2.4. Against bare roots in general: Some notes on parsing

Aronoff and Anshen (1998:240) make the following remark with respect to the psychological phenomenon of blocking: "if a person has temporarily forgotten the word *fame,* then that person may in fact use the word **famousness,* which *fame* would otherwise block. This seeming failure of blocking is especially common in children, who coin new words quite freely, because their vocabulary is not as entrenched as that of adults" (p. 240). This seems to go against bare roots: if *fame* and *famousness* involve the same root, then forgetting *fame* would translate DM-wise as forgetting the root √fame and forgetting to embed this root under n. However, if the same person would use *famousness* instead, this would translate into DM as embedding √fame under a and then under n. Clearly, the result is contradictory.

Second, if *fire* as a noun and *fire* as a verb both involve the same bare root embedded in one case under n and in another under v, then the question of ambiguity resolution in parsing arises. For DM, the structural context of *fire* or any other ambiguous item should be an important factor in guiding the parser because if, for instance, *fire* is embedded under n, it would also be embedded under D.

Frazier and Rayner 1987 report the results of experimental studies on the resolution of categorial ambiguities in English such as the ones in (26). Three initial hypotheses formulated are 1) the first analysis strategy when the processor immediately adopts the first analysis of *warehouse* categorizing it as a noun; 2) the multiple analysis strategy when the processor constructs and maintains in active memory more than one analysis of the ambiguous string; 3) the delay strategy when the processor delays syntactic integration of the ambiguous item into the structure assigned to the preceding items[13].

(26) The warehouse fires …
a. numerous employees each year.
b. harm some employees each year.

[13] Cf.: "categorial ambiguities tend to be resolved locally and superficially, often by the category of the immediately following word. Thus, determining the basic category of an item (e.g., whether it is a noun or verb, though not necessarily whether it is a main verb or auxiliary or whether it is transitive or intransitive) can often be accomplished by examining the category of the following one or two words, without engaging in extensive syntactic computations or inferences. For example, in a sequence of three adjacent words, if the first word is the determiner *the* and the third is unambiguously an active verb (e.g., *hires*), the second word must be a noun (i.e., the head noun of the noun phrase introduced by the determiner)." (ibid. p. 507).

The results of three experiments confirm the predictions of the last hypothesis providing clear evidence for the delay strategy. F&R suggest that the processor, when using the delay strategy, considers all the available analyses of the ambiguous item in question but delays selecting and computing "all of the (global) structural consequences of just a single analysis" "in case helpful information is more likely to arrive immediately than further downstream" (ibid. p. 522)[14].

It is crucial for the TS-based model of categorization that syntactic category assignment patterns together with thematic frame selection in invoking the same delay strategy. The findings in F&R contradict the expectations of bare root theories like DM which categorize lexical items by embedding them in the appropriate syntactic structures. For DM, there is no motivation to wait until later if the preceding structural context has already made clear that an ambiguous item like *warehouse* in (26) occurs under the determiner *the*: this occurrence should signal to the parser that an ambiguous item is a noun inserted in the D-n-√ structure. Thus, DM would be compatible either with the first analysis or multiple analysis strategies the predictions of which, however, are not confirmed. On the contrary, in a theory like TS, information about argument structure of an ambiguous lexical item is crucial for determining its syntactic category. Therefore the parser is expected to delay its decision about category assignment until it inspects the complement structure of the ambiguous element[15].

2.3. Derivation: Lexicon versus syntax

In this section we will argue that word formation is possible in the lexicon because the lexicon is a computational module. It will be shown that lexicon-internal word-formation is principle-governed contrary to the commonly held view that lexicon is for the unruly. On the contrary, it will emerge that the nature of syntactic word-formation is more unruly than that of lexical one because only syntactic word formation can give rise to unfixed conceptual values such as when *djie-lee* (house-verbalizer) in Sakha is allowed to acquire a wide range of different meanings – a state of affairs impossible for the outputs of lexical derivation.

Before we proceed it is necessary to give some consideration to the traditional distinction between inflection and derivation, in particular, to the criteria which are often appealed to in accounting for such a distinction. The criteria discussed below are drawn from Stump 1998. Some of the criteria considered by Stump are also considered by Beard 1998 and Marantz 2001b but the latter two works make use of far less criteria than Stump (where Beard and Marantz also invoke the same or similar criterion as Stump will be mentioned in the course of discussion). Below when we talk about derivation, we will mean lexicon-internal word formation whereas meant by inflection is not only inflection as understood

[14] The distance over which delay is tolerated (calculated in the number of words) was not investigated.
[15] Note that the delay strategy may be well-motivated for a language like English where complements appear to the right of the complement-taking head. In 'head-final' languages like Sakha or Turkish there may be no need to invoke the delay strategy because the arguments of an ambiguous item would precede rather than follow the latter.

traditionally (e.g. case, tense, agreement) but also syntactic word formation (e.g. participles, syntactic nominalizations, etc.).

One of the most frequently cited criteria concerns that of meaning change (also considered by Beard): derivation results in meaning change, inflection cannot. Cf. Beard (1998:45): "derivation does change the meanings of words so as to allow the derivate to become a lexical entry in the lexicon". For Marantz this criterion is connected to the notion of transparency: inflection (=syntactic derivation outside the root domain) is transparent, derivation (syntactic derivation inside the root domain) is not transparent. Transparency has to do with the fact that affixes are allowed to attach to a particular root before the attachment of a category-determining head x: only when the latter is added, can the x-root combination be submitted to the interpretational component and the affixes enter into semantic interaction with the meaning of the root negotiating all kinds of idiosyncratic meanings for the x-affix(es)-root combination. In a configuration like affix2-x-affix1-root, only affix 2 can trigger meaning change on the root: affix2 does not have this ability since it occurs above x and is subject to transparency.

A second criterion discussed and criticized by both Stump and Beard is category-change: derivation unlike inflection can change category. Beard points out that this criterion has no applicability in the absence of a clearly defined theory of categorization. Thus, in order to decide if derivations like *violin : violinist, cream : creamery, zip : unzip* change category or not, one first has to make decisions about the categorial nature of the bases involved (Beard 1998:46).

The criterion of syntactic determination as formulated in Stump (1998:15) comes third: "A lexeme's syntactic context may require that it be realized by a particular word in its paradigm, but never requires that the lexeme itself belong to a particular class of derivatives". In other words, only inflection determines syntax, not derivation. This criterion is a non-issue but its being a non-issue provides indirect support for the fact that it is only syntactic computation which is sensitive to particular categories whereas for lexicon-internal computation there is no need to make use of categorial information.

A fourth criterion which is rejected is that of productivity. Stump (1998:16) notes, on the one hand, the existence of "highly productive morphological phenomena which (by the other criteria) are derivational" and, on the other hand, the possibility of inflectional paradigms "which are *defective* in that some of their cells are left empty". Aronoff and Anshen 1998 also argue against viewing productivity as an absolute notion. As we saw above in section 2.1.2.1, the data from word coining in Sakha confirm Aronoff and Anshen's view: suffixes normally treated as unproductive turn out as productive or semi-productive when inventing new words[16]. Marantz is also against invoking productivity: one and the same suffix may be productive when it occurs outside the root domain as in *donator, driver,* etc. and unproductive or semi-productive when it occurs inside the root domain as in *donor, debtor*.

According to the fifth criterion discussed by both Stump and Beard, inflection is semantically more regular than derivation. Stump attributes this

[16] Cf. Sproat (1985:499): "Productivity, in particular, does not serve as a criterion for dividing word-formation from the rest of the grammar".

difference to lexical listing. However, given "the existence of highly productive classes of derived forms and irregular or defective paradigms of inflected forms", he concludes that "listedness is neither a necessary nor a sufficient correlate of the inflection/derivation distinction" (pp. 17-18). For Marantz semantic regularity, just like meaning change, is connected to the transparency of syntactic derivation outside the root domain discussed above.

Finally, one more criterion which cannot hold water discussed by Stump: inflection closes words to further derivation, while derivation does not. This criterion is rejected by Stump because it is not supported by the data. A corollary of this criterion is that inflectional affixes must occur outside derivational ones (also endorsed by Beard who, just like Stump, comes to a negative conclusion because the "inflectional markers occur widely inside derivational markers" (Beard 1998:45).

Thus, Stump, after rejecting many criteria, argues neither in favor nor against the inflection/derivation distinction. However, he makes an important note that "the theoretical appropriateness of the inflection/derivation distinction" is only important in as far as it helps answer the fundamental question "Does a theory that incorporates this distinction furnish simpler (more learnable) grammars than one that doesn't?" (Stump 1998:19).

We will assume that parameters are more easily formulable in a theory which makes use of such a distinction and therefore proceed to show that all derivation cannot take place in the syntax, viz. there is an essential difference between derivation and inflection which cannot follow under the assumption "all derivation in the syntax". We will maintain that lexicon-internal derivation (word formation; new concept formation) and syntax-internal derivation (word formation; *new concept formation) are independent phenomena belonging to different modules (although their mutual independence does not preclude interaction). Instead of letting too many cooks spoil the broth, the criterion of meaning change will be taken as the defining one in drawing the distinction between derivation in the lexicon and the derivation in the syntax. The necessity of this criterion is determined not only by treating lexicon as the locus of computation distinct from syntactic one but also follows from the fundamental nature of the lexicon as the module of grammar where new concepts are formed.

2.3.1. Untenability of the tenet "All derivation in the syntax"

Since not all derivation is fully regular and productive, allowances must be made within any framework to explain morphological idiosyncrasies. As discussed above and in the introduction, DM assigns all such irregularities to the domain of the root which is the domain below the category-determining x's. However, this kind of approach only sweeps the problem under the rug by creating an anomalous domain which is part of syntax and yet not subject to principles of syntactic composition. Let's consider this in more detail. The minimum structural requirement any phonologically well-formed word must satisfy is that it must embed an x-root configuration. Derivation can add more structure by attaching affixes either below x to the root itself or above x to the whole x-root complex. Since a number of affixes are promiscuous, the same affix can attach in the two different domains making possible a structure like [$affix_2$-$affix_1$-n-$affix_2$-$affix_1$-√] where affixation above x

replicates in the exact order affixation below x. However, whereas the combination of $affix_1$ with [n-$affix_2$-$affix_1$-√] and of $affix_2$ with [$affix_1$-n-$affix_2$-$affix_1$-√] is fully compositional, this is not the case for the combination of $affix_1$ with the root and of $affix_2$ with [$affix_1$-√]. In fact, the meanings of these combinations are not determined each time an affix merges: meaning determination is delayed until the phase level because only a phase can be submitted to the interpretive module. Since it is the little n which defines the phasal edge in the [n-$affix_2$-$affix_1$-√] configuration, no intermediate structure like [$affix_1$-√] or [$affix_2$-$affix_1$-√] can be shipped off to LF before the merger of n. At the point when the phase is submitted, the Encyclopedia is searched for a suitable meaning of [n-$affix_2$-$affix_1$-√]. If no such meaning were available, the structure would be uninterpretable resulting in a crash.

Thus, what happens after a particular root is selected and merged in the syntax and before this root is merged with a functional n/v/a-head is left completely ungoverned (apart from being partially conditioned by the (un)availability of idiosyncratic pieces of semantic knowledge stored in the Encyclopedia): neither the number nor the order nor the nature of affixes can be regulated. The kind of asymmetry created by DM with respect to the two places of affixation is reminiscent of the lexicalist assumption that lexicon is the storage place of all idiosyncrasies, except that in DM the storage of idiosyncrasies is divided between the syntactic domain below an x-head and the encyclopedic semantic module.

This argument is based on the conceptual unattractiveness of the asymmetry assigned to the syntactic component. To illustrate the practical side of the problem we will consider one particular group of verbs from Sakha which bear identical morphology. First, we will consider a TS-based account and then compare it with one based on DM. The verbs in question are, on the one hand, *sir* ‘dislike, disdain, reject’, *sirget* ‘disgust’, *sirgen* ‘become disgusted’ and, on the other, *öhür* ‘bear a grudge against so’, *öhürget* ‘offend’, *öhürgen* ‘become offended’. These verbs are interesting from the point of view of their morphology as well as their thematic structure. With respect to the latter, *sir* ‘dislike, disdain, reject’ and *öhür* ‘bear a grudge against so’ have the following theta feature specification: +c+m, -c-m. The transitive/causative counterparts *sirget* ‘disgust’ and *öhürget* ‘offend’ also have identical argument structures: they are associated with a +c causer, a –c+m experiencer and a –c-m theme. In the corresponding intransitive experiencers the causer has been reduced giving the following argument structure: -c+m, -c-m. Whereas the causative/experiencer alternation is derivationally motivated, it is much less clear what to do with the first verbs (*sir* ‘dislike, disdain, reject’ and *öhür* ‘bear a grudge against so’) which, from a purely morphological point of view, can be considered as the bases in deriving the causative/experiencer pair. *Sirget* ‘disgust’ decomposes into sir-ge-t where –ge is the allomorph of the nominalizing suffix –XA and –t is the verbalizer. Deriving *sirget* ‘disgust’ from *sir* ‘disdain, reject’ would involve splitting the agentive role into [+c] and [+m]: the former will be interpreted as causer, the latter as [-c+m]-experiencer.

(27) Sir ‘disdain, reject’ → sir-ge-t ‘disgust’ → sir-ge-n ‘get disgusted’
[+c+m; -c-m] [+c; –c+m; -c-m] [-c+m; -c-m]

Extending the same analysis to (28) is a bit more problematic because the original verb *öhür* is unergative and derived from the noun *ös* 'spite, enmity' with the verbalizer –r. It will be argued in chapter 7 that denominal verb formation is a syntactic process because nouns have no arguments and are therefore exempt from the effects of lexical operations which affect argument structure. However, it is also possible that sometimes verbs derived from nouns in the syntax get reanalyzed in the course of evolution as new concepts and as such are entered into the conceptual lexicon. Recall, for instance, the noun *aqabyyt* 'priest' discussed in section 2.1.2.3: historically, it was derived from the 1PL possessive form of *aqa* 'father' (*aqabyt* 'our father') and therefore presents a clear instance of conceptual reanalysis involving a syntactically derived member of an inflectional paradigm. We will assume that *öhür* 'bear a spite' also became a member of a conceptual lexicon along with its historical base – the noun *ös* 'spite, enmity'[17]. This paves the road clear for the analyses in (27) and (28) according to which the causative/transitive verbs *sirget* 'disgust' and *öhürget* 'offend' are derived from *sir* 'disdain, reject' and *öhür* 'bear a spite' through the process of splitting the agentive feature cluster into two features [+c] and [+m] interpreted, respectively, as [+c] causer and [-c+m] experiencer. The process is marked morphologically with the suffixes –XA (spelled out by the allomorph –ge) and –t.

(28) Öh-ür 'bear a grudge' → öh-ür-ge-t 'offend' → öh-ür-ge-n 'get offended'
[+c+m; -c-m] [+c; –c+m; -c-m] [-c+m; -c-m]

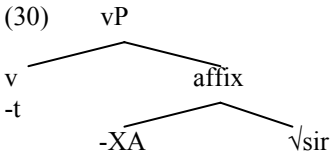
An alternative derivation along DM-lines would proceed as follows. The category-less roots in question are √sir (√disdain) and √ös (√spite). When they are verbalized, the functional heads are spelled out by a zero morpheme and by the suffix –r.

(29)

Now consider the derivation of *sirget* 'disgust'. For DM this would be a case of derivation in the root domain below the category-determining head. The root √sir would merge with a different verbalizer realized by the suffix –t. Before the merger of the root with v, the affix –XA will attach to √sir. What will be sent to LF will be the whole structure in (30): the encyclopedia will be consulted for the availability of a specific meaning of √sir in the structural context of (30). Since such a meaning is available, (30) will be interpreted as 'disgust'.

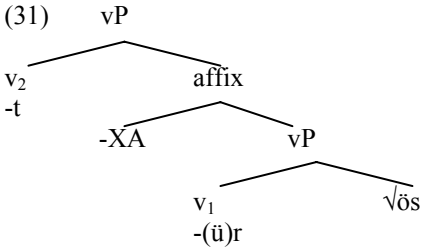
[17] That *öhür* is now a verbal concept listed in the lexicon is also supported by the fact that it can assign accusative case unlike other verbs derived from nouns with the suffix –r.

(30)



With respect to the other verb *öhürget* 'offend', given DM-guidelines, there is no way to derive it from the root √ös. In order to negotiate for the root √ös the special meaning 'offend' (different from 'bear a spite' – the meaning induced by the verbalizer –r in (29)), √ös must be affixed with –XA and then verbalized with –t. However, more deeply embedded inside *öh-ür-ge-t* is another verbalizer v_1 which already closed off the root domain – the domain of special meanings. Therefore whatever is suffixed above /-r/ can never induce a special meaning.

(31)



Diachronic evidence also weighs against assigning all derivation to the syntactic component. In the framework which is argued for in this dissertation not all derivation is syntactic and lexical word formation is possible. New words derived lexicon-internally become new lexical entries listed alongside their bases. For instance, the word *künüs* 'afternoon' is derived from *kün* 'day; sun'. Since derivation involved here is lexical, both the base *kün* 'day; sun' and the derivative *künüs* 'afternoon' are listed in the lexicon. Derived lexical entries can be 'frozen' where 'freezing' entails severing the original derivational link: for example, if *künüs* 'afternoon' is frozen, one would be unable to restore its derivational history and the word in question would be analyzed as underived, having no relation whatsoever to *kün* 'day; sun'.

Evidence for freezing comes from diachrony. Imagine Word.Z which has the internal composition Word.Y+suffix (in other words, Word.Z is derived in the lexicon from Word.Y and the process is marked overtly by the suffix). Both Word.Z and Word.Y will be listed in the lexicon as full-fledged members. Now suppose that the base Word.Y over the course of centuries has undergone some phonological changes and, from a synchronic point of view, now looks like Word.X. Its derivative Word.Z, however, did not change its internal composition from Word.Y+suffix to Word.X+suffix. Facts like these are certainly of great help to linguists concerned with phonological laws or etymology but they also prove the possibility of freezing, whence, indirectly, the possibility of lexicon-internal word formation which offers a readily available account of freezing in terms of listing both the base and the

derivative and severing the derivational link between the two. On the contrary, if all derivation were syntactic as in DM, we would expect the process of derivaiton to use as bases the actual roots of the language: Word.Z would be derived from Word.Y in the syntax with an appropriate suffix. Only Word.Y will be listed in the lexicon: if it underwent some historical change becoming Word.X, then now Word.X will be chosen from the lexicon in the derivation of Word.Z. Hence, we would expect parallel development for both Word.Y and Word.Z: if Word.Y becomes Word.X, then Word.Z (originally Word.Y+suffix) must also change its internal structure to Word.X+suffix.

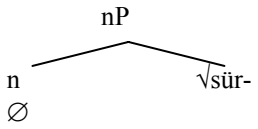
Fortunately for the present approach and unfortunately for DM, facts like these are abundant in Sakha. Let's consider some particular cases of old (original) roots conserved. *Durda* 'stronghold, refuge, shelter' is a common common noun in modern language and consists of √dur- and –TA. Historically, -TA is related to the locative case marker –TA. Since locative case is now extinct, -TA has been preserved as a sporadic nominalizer attaching to nouns (see appendix 3: section 1) and inside a complex productive nominalizer –l-TA or its variant –m-TA[18]. The bound root √dur- is the archaic form of the modern verb *tur* 'to stand'. Under current assumptions, if a verb is nominalized and its argument structure reduced, this kind of derivation is lexical and both the base verb and the derived noun are listed as lexical entries. Long time ago when modern *tur* 'to stand' was still **dur*, a noun was derived with the nominalizer –TA using **dur* as the base. This resulted in the creation of a new lexicon entry *durda* 'stronghold, refuge, shelter' in addition to the already existent **dur* 'to stand'. The new entry was frozen and therefore did not replicate the change which was undergone by **dur* → *tur*. This type of freezing derivation exemplified by *tur* versus *durda* is best accounted for within a framework which allows lexicon-internal derivation: syntax-only derivation cannot accommodate freezing.

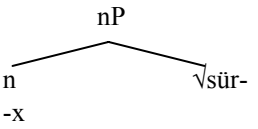
Another interesting case is presented by the word *sür* 'soul, internal spirit' and its three derivatives: two nouns *sürex* 'heart', *sürge* 'mood' and one adjective *sürün* 'basic, fundamental, essential'. Before the revolution all four were in regular use. After the revolution, the base was forced to go out of use because it reflected religious beliefs. The derivatives, however, stayed. In the last decade the word *sür* made a comeback with its original meaning. Assuming a syntactic derivation, two possibilities are conceivable none of which is plausible enough. Since all four involve special meanings, there must be the root √sür- which is embedded in four different contexts either as in (32) or as in (33). In (32) there are three types of n's and one type of little a (all realized by different suffixes) which induce different meanings on the root. According to this analysis, the disappearance of (32a) would mean either the disappearance of the particular type of nominalizer used in (32a) realized by ∅ (less likely) or the disappearance from the encyclopedia of the first meaning (more likely). However, adopting the analysis in (32) would eventually result in the proliferation of functional heads, be them n's, v's or a's, each one of

[18] -TA also occurs inside a complex productive adjectivizer –TAAqY which derives locative/temporal adjectives (see appendix 3: sections 7 and 9).

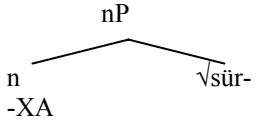
which would induce a different meaning on the root depending on which affix realizes it[19].

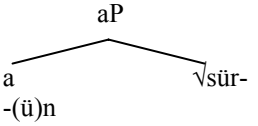
(32) a. *sür* 'soul, internal spirit' b. *sürex* 'heart'





c. *sürge* 'mood' d. *sürün* 'basic, essential'

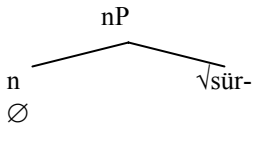


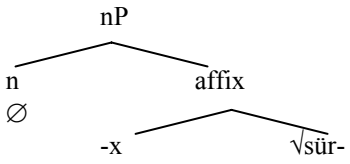


(33) avoids this pitfall by postulating only one type of nominalizer uniformly realized by the zero affix but allows idiosyncratic derivation inside the root domain negotiate with the encyclopaedic knowledge special meanings for √sür-. For instance, if (33a) were possible, the [n-√sür] substructure would be sent LF, the meaning of √sür- would be looked up and (33a) would acquire the meaning 'soul, internal spirit'. The same would happen in the case of (33b) and (33c) but the substructures shipped off for interpretation will be, respectively, [n-affix(x)-√sür] and [n-affix(XA)-√sür] with the same nominalizer as in (33a). This time one will have to look if the encyclopedia makes available special meanings for √sür- in the context of the pertinent affixes. Since there is a special meaning of 'heart' for √sür- in the context of –x and a special meaning of 'mood' for √sür- in the context of –XA, the derivations in (33b) and (33c) will be interpretable. However, it is quite unclear how one would negotiate these special meanings if the meaning in (33a) disappeared from the encyclopedia: the meaning in (33a) is the basic one and it would make little sense to try to determine the meaning of √sür- in the context of either –x or –XA if one cannot even determine the meaning of √sür- by itself. On the contrary, under lexical derivation all four items will be listed in the lexicon and freezing the derivatives will not eliminate them from the lexicon when the base is eliminated. This analysis offers a much simper solution than the one based on consulting the encyclopedia.

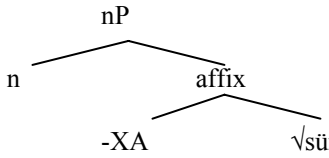
[19] A similar caution is expressed by Kihm 2000.

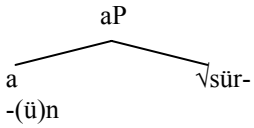
(33) a. *sür* ‘soul, internal spirit’ b. *sürex* ‘heart’





c. *sürge* ‘mood’ d. *sürün* ‘basic, essential’





Diachrony can also support the analysis given above for the verb *öhür* ‘bear a spite’ which is a denominal verb and as such must be derived in the syntax: *öhür*, however, has been reanalyzed as a new concept and acquired its own listing in the lexicon alongside the base noun *ös* ‘spite’. If such reanalysis were indeed possible, we would expect freezing to be possible in denominal verbs. The expectation is justified and can be illustrated with *suuj* ‘wash’ and *taŋaa* ‘put together pieces of material’, *taŋyn* ‘dress oneself’. The verbs have as their bases bound roots √suu- and √taŋ-. Historically, these bound roots correspond in modern language to the nouns *uu* ‘water’ and *son* ‘coat’. The history can be relived as follows: the verbs *suuj* ‘wash’, *taŋaa* ‘put together pieces of material’ and *taŋyn* ‘dress oneself’ were derived from the then nouns **suu* ‘water’ and **taŋ* ‘coat’ in the syntactic component; then the verbs were reanalyzed as new concepts, given a separate entry in the lexicon and the link between the base noun and the derivative verb has been frozen. As a result, when the nouns were subjected to phonological laws eventually becoming *uu* ‘water’ (←**suu*) and *son* ‘coat’ (←**taŋ*), the other nouns frozen inside the verbs were exempted from the process.

Discussion in this section concentrated on arguments against the DM-tenet that all derivation is syntactic. We have shown that moving morpholexical derivational idiosyncrasies to the syntactic component creates within the latter a conceptually unattractive asymmetry. Even if the asymmetry is allowed in, DM still cannot account for meaning negotiations which take place above clear instances of category-determining functional heads (recall the discussion of *öhürget* ‘offend’). Finally, DM cannot accommodate freezing.

2.3.2. Predictions for lexical and syntactic derivation

Given what has been said in the preceding section, it is not feasible to keep all derivation in the syntax. Therefore we will assume that derivation is possible both in the lexicon and in the syntax. In 2.3 we considered a number of criteria which have

been advanced in the literature to formulate the distinction between syntactic and lexical derivation and arrived at the conclusion that the only relevant criterion is that of meaning change. The sole necessity of this criterion is motivated by the fundamental nature of the lexicon as the module of grammar where new concepts are formed. All properties of lexical and syntactic derivation stated in the opening lines to this chapter in (3) and (4) and repeated below follow directly from this criterion. First, with respect to lexical WF, property 1 goes without saying. The second property captures the intuition that one of the ways to arrive at a new meaning is by modifying the original argument structure as in *John broke the window* versus *The window broke*. Since a meaning can change without an accompanying change in the number and θ-feature specification of arguments, property 3 emerges. Fourth property is connected to the basic thesis defended in this work, namely, that only verbs and adjectives can take arguments. Property 5 follows for nominal concepts without saying and it will be shown below that lexicon-internally the meanings of verbs and adjectives can change while their θ-grids remain unaltered. As for properties of syntactic WF in (35), (1) goes without saying. (2) follows from the fact that eliminating or modifying one of the original theta roles will necessarily change the meaning of a concept but not so for adding an extra argument. Third property follows from the fact that categorization is a property of syntax not connected with conceptual content and therefore changing a category from e.g. verb to adjective or noun to adjective does not violate the criterion of new concept formation.

(34) Properties of lexical WF:
1. LWF results in meaning change
2. LWF can manipulate argument structure by deleting, adding or modifying a θ-role
3. Thus, there are two types of lexical WF: argument-structure-manipulating and argument-structure-preserving
4. AS-manipulating LWF can only apply if a concept is associated with a θ-grid, hence AS-manipulating LWF can take as its input verbs and adjectives but not nouns
5. AS-preserving lexicon-internal manipulation can take as its input any concept irrespective of the presence or absence of a θ-grid

(35) Properties of syntactic WF:
1. SWF does not induce meaning change
2. SWF can only add an argument, it cannot modify or eliminate the original θ-feature clusters (=arguments)
3. SWF can also apply while preserving the original argument structure which results e.g. in syntactic nominalizations

In accordance with (34) and (35) we can formulate specific predictions of the present approach for lexical and syntactic derivation.

(36) Predictions for lexical WF and syntactic WF

Input	Output	Domain of application	
Nouns	Nouns	Lexicon	Syntax
Nouns	Verbs		Syntax
Nouns	Adjectives		Syntax
Verbs	Nouns	Lexicon	Syntax
Verbs	Verbs	Lexicon	Syntax
Verbs	Adjectives	Lexicon	Syntax
Adjectives	Nouns	Lexicon	Syntax
Adjectives	Verbs	Lexicon	Syntax
Adjectives	Adjectives	Lexicon	Syntax

These particular types of derivation particularized to domains and categories will be considered in sections 2.4 through 2.5. Before we proceed to these sections a couple of general remarks are needed in order to clarify our stand on the issue of correspondence between derivation and morphological marking.

2.3.3. Some notes on morphological marking of derivation

It is usually assumed that syntactic derivation is compositional and transparent, lexical derivation is not (this is the criterion of semantic regularity discussed above). There are various ways to approach this problem. One can be rejected immediately. This difference cannot be taken to reflect the existence of a bifurcation in the inventory of affixes because of suffixal promiscuity (discussed in section 2.1.2.1), when one and the same affix is allowed to participate in both compositional (regular, transparent) and non-compositional (irregular, non-transparent) derivation. In addition, we showed in 2.1.2 that in Sakha the basic inventory of suffixes counts a limited number of simplex suffixes which can appear in semantically non-transparent as well as transparent contexts and which, furthermore, can combine with each other resulting in combinations that, again, have transparent as well as non-transparent uses. Thus, suffixal promiscuity supports Aronoff's (1994:126) observation that "derivation and inflection are not kinds of morphology but rather uses of morphology: inflection is the morphological realization of syntax, while derivation is the morphological realization of lexeme formation" (cited by Stump 1998:19).

In 2.3.1 we also argued against a second possibility, namely, a DM-postulate that semantic regularity (compositionality) is connected to the transparency of syntactic derivation outside the root domain while its lack is blamed on the non-transparency of derivation inside the root domain.

A third option that cannot be adopted here is Reuland's (1988) suggestion that the difference between inflectional and derivational suffixes is due to the fact that only the former bear a specific lexical meaning (e.g. –ed and –ing) enabling a compositional semantic interpretation whereas the latter (e.g. the derivational affix –al in *refusal*) are not associated with a meaning for compositional semantics to operate on. This suggestion cannot go through given the existence of complex suffixes in Sakha which bear a specific meaning but which are composed of simplex

suffixes for which it is very hard to specify any meaning. For example, /-msYj/ and /-msAx/ are composed of, respectively, /m+s+j/ and /m+s+x/. /–msYj/, illustrated in (37), derives verbs from nouns and adjectives (see appendix 3: sections 4 and 6) with the meaning 'pretend to be/act like N/A'. /–msAx/, illustrated in (38), derives adjectives from nouns (appendix 3: section 7) with the meaning 'N-loving'. The sole morphological difference between the two complex affixes is the j/x alternation from which the difference in meanings cannot follow. Nor can the respective meanings themselves be derived from the simplex suffixes –m, -s, -k and –x.

(37) N/A-msYj → V: 'pretend to be/act like N'

N/A	**Gloss**	**N/A→msYj**	**Gloss**
Njirej	A calf	Njiremsij	Act stupid, naïve
Tojon	Boss	Tojomsuj	Act bossy
Uus	Master, craftsman	Uuhumsuj	Pretend to be a master, show off one's craftsmanship
Öjdööx	Clever	Öjdööqümsüj	Pretend to be clever
Sytyy	Cunning	Sytyymsyj	Pretend to be cunning

(38) N-msAx → A: 'N-loving'

N	**Gloss**	**N-msAx → A**	**Gloss**
Et	Meat	Etimsex	Meat-loving
Balyk	Fish	Balygymsax	Fish-loving
Kuoska	Cat	Kuoskamsax	Cat-loving
Beje	Self	Bejemsex	Selfish

Our approach to morphology can be summarized as follows. Along with Borer, we will assume the existence of two lexicons – conceptual (which will often be referred to simply as the lexicon) and functional[20]. Items in the conceptual lexicon are not phonologically abstract concepts but rather sound-meaning pairings and therefore enter syntax phonologically specified. Items of the functional lexicon come in two varieties: on the one hand, the f-lexicon contains grammatical features with no phonological content (e.g. [plural], [aorist], [negative]) and, on the other, phonologically specified functional morphemes (e.g. /-LAAX/ in Sakha). Therefore syntax operates on syntactic trees whose terminal nodes may be either phonologically abstract features or phonologically specified morphemes. The former will be supplied with phonological matrices at the point of Spell-Out when the Vocabulary is accessed. As conceived in DM, the Vocabulary is a list of phonological forms for (bundles of) grammatical features (e.g. /-LAr/ for [plural], /-Ar/ for [aorist], /-MA/ for [negative] in Sakha). We are thus adopting, following DM and Borer, a postsyntactic morphological component which is responsible, apart from vocabulary insertion, also for allomorphy.

[20] In DM, on the contrary, there is one lexicon which lists both roots and grammatical features.

With respect to the issue of correspondences between derivation and morphological marking (realized as suffixation in Sakha), we will take the following stand (which is particularized to Sakha and does not present a global picture). Since the lexicon lists concepts, we argued above that bound roots must be listed together with their suffixes (a bound root by itself has no conceptual content). Lexicon-internal derivation changes meanings and can manipulate argument structure. These operations are expected to be marked overtly. Thus, affixation can take place in the lexicon. Consider, for instance, nouns derived from nouns as in *törüt* 'origin' → *törüccü* 'genealogy', *xappax* 'cover, lid' → *xappaxcy* 'store-room'.[21] They will be derived and marked with –CI already in the lexicon so that they will enter syntax as *törüccü* and *xappaxcy* and not as, say, *{törüt/xappax}+suffix(to be chosen in the postsyntactic morphological component)*.

However, when inputs from the lexicon, whether basic or derived, are submitted to syntax, their internal structure is still visible to syntactic computation making possible such phenomena as suffix modification under degree intensification described in section 2.1.1.1 (examples (10) and (11)) or suffix instability. Recall the example with *ynax* 'cow' which is built on the bound root √y- plus the complex suffix –na-x. When *ynax* is verbalized with /-j/ (N→V conversion must take place in the syntax according to the present assumptions; see below), the x-part of the nominalizer –na-x is dropped resulting in *ynaj* 'resemble a cow'. If a suffix attaching to a bound root where completely non-transparent to syntax, then it would be impossible to derive a verb like *ynaj*. Derivations like *ynax* → *ynaj* show that word boundaries are not preserved through derivations[22].

Marking conventions also apply to derivation within the syntactic component proper which does not change meaning but which can change category and add arguments: argument addition and category change should be appropriately marked. However, the difference of syntactic derivation from lexical is that it involves syntactic heads whose terminal nodes may be either phonologically abstract features or phonologically specified functional morphemes like –LAAX which derives adjectives from nouns. In the latter case we have an instance of syntactic affixation, i.e. we are dealing with affixes which operate in the syntax by combining with other syntactic constituents. In the former case we have syntactic nodes whose abstract feature content will be replaced by affixes chosen from the vocabulary at the point of spellout. Note that in both cases idiosyncratic affixation is a priori excluded: in the case of functional morphemes the syntactic use of each particular morpheme must be negotiated at the interface between syntax and the f-lexicon whereas in the case of abstract features, which affix will be inserted to replace a particular feature is regulated by the competition among vocabulary items. In the lexicon, on the contrary, bound root suffixation and lexicon-internal derivation are

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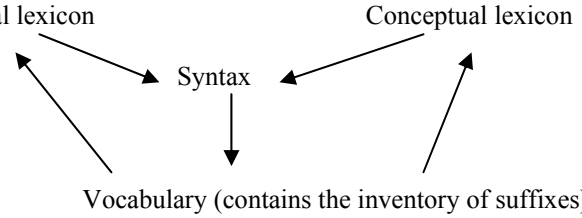
[21] Note that the latter pair presents another counterexample for DM: the base *xappax* 'cover, lid' is derived from the root √xap which also gives rise (with the help of a zero morpheme) to the verb *xap* 'catch; encompass'. Hence, in *xappax* 'cover, lid' a special meaning has already been negotiated for the root √xap and no more negotiations are possible: *xappax* should be closed for further idiosyncratic derivation and it should be impossible to arrive at the special meaning 'store-room' for *xappaxcy*.

[22] Lexicon-internal derivation also does not preserve word boundaries: when causative *xaptat* (built on a bound root) 'make flat' yields, under [+c]-reduction, unaccusative *xaptaj* 'become flat', the causative suffix –t drops and is replaced by –j.

marked in a rather unpredictable way. Nevertheless, the actual suffixes used are drawn from the basic inventory of suffixes. Therefore we can assume the following tentative organization of grammatical modules. The arrow from the vocabulary to the f-lexicon indicates the fact that those functional morphs which are listed there are (composed of) the same suffixes as the ones made available by the vocabulary. The arrow from the vocabulary to the conceptual lexicon is also meant to capture the fact that all suffixation inside the lexicon involves the basic inventory.

(39)



As a final remark on transparence of morphological structure, we would like to maintain that the scope of the affix is determined by the position it occupies and no affix movement inside words takes place. A theory, in which there is no correspondence between the degree of embedding of a particular suffix and the material over which it takes scope, may have to resort to affix hopping (cf. Chomsky 1981) or affix raising (cf. Pesetsky 1985, Lebeaux 1986). However, affix movement inside words has many conceptual and empirical disadvantages as shown extensively in Reuland 1988.

Before presenting in the following two sections the specifics of the above assumptions about morphological marking of derivations, we would like to compare these assumptions to the ones advanced in Baker 2003. Baker assumes that morphological derivation and syntactic derivation can take independent paths because they belong to two different modules independent from each other – morphology and syntax. For instance, his analysis of verbs has both syntactic and morphological aspects. On the syntactic side, all verbs have a uniform derivation: given the underlying $[_{PredP}$ Pred $[_{AP}$ A]] structure (where A is an abstract adjective), the A head moves to Pred: the resulting complex, conflated head Pred-A is interpreted as a syntactic V node and whatever is inserted into this X^0 node in the syntax is interpreted as a verb. There are virtually no restrictions on the complexity of a morphological unit that can be inserted into V. It can be a morphologically simple verb root (*fall, die*), a verbal stem derived from a category-less bound root plus a verbalizer (*magnify, colonize*) or a root compound (*panfry, handwash*) (ibid. 276-7). It can also be a deadjectival or a denominal verb, both derived in the morphological component by affixing a verbalizer to an adjectival or a nominal root. In the case of deadjectival verbs their internal morphological structure (adjective plus affix) directly corresponds to their syntactic derivation (adjective conflates with Pred). In the case of denominal verbs such as *fossilize, crystallize, symbolize, classify, originate* and *knight*, it goes counter since syntactically these verbs must be analyzed, like any other verbs, as involving an adjective conflated to a verb but morphologically speaking, they are derived from a noun root. Such counter-derivation is allowed because morphological structure is not syntactically

transparent which follows from the independence of the two modules. What is derived within morphology can be as complex internally as one can get but syntactically it counts as an X^0-level category.

Current framework converges with Baker's in that morphological derivation is possible outside syntax (lexicon-internally in our view) but diverges from his theory in rejecting a drastic split between morphological and syntactic derivation (lack of any correspondences). We demonstrated above[23] that syntactic processes are sensitive to the internal structure of complex words which enter syntax from the lexicon and therefore the effects of lexicon-internal derivation must be visible to syntactic computation.

2.4. Deriving nouns in the lexicon and syntax

In this and the following two sections we investigate in detail the predictions formulated in (36) and consider the specific properties of deriving nouns (2.4) and adjectives (2.5) in the lexicon and syntax. The practical materials to these sections are given in appendix 3. We begin with nouns which can be derived from nouns, adjectives and verbs. All three types of derivation can take place either in the lexicon or syntax.

2.4.1. Deriving nouns from nouns

The defining property of nouns is that they take no arguments (they can take possessors but these are introduced syntactically; see chapter 3). Thus, argument-structure manipulating derivation cannot by definition apply to nouns in the lexicon, and outputs of lexical N→N derivation also must be argument-less. However, N→N lexical word formation must bring about a meaning change. This is indeed confirmed by the data in appendix 3 (section 1): a sample is given in (40).

(40) N→N LWF

N	**Gloss**	**N-suffix → N**	**Gloss**
Kölö	Working cattle	Kölöhün	Sweat
Alyp	Magic	Albyn	Deceit
Uu	Water	Utax	Beverage
Djyl	Year	Djylqa	Destiny
Xaa	Box, receptacle	Xax	Cover, shell, skin
Xax	Cover, shell, skin	Xaxxa	Shelter
Xaa	Box, receptacle	Xabax	Bladder
Töbö	Head	Töböt	Urchin, rascal

[23] Recall examples (10) and (11) in section 2.1.1.1 (suffix modification under degree intensification) and the syntactic instability of suffixes attached lexicon-internally. For instance, *utax* 'drink, beverage' is derived in the lexicon from *uu* 'water' with the complex suffix –ta-x. In the syntax *u-ta-x* can be subjected to verbalization with the suffix –t resulting in *u-ta-t* and not in **u-ta-q-yt*: syntactic verbalization detects the complexity of the nominalizer –ta-x consisting of two nominalizers –ta and –x and replaces the latter with the verbalizer –t.

In some very few cases, the derivation appears not to change the original meaning and the sole difference between the base and the derivative is the presence of an extra suffix in the latter: e.g. *kuruŋ* 'dried up tree/forest' versus *kuruŋax* 'dried up tree/forest'. In such cases it is plausible to assume, given independently motivated suffixal instability, that the suffix can drop optionally: in other words, the fully suffixed derivative (*kuruŋax*) is the base and the base (*kuruŋ*) is the reduced derivative.

Since N→N derivation does not affect argument structure, nothing prevents it from occurring in the syntax provided that the original meaning of the base is preserved. Indeed, such case is presented by the examples in (2) of appendix 3, section 1. A couple of examples are repeated below. The pertinent suffixes are complex: -CI is used to derive agentive nominals whereas –hY-t shares the –hY part with –hY-n, a suffix which derives syntactic action/process nominalizations from verbs. The nouns derived with these suffixes can be considered syntactic in the sense that the original meaning of the base noun is preserved and the new noun can be roughly paraphrased as 'person whose occupation/hobby pertains to N'. Therefore –CI-t (-hY-t) should be viewed as a syntactic affix which comes from the functional lexicon with a meaning and when it combines with a noun during syntactic computation, the meaning of the derived syntactic unit is calculated from the meanings of the suffix and the noun. This treatment is similar to the ones adopted for syntactic affixation in both Baker 2003 and DM[24].

(41) Nouns derived from nouns with the suffix –CI-t (or its variant –hY-t)

N	**Gloss**	**N-CI-t → N**	**Gloss**
Ot	Grass	Otcut	Person who mows grass
As	Food	Ascyt	Cook
Balyk	Fish	Balyksyt	Fisherman
Oloŋxo	Epic poem	Oloŋxohut	Epic poet

2.4.2. Deriving nouns from adjectives

The defining characteristic of adjectives is that they are one-place predicates. Therefore A→N derivation should involve argument reduction which is only possible in the lexicon. There are indeed cases of A→N conversion with accompanying meaning change which are marked overtly with derivational morphology, e.g. *cuor* 'sharp, keen (of hearing)' → *cuoraan* 'bell', *saŋa* 'new' → *saŋas* 'daughter-in-law', *sürün* 'basic, fundamental' → *sürdjüges* 'a pole serving as a basis for a fence' (see section 3 of appendix 3). However, such cases are extremely rare for a language which otherwise makes great use of derivational morphology. We will argue in chapter 4 (section 4.7) that the reason for this is that grammar gives an opportunity in the syntax to create nouns from adjectives by binding their open

[24] Syntactic affixation deriving nouns from nouns is also encountered in the productive formation of diminutives with the suffixes –CIk, -kA and –CAAn which will not be considered.

argument position with a determiner (in line with Higginbotham 1985). Syntactic θ-binding creating nouns from adjectives is very productive in the sense that any adjective can be nominalized. Compared to lexical derivation, syntactic nominalization offers one advantage: whereas lexically derived nouns have highly idiosyncratic meanings, nominalized adjectives are very flexible meaning-wise and allow a range of contextually determined interpretations. We will assume that this is one of the properties of syntactic word formation, namely, that it creates an opportunity for contextual interpretation of the meaning of the derived expression. On the contrary, the function of lexicon-internal word formation is to bring about a meaning change creating new concepts: it is therefore inconceivable that LWF could give rise to unfixed conceptual values.

2.4.3. Deriving nouns from verbs

Verbs can be nominalized both in the lexicon and syntax. As predicted in the present framework, lexical nominalization reduces verbal argument structure and effects a meaning change whereas syntactic nominalization preserves the original arguments. Some examples of lexical nominalization under which the meaning of the resulting noun cannot be predicted are given in (42).

(42) Lexical V→N derivation

V	Gloss	V-suffix → N	Gloss
Tüs	Fall	Tühük	Grammatical case
Üün	Grow	Üünüges	Shoot, sprout; puppy
Aj	Create	Ajylqa	Nature
Uop	Take a mouthful	Obot	Appetite
Xamnaa	Move	Xamnas	Salary
Tüm	Sum up, conclude; unite	Tümen	Parliament
Tep	Kick	Tebilik	Support; bicycle

The cases presented in (43) differ from the ones presented above in that one can say that, even though arguments are reduced, no apparent change of conceptual content has occurred contradicting the defining criterion of lexical derivation – meaning change. However, we would like to maintain the following. In both (42) and (43) the meaning of the resulting noun has been fixed once and for all. This is quite different from what happens in denominal verb formation where the meaning of the resulting verb must be determined depending on the context. Thus, *xaardaa* ‘snow-LAA’ can mean ‘to snow’, ‘remove snow’, ‘provide with snow’, ‘consume snow’, ‘gather snow’. Similarly, *ülelee* can mean ‘to work’, ‘to provide with work’, ‘to go to work’. Denominal verb formation, as argued in chapter 7, is a syntactic process. It is not the job of the syntax to provide new lexical names and therefore it makes sense to expect those words which are derived syntactically not to have a fixed meaning but rather a meaning which will be adjusted later, e.g. in the semantic component. On the contrary, lexicon is the engine for supplying the lexical stock of the language and therefore new words derived lexicon-internally are expected to have their

meaning ultimately/terminally determined. Therefore meaning change is probably better understood as final meaning determination/fixing – a procedure which can take place inside the lexicon but not inside the syntax.

(43) Lexical V→N derivation

V	**Gloss**	**V-suffix → N**	**Gloss**
Tüm	Sum up, conclude; unite	Tümük	Conclusion
Tuluj	Tolerate, endure	Tuluk	Endurance
Solbuj	Replace	Solbuk	Replacement
Taptaa	Love	Taptal	Love
Xajqaa	Praise	Xajqal	Praise
Iteqej	Believe	Iteqel	Belief
Boldjoo	Set a timeframe, deadline	Boldjox	Timeframe, deadline
Baaccaj	Complicate	Baaccax	Complication

Moving to V→N derivation which takes place in the syntax, we find two cases of syntactic affixation in section 2 of appendix 3: (23) and (24). In (23) we have two suffixes, -YY and –hYn, deriving action nominalizations from verbs (regularly and productively). The suffixes have the same syntactic effect but differ in their morphological properties: -YY attaches to verbs ending in a consonant, -hYn attaches to verbs ending in a vowel. (44b) shows the nominalization of a simple transitive sentence in (44a). We will assume that in such nominalizations the external argument is saturated and this saturation is marked by the morphemes –YY/-hYn. This assumption is compatible with the interpretation of (44b) as implying that the action of reading the book is performed by someone. In (44c) an optional possessor is introduced which corresponds to the external argument of the corresponding transitive sentence. However, as argued in chapter 3, possessors are not external arguments and they can be introduced syntactically. This is what we are witnessing in (44c). (44d) shows that the case assigning properties of the underlying verb must be preserved as well such that the accusative object of (44a) cannot be expressed as a nominative possessor in (44d).

(44) a. Sardaana kinige-ni aaq-ar.
Sardaana book-acc read-aor
'Sardaana reads the book.'

b. kinige-ni aaq-yy
book-acc read-nom
'reading the book'

c. Sardaana kinige-ni aaq-yy-ta
Sardaana book-acc read-nom-3
'Sardaana's reading the book'

d. *kinige aaq-yy-ta / book read-nom-3
'the book's reading; the reading of the book'

Nominalization can affect all kinds of verbs: (in)transitive, (un)derived, marked with various voices such as reflexive, reciprocal, causative, passive[25]. (45) and (46) show nominalizations of a causative and passive verbs. In the latter case it is the derived subject of passive that is saturated testifying to the syntactic nature of nominalization. That the nominative possessor which is optionally possible in (46b) does not correspond to the external argument of (46a) is shown by a difference in interpretation. While in (46a) it is Keskil who is chosen, in (46b) this is not the only reading available for Keskil who can also be the person contemplating on someone being chosen, can be the author of a theory on political elections, etc.

(45) a. Sardaana Lena-qa Erel-i möx-tör-dö.
Sardaana Lena-dat Erel-acc scold-caus-past.3
'Sardaana made Lena scold Erel.'
b. Lena-qa Erel-i möx-tör-üü / Sargy Lena-qa Erel-i möx-tör-üü-te
L.-dat E.-acc scold-caus-nom / S. L.-dat E.-acc scold-caus-nom-3
'making Lena scold Erel / Sardaana's making Lena scold Erel'

(46) a. Keskil tal-ylyn-na.
Keskil choose-pass-past.3
'Keskil was chosen.'
b. tal-yll-yy / Keskil tal-yll-yy-ta
choose-pass-nom / Keskil choose-pass-nom-3

The suffixes –YY/-hYn are also encountered on bound roots, e.g. *ar-yy* 'butter', *malaa-hyn* 'feast, banquet'. This shows that the suffixes can attach across domains: both in the lexicon and in the syntax. The difference in the domain of application is reflected in whether the nouns derived with –YY/-hYn allow denominal verb formation: those derived from bound roots (i.e. in the lexicon) do, those derived from verbs with argument structure preservation (i.e. in the syntax) do not, cf. *aryy-laa* 'to butter', *malaahyn-naa* 'organize a banquet' versus **yrytyy-laa*, **bosxoloohun-naa* (*yryt* 'to analyze' → *yrytyy* 'analysis', *bosxoloo* 'to liberate' → *bosxoloohun* 'liberation').

However, there are also cases when nouns derived from independent verbs with these two suffixes have 'lexicalized' (non-transparent) meanings alongside the fully transparent reading of action nominalization: e.g. *bys* 'to cut' → *byhyy* 'cutting' and 'piece; shape, character', *üün* 'grow' → *üünüü* 'growing' and 'harvest', *yjaa* 'to weigh' → *yjaahyn* 'weighing' and 'scales', *daqaa* 'to touch lightly' → *daqaahyn* 'touching lightly' and 'adjective', *battaa* 'to press' → *battaahyn* 'pressing' and 'atmospheric pressure'. Whereas in the case of action nominalization reading all of the original verbal arguments are preserved, the argument structure is completely eliminated in the case of lexicalized meanings. Thus, *byhyy* 'cutting', *üünüü* 'growing', etc. pattern exactly like nominalizations in (44)-(45) whereas their lexicalized versions *byhyy* 'piece; shape, character', *üünüü*

[25] Also, syntactically nominalized verbs can be complex, including aspectual auxiliaries. In contrast, lexically nominalized verbs do not support aspectual modification.

'harvest', etc. are not associated with any arguments and behave like ordinary nouns. These data show that one and the same verb can be subjected to nominalization both in the lexicon and in the syntax. The two types of nominalization display systematic differences. First, meaning-wise syntactic nominalizations have an action reading derived from the underlying verb, lexical nominalizations are assigned a completely new meaning related but independent from the meaning of the corresponding verb. Second, with syntactic nominalizations the original argument structure of the verb is left intact, with lexical nominalizations it is reduced. If the base verb assigns accusative, this ability is preserved in syntactic nominalizations but disappears in lexical ones. Third, syntactic nominalizations cannot give rise to denominal verbs whereas lexical nominalizations pattern together with nouns like *malaahyn* 'feast, banquet' derived from bound roots in the lexicon (see above) in allowing denominal verbs. For instance, *daqaahynnaa* (derived from *daqaahyn* which is ambiguous between syntactic 'touching lightly' and lexical 'adjective') can only have meanings related to 'adjective' such as 'provide with an adjective', 'turn into an adjective', 'invent an adjective', 'create epithets', etc.

Another case of syntactic affixation is presented in (24) with the suffix –CI which derives agentive nominals (if a verb ends in a consonant, the suffix becomes -AAccY). We will assume that this suffix also saturates the external argument. If the base verb is transitive, the ability to assign accusative is preserved as (47) shows.

(47) Terilte-ni salaj-aaccy kel-le.
Company-acc manage-nom$_{agent}$ come-past.3
'The manager of the company came.'

The suffix has another syntactic use: it derives habitual participles.

(48) Kini terilte-ni ücügejdik salaj-ar / salaj-aaccy.
He company-acc well run-pres / run-habit
'He runs the company well.' / 'He usually runs the company well.'

Whereas in the habitual function the suffix can apply to any predicate with no restrictions, as an agentive nominalizer it cannot apply to passives and unaccusatives. It is therefore similar to the English –er, cf. *aaq-aaccy* 'read-er', *üören-eecci* 'study-er', *oonnjoo-ccu* 'play-er', *taŋas tik-ter-eecci* 'tailor's client (lit. clothes sew-caus-er)' but **üün-eecci* 'grow-er', **timir-eecci* 'drown-er', **tökünüj-eecci* 'roll-er' (note that all these words are fine as habitual participles).

Thus, although we assumed that –CI saturates the external argument, its effect is not the same as the one caused by –YY/-hYn. The latter, unlike the former, can saturate the external argument of passives and unaccusatives. We believe the difference is structural in nature, witnessed by the grammaticality of denominal verb formation from –CI agentive nominals illustrated in (49) and its impossibility from –YY/-hYn syntactic nominalizations as discussed above (recall **bosxoloo-hun-naa* 'liberate-nom-verb').

(49) a. Redaktsija-qa suruj-aaccy-laa-ty-byt.
Editorial.office-dat write-nom$_{agent}$-verb-past-1pl

'We worked as writers at the editorial office.'

b. Redaktsija-ny suruj-aaccy-laa-ty-byt.
Editorial.office-acc write-nom$_{agent}$-verb-past-1pl
'We provided the editorial office with a writer.'

We would like to argue that syntactic –YY/-hYn nominalization is a high-level process taking an IP as input whereas denominal verb formation must take place before IP is merged. On the contrary, -CI suffixation takes a VP-input and derives an agentive nominal which can be further subjected to denominal verb formation: it will be shown in detail in chapter 7 that denominal verb formation, being a syntactic process, can apply at different levels reflected in the scope of the verbalizing suffix –LAA. Let's consider why –CI suffixation is impossible with an unaccusative verb like *tökünüj* 'roll'. According to Theta system, this verb is derived from the corresponding transitive *tökünüt* 'make roll' by the lexical operation of causer reduction. *Tökünüt* 'make roll' is a two-place verb associated with [+c] and [-c-m] arguments. By the lexicon marking conventions of (75) in chapter 1,[26] the [+c] cluster will be marked with index 1 and [-c-m] with index 2. After [+c]-reduction has applied, only one argument marked with index 2 remains and this argument will be merged inside VP in the internal (object) position. Thus, when agentive nominalization applies there is no external argument for –CI to saturate, hence –CI suffixation is ruled out. Similar considerations carry over to passives. This result is very attractive because semantic restrictions on the type of external argument capable of being saturated follow not from the idiosyncratic properties of the suffixes but from the difference in the syntactic levels of application: one type of nominalization saturates IP-subjects (hence all kinds of subjects including the derived ones), the other type applies to VP-subjects. What kind of VP-subjects can be saturated receives a natural explanation under the Theta system. We will be coming back to the issue of IP- and VP-nominalizations in later chapters as well[27]. Thus, the results of this section confirm the long-standing and well-studied distinction between, on the one hand, action/process nominals (also referred to as complex event nominals, argument-structure nominals or V-nominals, depending on the author) and, on the other hand, result nominals (also referred to as referential nominals or N-nominals) investigated in Abney 1987, Grimshaw 1990, Schoorlemmer 1995, Borer 2003b, Lebeaux 1986.

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[26] Lexicon marking: Given an n-place verb-entry, n>1,

a. Mark a [-] cluster with index 2.

b. Mark a [+] cluster with index 1.

c. If the entry includes both a [+] cluster and a fully specified cluster [/α, /-c], mark the verb with the ACC feature.

[27] Our analysis of syntactic nominalizations bears similarity to the ones advanced in Abney 1987 who distinguishes three types of *ing*-nominals depending on the level of *ing*-attachment (IP, VP or V) and in Borer 2003b who treats argument-structure nominals as syntactic verbal structures dominated by nominalizing suffixes such as *–tion* or *–ing*.

2.5. Deriving adjectives in the lexicon and syntax

New adjectives can be derived from nominal, verbal as well as adjectival bases.

2.5.1. Deriving adjectives from nouns

Since nouns have no arguments and adjectives have one, deriving the latter from the former involves argument addition which is only possible syntactically. In chapter 4, section 4.5.2 we argue that one productive means of turning nouns into adjectives involves type-shifting (<e> → <e,t>) along the lines proposed in Chierchia 1998. The adjectival nature of such property-turned nouns is supported by the fact that they take negation specific to adjectives, as will be shown in 4.5.2.

Type shifting is not marked overtly: a property-turned noun will appear in its basic shape when functioning as an adjective. Other syntactic means of converting nouns into adjectives involve overt morphology. These are cases of syntactic suffixation in which meanings of derived adjectives are determined compositionally, from the meanings of the base noun and of the suffix. In (38) one such affix was given. Other examples include –KI which derives various relational (directional, temporal) adjectives, -TAAqY which derives locative adjectives and –LAAx. The latter which decomposes into –LAA and –x will be considered in more detail in chapter 7 where it will be compared with the universal verbalizer –LAA.

Apart from these fully productive and transparent cases, other examples of noun-based adjective formation which are presented in section 7 of appendix 3, namely, (5) through (19) can hardly be viewed as syntactically derived. Note that out of 15 suffixes listed in (5) through (19) ten involve singleton adjectives and the other five are implicated in deriving either two or three adjectives. In these cases the most optimal solution is lexicon-internal derivation with subsequent freezing as discussed above in section 2.3.1: one of the adjectives discussed there was *sürün* 'basic, fundamental' derived from the noun *sür* 'soul, internal spirit' which has been out of use for several decades, yet its adjectival derivative had high frequency during this period; in this case we are literally dealing with freezing. Another pair with a history similar to *sür* → *sürün* is *bas* 'head' → *bastyŋ* 'best': the adjective is very frequent, the base noun *bas*, on the contrary, has a very limited use both because of its archaic flavour and because it has been losing ground to another noun *töbö* which also means 'head'. Freezing is also supported by the fact that in the majority of derivationally related pairs in (5) through (19) the meaning connection has been broken and native speakers without linguistic training do not even suspect the existence of an original link between the two.

2.5.2. Deriving adjectives from adjectives

In this case both the input and output of derivation take one argument, therefore derivation is in principle possible both in the lexicon and syntax. This is indeed what we encounter. On the one hand, listed in (47) (appendix 3, section 9) are some highly idiosyncratic, sporadically occurring cases of A→A conversion in the lexicon. On the other hand, we find three cases of productive derivation involving

syntactic suffixes: -TYŋY which indicates incompleteness of quality, –CAAn which derives diminutives and –TAAqY which derives relational (locative) adjectives.

2.5.3. Deriving adjectives from verbs

All adjectives listed in section 8 of appendix 3 can be grouped into four types depending on their derivational history. The first two types are adjectives derived in the lexicon either from transitive (50) or intransitive (51) verbs. The former type involves argument reduction, the latter does not.

(50) $V_{TRANS} \rightarrow A$ lexical derivation: argument reduction; meaning change

V	Gloss	V-suffix → A	Gloss
Yk	Squeeze; urge, demand	Ygym	Tightfisted
Bys	Cut	Byha	Short, quick, direct
Ketee	Watch, keep an eye on	Ketex	Private
Kömüskee	Defend	Kömüskes	Defensive, protective
Bul	Find	Bulugas	Resourceful
Sie	Eat	Siemex	Carnivorous
Bil	Know	Biliges	Curious, inquisitive
Sim	Stuff in	Simik	Shy

(51) $V_{INTRANS} \rightarrow A$ lexical derivation: no argument reduction; meaning change

V	Gloss	V-suffix → A	Gloss
Xaam	Walk	Xamaqaj	Able, skilful
Aas	Pass	Aahygan	Transient, transitory
Bar	Go, leave	Barbax	Unimportant, insignificant
Xaam	Walk	Xamaqa	Saleable, marketable
Büt	End, finish	Bütün	Whole
Köp	Float to the surface (e.g. junk, dead fish)	Köppö	Lazy

The third type are adjectives derived in the syntax from intransitive verbs. This kind of derivation involves only syntactic category change from V to A: neither argument reduction nor meaning change can take place.

(52) $V_{INTRANS} \rightarrow A$ syntactic derivation: no argument reduction; no meaning change; category change

V	Gloss	V-suffix → A	Gloss
Kön	Straighten	Könö	Straight
Kilbij	Be timid, shy	Kilbik	Timid, shy
Tögürüj	Become round	Tögürük	Round
Kylgaa	Shorten	Kylgas	Short

Elbee	Multiply	Elbex	Multiple, a lot
Möltöö	Weaken	Möltöx	Weak
Sahar	Become yellow	Saharxaj	Yellow
Incej	Become wet	Inceqej	Wet
Djadaj	Become poor	Djadaŋy	Poor
Kyryj	Become old	Kyrdjaqas	Old
Minnjij	Become sweet	Minnjiges	Sweet, delicious

The fourth type is also represented by adjectives derived syntactically. Whereas the adjectives in (52) are less finicky with respect to the choice of suffixes, the adjectives belonging to the fourth type attach the suffix –m-t-YA which results in the meaning 'capable of V-ing, V-able'.

(53) 'V-able' adjectives

V	**Gloss**	**V-mtYA → A**	**Gloss**
Bar	Brew, intrans.	Barymtya	Strong (of tea)
Tuluj	Tolerate, trans.	Tulujumtuo	Enduring, tough
Soj	Cool down, intr.	Sojumtuo	Quickly cooling down
Kör	See	Körümtüö	Able to see, observe
Bul	Find	Bulumtuo	Able to find
Ihit	Listen, obey	Istimtie	Able to listen/to obey

The interesting thing about able-adjectives is that they can be derived from transitive verbs (e.g. *tuluj* 'endure', *kör* 'see', *bul* 'find', *ihit* 'listen, obey' in (53)) in which case they preserve the internal argument of the base verb along with accusative case. This proves once again that syntactic processes of category change, unlike lexical ones, are incapable of affecting the original argument structure of the derivational base.

(54) a. Sargy itii-ni tuluj-ar.
Sargy heat-acc endure-aor
'Sargy endures heat.'
b. Sargy itii-ni tuluj-umtuo.
Sargy heat-acc endure-able
'Sargy is capable of enduring heat.'

Intransitive verbs derived in the lexicon by unaccusative reduction can give rise to an adjective either in the lexicon or syntax. For instance, *köt* 'fly' is derived by unaccusative reduction from the corresponding transitive/causative verb *kötüt* 'make fly' (which takes a [+c] external argument). In its turn, it can be converted to an adjective either in the lexicon resulting in *kötümex* 'negligent, slipshod' (non-transparent, lexically fixed meaning) or in the syntax resulting in *kötümtüö* 'able to fly' (compositional able-meaning).

One important question has not yet been addressed. It is claimed here that no categorization takes place in the lexicon and that categories such as nouns, verbs and adjectives constitute a purely syntactic phenomenon. What takes place in the

lexicon, however, is a classification of concepts according to their thematic properties. At the interface of the theta system with the syntactic component it is this prior classification which determines whether a particular concept will merge under a syntactic N, V or A node: two-place concepts will be merged as verbs, one-place concepts associated with a [-c-m] feature cluster will merge as adjectives. However, we are also assuming a number of lexicon-internal operations on θ-grids of verbs and adjectives which can alter the original number of arguments, either by increasing or decreasing. Whereas it is clear that a basic adjective with its sole argument reduced will come out as a noun in the syntax, the situation is much less clear for verbs. Consider, for example, unaccusative reduction which applies to two-place concepts with a [+c] argument, reduces the latter and the result is an unaccusative verb. As already mentioned, such unaccusative verbs can in turn give rise to adjectives either in the syntax or lexicon. Some of the important questions which must be answered are why causer reduction which results in a one-place concept yields an unaccusative verb and not an adjective, how exactly an intransitive verb can be converted into an adjective in the lexicon and in the syntax and how do these two processes differ from each other. (50) analyzed as argument structure reduction leading to the formation of new adjectives also raises the question of how to distinguish cases of transitive verbs giving rise to adjectives and of transitive verbs giving rise to unaccusatives. In this section we have only touched upon the tip of the iceberg by uncovering four possible types of derivation leading to the formation of new adjectives. Doing more than that requires better familiarity with the thematic composition of verbal concepts in Sakha – a topic undertaken in chapter 5. Therefore we will postpone considering the questions just mentioned until then.

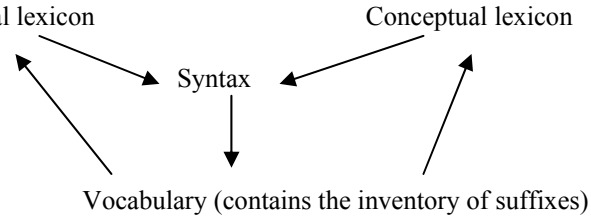
2.6. Concluding remarks

This chapter considered the morphological aspect of categorization. On the one hand, we argued that given suffixal ambiguity it is hard to rely on the morphological means of categorizing lexical items. On the other hand, the existence of three-way morphological asymmetries supports the assumption that there exist three basic categories: concepts will always be less marked in their primary categorial incarnation than in their secondary one. However, it is not claimed that categorization takes place in the lexicon. On the contrary, categories such as nouns, verbs and adjectives are a purely syntactic phenomenon. What takes place in the lexicon is a classification of concepts according to their thematic properties. At the interface of the theta system with the syntactic component it is this prior classification which determines whether a particular concept will merge under a syntactic N, V or A node (i.e. become a primary noun, verb or adjective).

We also argued that lexicon is not only the storage place for existing concepts but also the locus of new concept formation. A number of arguments were presented against the DM-tenet that no derivation is possible lexicon-internally. Lexical derivation is opposed to syntactic derivation along the criterion of meaning change from which it follows that only in the lexicon can thematic properties of concepts be altered. In other words, only lexical derivation is capable of reducing or

modifying the original θ-grid of a concept. The following organization of the modules having a relation to morphological derivation was proposed.

(55)



To conclude, we would like to present one more piece of evidence for the existence of three basic categories – from morphophonology. Don (1993:171-3) gives a summary of Trommelen 1989 where "it is argued that there is a relation between the syllable structure of Dutch underived words and their category. The general observation is that verbs have a very restricted syllable structure, while the syllable structure of adjectives is less restrictive and nouns have the most ample possibilities" (Don 1993:171). The maximal number of consonants allowed in the syllable onset in Dutch words is three, whereas the rhyme can have five segmental positions as in *herfst* 'autumn'. However, whereas all three categories can have the maximal onset, the maximal rhyme is only encountered in nouns: "there are hardly any verbs or adjectives boasting five positions in their rhyme; nor are there any verbs having a four positional rhyme, although this is possible in adjectives and nouns" (Don 1993:172). Apart from syllable structure, Don 1993 also demonstrates, based on Trommelen 1989, that there is a correlation between the number of syllables and the type of category such that underived verbs in Dutch are mostly phonologically monosyllabic. The same kind of correlation also exists in Sakha. Basic underived verbs and adjectives (root verbs and root adjectives) are mostly monosyllabic, root nouns can be polysyllabic. Verbs can never end in a short vowel, nouns and adjectives can. These and other phonological diagnostics help decide the category of nonce words which do not otherwise exist in the language. For instance, both *sam* and *mellej* can be assigned to all three categories, *soxxoroon* can be viewed as a noun or adjective but never as a verb whereas *soxxoroonnju* can only become a noun. Thus, whereas lightness fits all categories and middle weight qualifies for nouns as well as adjectives, the heavier a word the more likely it is to become a noun. An explanation for these curious facts seems not yet to have been offered but the correlations themselves have a practical significance: on the one hand, they can be used to determine the direction of derivation in conversion as is done in Don 1993 and, on the other, they clearly argue for the existence of three basic categories[28].

[28] Morphological subclasses may also be phonetically determined. For instance, Bybee & Moder 1983 (also Bybee & Slobin 1982) show that the most productive class of strong verbs in English (win/won) is phonologically defined. Zubin & Köpcke 1981 argue for German that there is a strong correlation between the initial consonant clusters in monosyllabic nouns and the assignment of nouns to the masculine gender: 73% for those with an initial two-consonant cluster and 83% if the number of consonants is three. Phonetic determination of major word subclasses is also encountered, e.g. all adverbs

in Yoruba are ideophonic whereas relatively few nouns, verbs and adjectives are (Schachter 1985). Another example is Edo where all nouns begin with a vowel (Baker 2003:121n.).

3. NOUNS IN SAKHA

In the current framework nouns do not take any arguments because of their argumental, non-predicative nature. The goal of this chapter is to provide evidence for this view. On the one hand, we will demonstrate that nouns (including relational ones) have no θ-grids and, on the other, that they do not have to be turned into arguments since they are already argumental. Another consequence of the non-predicative approach to nouns is the prediction that they should be banned from predicative contexts unless they are embedded under the functional head Pred. This last prediction is the topic of chapter 4.

The chapter is structured as follows. In the first two sections we will consider two contexts which have been claimed in the literature to instantiate the argument-taking capability of nouns – possessives (3.1) and compounds (3.2). In 3.3 we will compare our assumptions with Baker's (2003) whose treatment of nouns as quintessential arguments inspired much of the present approach. Then we will move to the use of nouns as arguments (3.4). Section 3.5 presents concluding remarks.

3.1. Possession

Possessors which occur with nouns can be treated as either modifiers or arguments of the head noun. Whereas the modifier approach is not problematic for our framework, the view of nouns as argument-taking expressions is. However, the modifier/argument distinction itself is a very subtle issue as witnessed by the various treatments of Russian prenominal possessives such as *pap-in-a knig-a* 'dad's book (dad-poss-fem.sg.nom book-fem.sg.nom)'. Whereas Partee and Borschev 2003 and Schoorlemmer (1995:326ff; 338ff) argue that they are modifiers, Babyonyshev (1997: 205) treats them as ambiguous between being arguments or modifiers. A point of interest here, on which all authors convene, concerns restricted interpretation of argument possessives and unrestricted interpretation of modifier possessives. As a result, since modifiers can assume any interpretation, including that of arguments, a massive overlap arises between the meanings of the two possessor types which leads Partee and Borschev to conclude that the line dividing modifiers from arguments cannot be drawn in terms of what is being expressed and to a great extent depends on one's theory (ibid. 102). In this section we would like to argue, on the basis of Sakha data, that possessors are arguments introduced syntactically and that unrestricted interpretation is one of the properties of such arguments. Syntactic possessor introduction will be claimed for all head nouns, independent of their 'relationality'. This goes counter to the claims made in the literature that the status of possessors of 'relational' nouns is close to that of being a lexical argument, i.e. an inherently specified argument present in the lexical θ-grid of a noun (cf. Guéron 1985, 1995; Tellier 1990; Déchaine 1993; Español-Echevarría 1997; Ritter and Rosen 1997; Partee and Borschev 2003).

The claim that possessors are syntactic arguments cannot be substantiated unless it comes embedded within a theory of possession in general. This is another

goal of this section which is built in the following order: 3.1.1 gives a descriptive overview of possessive contexts in Sakha and 3.1.2 offers an analysis.

3.1.1. Introducing possessives

Below we will first consider possession at the nominal level and then four ways of expressing possession at the sentential level.

3.1.1.1. Possession at the nominal level

Possessive noun phrases in Sakha have the format in (1): the nominative possessor precedes the head noun which agrees with the possessor in person and number. A pronominal possessor can often be omitted: its features are easily recoverable from the possessive suffix. As the paradigm in (2) shows, matters are slightly more complicated in the third person plural which is doubly ambiguous due to the morphological constraint that two plural suffixes –LAr cannot be adjacent. When the possessum is singular *oloppos* 'chair', the features [plural] and [3] expressed, respectively, by the morphemes /–LAr/ and /–A/ are copied onto the possessum resulting in the string *oloppos-tor-o*. When the possessum is plural, it is already marked with –LAr and so the final outcome should be **oloppos-tor-tor-o* where the first –tor (allomorph of -LAr) would express the plural feature inherent in the possessed noun and the second –tor would express the plural feature of the possessor. The sequence of two adjacent –LAr's is not well-formed morphologically and so one of them must be deleted, whence the ambiguity of *kiniler oloppostoro* 'their chair/chairs'. When the possessor is omitted, the noun phrase becomes three-way ambiguous: *oloppostoro* 'his chairs; their chair; their chairs' meaning that only the person feature of the possessor can be identified but not its number[1].

(1) POSSESSOR-NOM POSSESSED-AGR$_{\text{PERSON/NUMBER}}$

[1] The same situation obtains also in Turkish and Yukaghir. In Kolyma Yukaghir the plural marker, when combined with the third person possessive marker, may denote either a plural possessor or a plural possessee or both a plural possessor and a plural possessee as in *a:c'e-p-ki* / deer-pl-poss3pers 'their deer(-sg), his deer(-pl), their deer(-pl)' (Maslova (in press)).

A similar ambiguity arises in Mesocco, an Italian dialect, when V is inflected for number in the presence of a third feminine subject clitic and third feminine object clitic both inflected only for person and gender as shown in (i). In this situation the plural marker on the verb may be associated either with the subject ('They-fem wash her') or with the object ('She washes them-fem') or with both ('They-fem wash them-fem') (Manzini & Savoia 1997).

(i) la la lavën / ClSubj3f ClObj3f wash-3pl
'They(f) wash her' / 'She washes them(f)' / 'They(f) wash them(f).'

Whereas in Sakha, the ambiguity is morphological in nature, in Mesocco it is syntactic and arises as a result of the verb (abstractly) moving to or skipping inflectional heads between C and I: I_{CL} for nominative subject clitics (→ plural subject reading) and Cl for accusative clitics (→ plural object reading).

(2) The possessive paradigm:

	Oloppos 'chair'	*Oloppos-tor* 'chair-pl'
1SG: *min* 'I'	Min oloppoh-um	Min oloppostor-um
2SG: *en* 'you'	En oloppoh-uŋ	En oloppostor-uŋ
3SG: *kini* 's/he'	Kini oloppoh-o	Kini oloppostor-o
1PL: *bihigi* 'we'	Bihigi oloppos-put	Bihigi oloppostor-but
2PL: *ehigi* 'you'	Ehigi oloppos-kut	Ehigi oloppostor-gut
3PL: *kini-ler* (s/he-pl) 'they'	Kiniler oloppos-tor-o	Kiniler oloppos-tor-o

3.1.1.2. The lack of genitive case in Sakha and the obligatory presence of the dummy noun in possessor predicates

The possessive paradigm in Sakha is very similar to the one in Turkish except that the Turkish possessor appears in the genitive case. Genitive is an extinct case in modern Sakha although it was functional at earlier stages (Korkina et al. 1982:150). It does appear, however, in the structural context of embedded possessors: whenever the possessor is itself a possessive NP as in (3a), its head noun is obligatorily marked with the genitive morpheme as shown in (3b). The number of embeddings is not restricted and possessors can iterate freely as (3c) shows where the most deeply embedded possessor is Sargy which takes *aqa* 'father' as its possessum and the possessive NP thus formed takes another *aqa* as its possessum and so forth.

(3) a. Sargy ubaj-a
Sargy brother-3 'Sargy's brother'

b. Sargy ubaj-yn djiet-e / *Sargy ubaj-a djie-te
Sargy brother-gen house-3 / Sargy brother-3 house-3
'Sargy's brother's house'

c. Sargy aqa-tyn aqa-tyn aqa-tyn aqa-tyn aqa-ta[2]
Sargy father-gen father-gen father-gen father-gen father-3
'Sargy's father's father's father's father's father'

However, this genitive relict in Sakha does not have the same function as its Turkish counterpart. In Turkish genitive possessors can be used predicatively (4b), Sakha nominative possessors cannot (4d). In order for a possessor to be predicated of its possessum, it must appear together with an empty noun *kien* devoid of lexical content as shown in (4e).

[2] The genitive marker is –In and when it attaches to a noun stem ending in a vowel, -t must be inserted for euphony. The same applies to the third person marker –A which becomes –tA when attached to a vowel-ending stem.

(4) a. Hasan-ın araba-sı / Hasan-gen car-poss3sg (Turkish)
'Hasan's car'
b. Araba Hasan-ın.
'The car is Hasan's.'
c. Sargy massyyna-ta / Sargy-nom car-poss3pers (Sakha)
'Sargy's car'
d. *Massyyna Sargy. 'The car is Sargy's.'
e. Massyyna Sargy kien-e.
Car Sargy KIEN-3 'The car is Sargy's.'

An embedded possessor marked with the pseudo-genitive marker also cannot appear predicatively and requires the filler noun. This points to the genitive –In serving as a combinative morpheme and not as a case marker (cf. Babyonyshev (1997:196) on the possibility of using the Russian genitive ending (which is a genuine case marker) as a combinative morpheme).

(5) a. Sargy ubaj-yn massyyna-ta
Sargy brother-gen car-3 'Sargy's brother's car'
b. Massyyna Sargy ubaj-yn *(kien-e).
car Sargy brother-gen *(KIEN-3)
'The car is Sargy's brother's.'

The dummy noun *kien* when combined with personal pronouns gives rise to possessive pronouns. The two can be fused together so as to form one word: it is these reduced forms which are usually used in the default case. With the third person plural pronoun *kiniler* 'they', fusion is prevented by the plural morpheme –LAr. Such possessive pronouns formed with the dummy noun *kiene* are absent from other Turkic languages (Korkina et al. 1982:211) which is probably explained by the presence of functional genitive in these languages.

(6) *min kiene* / I_{NOM} KIEN-3 → *miene* 'mine'
en kiene / $thou_{NOM}$ KIEN-3 → ejiene 'yours'
kini kiene / he_{NOM} KIEN-3 → *kiniene* 'his'
bihi[3]*/bihigi kiene* / we_{NOM} KIEN-3 → *bihiene* 'ours'
ehi/ehigi kiene / you_{NOM} KIEN-3 → *ehiene* 'yours'
kini-ler kiene / (s)$he\text{-}pl_{NOM}$ KIEN-3 → no reduced form available

3.1.1.3. Clausal possession: Full NP possessor predicates

At the clausal level possession can be expressed in a variety of ways. One involves predicative possessors discussed in the preceding section. The dummy noun *kiene* agrees with the possessum subject in person/number. As (7c) shows, the third person

[3]Personal pronouns *bihigi* 'we' and *ehigi* 'you' have reduced forms *bihi* and *ehi*, respectively, used colloquially.

morpheme –A always accompanies the dummy noun *kien*, independent of the person feature of the possessum subject which is [2] in (7c). This is possible due to the nature of third person in general as the default, least specified person (see section 4.1.3). Possessor predicates can be used to express permanent as well as temporary possession.

(7) a. Bu son miene/kiniene/ehiene/kiniler kiene.
'This coat is mine/{his, hers}/yours/theirs.'
b. Bu sonnor miennere/kiniennere/ehiennere/kiniler kiennere.
'These coats are mine/{his, hers}/yours/theirs.'
c. En kiniene-qin (kini kien-e-qin).
You his/hers-2sg (s/he KIEN-3-2sg)
'You are his/hers.'

3.1.1.4. Clausal possession: -LAAX

There are three more ways to express possession at the clausal level: 1) with the help of –LAAX; 2) with the help of *baar* 'there be' combined with the nominative possessor and 3) with the help of *baar* 'there be' combined with the dative possessor.

-LAAX is a very ubiquitous morpheme used in a wide variety of contexts, one of which is clausal possession. LAAX-sentences can express alienable as well as inalienable possession including kinship relationships. The possessum can be singular as well as plural (8b), it can also be quantified and modified by adjectives (8c). As with possessor predicates, LAAX-clauses can express both temporary and permanent possession.

(8) a. En massyyna-laax-xyn / tiis-teex-xin / edjiij-deex-xin.
You car-LAAX-2sg / tooth-LAAX-2sg / sister-LAAX-2sg
'You have a car/ teeth[4] / a sister.'
b. En tastyŋ ubaj-dar-daax-xyn.
You outer brother-pl-LAAX-2sg 'You have cousins.'
c. Sargy tüört ulaxan yt-taax.
Sargy four large dog-LAAX 'Sargy has four large dogs.'

In the examples in (8) the N-LAAX combination is used as a predicate expressing sentence-level possession. It can also be used as a modifier resulting in DP-internal possession. Such N-LAAX modifiers can be translated into English as 'with N' or 'N-possessing'.

[4] Here *tiis* 'tooth' can be understood as singular as well as plural. Body parts are usually understood collectively so in the default case they do not require an explicit plural marker. The example at hand is also grammatical if *tiis* is marked with the plural suffix –LAr: *en tiis-ter-deex-xin* / you tooth-pl-LAAX-2sg 'you have teeth'.

(9) Massyyna-laax kihi / car-LAAX person ‘a person with a car’
Oqo-loox yal / child-LAAX family ‘a family with a child/children’
Tastyŋ ubaj-dar-daax kihi / outer brother-pl-LAAX person
‘a person who has cousins’
Tüört ulaxan yt-taax kyys / four large dog-LAAX girl
‘a girl with four large dogs’

The derivation of possessive modifiers in (9) is similar to that of adjectives which, as mentioned in chapter 2 (section 2.5.1), are regularly derived from nouns with the help of –LAAX (see appendix 4:7:2): *küüs* ‘N: strength’ → *küüsteex* ‘A: strong’, *kir* ‘N: dirt’ → *kirdeex* ‘A: dirty’, *djol* ‘N: happiness’ → *djolloox* ‘A: happy’, etc. Thus, N-based adjective formation is another function of the suffix –LAAX.

Third, -LAAX derives the plural of the wh-word *kim* ‘who’ which does not have the regular –LAR plural: **kim-ner* (who-pl).

(10) Kim kel-le? / Kim-neex kel-li-ler/*kel-le?
Who come-past.3 / who-LAAX come-past-pl/*come-past.3

Fourth, -LAAX participates in the formation of two tenses in the indicative mood and two tenses in the obligative mood. The difference between (13) and (14) is that present/future obligative denotes an event which must take place either at the moment of speech or right after whereas in the future obligative an event which must take place is located further away in the future.

(11) Past Episodic (Indicative Mood):
Min lotereja-qa süüj-büt-teex-pin.
I lottery-dat win-rem.past-LAAX-1sg
‘By the way, there was an episode in the past when I won in the lottery.’

(12) Pluperfect Episodic (Indicative Mood):
Min lotereja-qa süüj-büt-teex e-ti-m.
I lottery-dat win-rem.past-LAAX aux-past-1sg
‘By the way, there had been an episode in the past when I won in the lottery.’

(13) Present/Future Obligative (Obligative Mood):
Min kinige atyylah-ar-daax-pyn.
I book buy-aorist-LAAX-1sg
‘I must buy a book.’

(14) Future Obligative (Obligative Mood):
Min kinige atyylah-yax-taax-pyn.
I book buy-future-LAAX-1sg
‘I must buy a book.’

Finally, -LAAX appears in associative noun phrases which come in two kinds. The first one (15a) consists of two nouns and is interpreted as a coordinate structure: N_1-LAAX N_2 'N_1 and N_2'. The second one (15b) consists of only one noun to which –LAAX has attached. Since –LAAX establishes the relationship of association between the noun to which it has attached and another noun which, in this second case, is left unexpressed, the meaning of this covert noun is recovered as 'people (or one person) who constitute a group of which N_1 (the overt noun suffixed with –LAAX) is part of' and, naturally, N_1 is part of its family and other social groupings to which it is closely related, of which it is an indispensable member, e.g., its co-workers, neighbours, relatives as well as people with whom it is temporarily associated as a result of (accidental) physical proximity, etc. This accounts for the presence of two readings of N_1-LAAX: '1) N_1 and his/her folks (family, friends, colleagues and the like); 2) N_1 and another person(s) in physical proximity to N_1'. Both types of associatives trigger plural agreement.

(15) a. Sardaana-laax Keskil kel-li-ler/*kel-le.
Sardaana-LAAX Keskil come-past-pl/*come-past.3
'Sardaana and Keskil came.'
b. Sardaana-laax kel-li-ler/*kel-le.
Sardaana-LAAX come-past-pl/*come-past.3
'Sardaana and {her folks/another person(s)} came.'

3.1.1.5. There is a nominative possessor

These sentences remind possessive noun phrases: possessor is in the nominative and the possessee agrees with it in person and number. They also display an existential predicate - positive *baar*[5] and negative *suox* which optionally agrees with the possessum in number (16b). The possessum can be alienably as well as inalienably possessed and possession can be temporary as well as permanent (but see 3.1.2.4 below). When the possessum is plural and the existential copula does not agree with it in number, the plural possessum is understood collectively.

(16) a. En massyyna-ŋ/tiih-iŋ/edjiij-iŋ baar.
You car-2sg/tooth-2sg/elder.sister-2sg $\text{copula}_{\text{EXIST}}$
'You have a car/teeth/an elder sister.'
b. En kinige-ler-iŋ/edjiij-der-iŋ baal-lar/baar.
You book-pl-2sg/elder.sister-pl-2sg $\text{copula}_{\text{EXIST}}$-pl/$\text{copula}_{\text{EXIST}}$
'You have books/elder sisters.'

3.1.1.6. There is a dative possessor

Everything that was said in the preceding section about possessive sentences with nominative possessors applies here as well. The only difference is in the case marking of the possessor.

[5] The existential copula *baar* 'there (be)' is etymologically related to the universal quantifier *bar* 'all'.

(17) Ej-iexe massyyna-ŋ/tiih-iŋ/edjiij-iŋ baar.
You-dat car-2sg/tooth-2sg/elder.sister-2sg $\text{copula}_{\text{EXIST}}$
'You have a car/teeth/an elder sister.'

Both nominative and dative possessive sentences differ from possessive noun phrases in one crucial respect: only the clause-level possessor can become separated from the possessum as the examples below demonstrate.

(18) a. Toqo bügün uruok-ka **en kinige-ŋ** kirtij-de-j?
Why today lesson-dat you book-2sg become.dirty-past.3-Q
'Why did your book become dirty today at the lesson?'
b. ***En** toqo bügün uruokka **kinigeŋ** kirtijdej?

(19) a. Toqo bügün [$_{\text{CP}}$ biblioteka-qa syldjy-byt er-eeri-gin]
en/ej-iexe kinige-ŋ suoq-uj?
Why today library-dat go-past aux-gerund-2sg
you/you-dat book-2sg $\text{neg.copula}_{\text{EXIST}}$-Q
'Why don't you have a/the book today [$_{\text{CP}}$ even though you have been to the library]?'
b. **En/Ejiexe** toqo bügün [$_{\text{CP}}$ biblioteka-qa syldjy-byt er-eeri-gin]
kinigeŋ suoquj?

3.1.2. Analyzing possessives

Now it is time to assemble a possessive jigsaw puzzle out of the facts presented in the previous section. To summarize, we have the following factual pieces:

- possessive NPs *min kinigem* 'my book' (2)
- possessive predicates with the dummy noun *kien* (4e; 5b; 6; 7)
- -LAAX of DP-internal (9) and sentential possession (8)
- adjectival –LAAX
- wh-plural –LAAX (10)
- temporal –LAAX (11-14)
- associative LAAX with overt/pro N
- possessive clauses with a nominative possessor and the existential copula
- possessive clauses with a dative possessor and the existential copula

Given the range of possible approaches to possession summarized e.g. in Den Dikken 1997, a uniform analysis relating all of the above facts seems like a daring endeavor although conceptually it is preferable to scattered, singular accounts. However, as we will see, total uniformity is hard to achieve and, in fact, one has to fit together two jigsaw puzzles instead of one – that of –LAAX and the rest. The following empirical motivation can be given for separation. Along with Larson and Cho 1999 we will assume that possessive noun phrases offer several attachment possibilities for adjectives, two of which are modifying the possessum and modifying the whole possessive phrase. Whereas with adjectives like *black* as in

John's black car the structural ambiguity does not result in semantic ambiguity, it does with adjectives like *former*. If *former* in *John's former house* modifies *house*, we get the reading in which John owns what was formerly a house and now perhaps a ruin. On the other hand, if *former* modifies *John's house*, the resulting interpretation is such that John formerly owned that house and no longer owns it. The same ambiguity arises in Sakha with the adjective *urukku* 'former' (which also has a second, presently irrelevant meaning 'old style').

(20) Ookko urukku balaqana / Ookko former house-3
a. 'something possessed by Ookko that used to be a house (now possibly a ruin)'
b. 'a house that used to be in Ookko's possession'

When the DP-internal possessive relationship of (20) is transferred to a clause-level, we get the same 'former N' versus 'formerly owned' ambiguity with possessive sentences which express possession with the existential copula (21b) but not with those which employ –LAAX (21a). Although the 'formerly owned' reading of (21b) may at first sight seem anomalous, it is nevertheless possible (cf. fully grammatical English *I have a missing tooth*): (21b) simply expresses at the clause level what (20b) expresses at the noun phrase level.

(21) a. Ookko urukku balaqan-naax / Ookko former house-LAAX
'Ookko has what used to be a house.'
*'Ookko has his former house.'
b. Ookko/Ookko-qo urukku balaqan-a baar.
Ookko/Ookko-dat former house-3 copula$_{EXIST}$
'Ookko has what used to be a house.'
'Ookko has his former house.'

These considerations suggest that the analysis of possessive clauses with the existential copula and nominative/dative possessor must be unified with the analysis of possessive noun phrases whereas –LAAX should be given a separate treatment. This is the track we will follow and we will start by providing an analysis for –LAAX.

3.1.2.1. Analyzing –LAAX

The morpheme –LAAX decomposes into the universal verbalizer –LAA plus the nominalizer/adjectivizer –x. To understand the semantic import of possessive –LAAX it may be useful to take a look at the verbalizer –LAA and at –LAAX in its function as a productive adjectivizer. –LAA and denominal verb formation in general will be the topic of chapter 7 so for now a cursory look will suffice. The range of data in chapter 7 shows a multitude of possible meanings derivable with the verbalizer –LAA. The only thing that all these meanings have in common is an assertion about a noun suffixed with –LAA to which other participants in an event bear some relation: it is left up to the context to specify precisely what kind of assertion/relation it is. For example, the verb *xaardaa* can result in antonymous

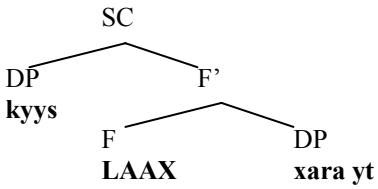
meanings depending on the context. The readings given in (22a) and (22b) are, in fact, only the most pragmatically felicitous ones: the opposite meanings are also possible such that Mende puts a layer of snow on the ground in the yard or empties the bucket of snow. The possibility of (22c) shows that, in fact, no other event participants are required to be present if the context allows it, as is the case with weather verbs. So basically the function of –LAA, to put it informally, is to introduce a noun into an event, thus asserting its existence.

(22) a. Mende telgehe-ni xaar-daa-ta.
Mende yard-acc snow-LAA-past.3
'Mende cleared the yard of snow.'
b. Mende soluur-u xaar-daa-ta.
Mende bucket-acc snow-LAA-past.3
'Mende filled the bucket with snow (e.g. to boil it).'
c. Xaar-daa-ta.
'It snowed.'

Adjectival –LAA-X can be viewed along similar lines – as asserting the existence of a noun which it introduces, turning this noun into a property and assigning this property to another noun: e.g. in *küüs-teex kihi* 'strength-LAAX person: a strong person' *kihi* 'person' is described as possessing the property of strength. –LAAX of possession does very much the same thing. We will assume the following analysis of LAAX-mediated possession. Since with –LAAX there is no modification/predication asymmetry (i.e. any N(P)-LAAX combination that can be used as a modifier can also be used as a predicate), both DP-internal (modifying) and clause-level (predicative) possession will arise from the same underlying structure which will be taken to be a small clause (an FP) whose head is –LAAX mediating between two NPs, one in the specifier (*kyys* 'girl') and another in the complement position (*xara yt* 'black dog').

(23) a. Xara yt-taax kyys / black dog-LAAX girl
'the girl with a black dog'
b. Kyys xara yttaax.
'The girl has a black dog.'

(24)



The derivation of (23a) proceeds as follows: NumP takes as its complement the structure in (24)[6] → *kyys* raises to Spec,NumP and the whole small clause raises to the specifier of a functional projection where modification is licensed (cf. Cinque

[6] See e.g. Hulk and Tellier 2000 for NumP taking a small clause complement FP.

1994) → -LAAX cliticizes to its complement deriving the surface word order. As for sentential –LAAX in (23b), what merges with the small clause is IP with subsequent movement of the subject *kyys* to Spec,IP followed by two additional movements – of SC to Spec,FocusP and of the subject to Spec,TopicP (see chapter 4). Again, -LAAX cliticizes to its complement.

It has been claimed in the literature that possession is encoded as a predication relationship with the possessed NP functioning as a predicate nominal which raises the question of how to distinguish possession from the predication relation of identification (see Den Dikken 1997:135 for discussion and references). Since LAAX-possession involves a small clause predicational structure, the same question is raised in Sakha. In chapter 4 it will be claimed that since NPs are not predicates, they cannot be predicated of their subjects directly. Instead, the relationship between an NP predicate and its subject must be mediated inside a small clause through a functional head realized overtly as the number agreement morpheme (∅ in the singular and –LAr in the plural). (25) gives the predicative NP-paradigm in the plural; the head of the small clause is boldfaced.

(25)	a.	[$_{SC}$ Bihigi balyksyt-**tar**] buol-a-byt.	
		we fisherman-pl be-aor-1pl	'We are fishermen.'
	b.	[$_{SC}$ Ehigi balyksyt-**tar**] buol-a-qyt.	
		you fisherman-pl be-aor-2pl	'You are fishermen.'
	c.	[$_{SC}$ Kiniler balyksyt-**tar**] buol-al-lar.	
		They fisherman-pl be-aor-pl	'They are fishermen.'

Thus, whereas the predication relationship of identification implies agreement in number between the subject noun phrase (the identified) and the predicate noun phrase (the identifier), the relation of possession does not and instead involves a totally different kind of predicator, namely, -LAAX which therefore turns out to be similar to various P(-like) functors relating possessors to their possessums such as dative or genitive markers, Dutch *bij* or English *with* (see Freeze 1992, Den Dikken 1997, Broekhuis and Cornips 1997, Larson and Cho 1999 among others).

Before we consider –LAAX in its associative and temporal roles, the wh-plural –LAAX must be addressed. Here it needs to be mentioned that the plural version of (10) can only be used if one knows for sure that more than one person came. In contexts where the speaker does not know beforehand how many people came, he can only use the singular variant of (10). This points to an analysis of *kimneex* as an associative noun phrase which we consider next.

3.1.2.1.1. Associative –LAAX

A number of languages (e.g. Afrikaans, Ewe, Papiamentu, Negerhollands) are characterized by having associative DP constructions when a DP accompanied by a plural pronoun acquires the somewhat loose meaning of 'X and his/her/their folks'. Two examples are given in (26)[7].

[7] The Afrikaans examples are from Donaldson 1993 and Den Besten 1996/8, Papiamentu from Kouwenberg & Murray 1994 and Den Besten 1996/8.

(26) a. Pa-hulle / dad-they/them (Afrikaans)
i. 'Dad and his folks'
ii. 'Dad and another person, especially Mum; my/our parents'
b. Marianan / Maria-them (Papiamentu)
i. 'Maria and her folks'
ii. 'Maria and another person'

Since associatives in Sakha show a number of semantic and structural similarities to those in Afrikaans, it is worth considering the latter in more detail based on the work by Den Besten 1996, 1998. In Afrikaans the plural pronoun *hulle* must follow a [+human] DP which can be singular as in (26a) above but also plural or coordinated and may also contain determiners as in (27). The interpretation depends on the number of the DP-referent. In case of singular DPs *X-hulle* the construction has two meanings: 1) 'X and his folks'; 2) 'X and another person' (cf. (26a)). In case of plural or coordinated DPs of the form *X-plural-hulle* or *X and Y-hulle* a third meaning appears when the referent of the whole associative DP equals the referent of the plural DP: (for plurals) 1) 'X-plural and their folks'; 2) 'X-plural and another person'; 3) 'X-plural'; (for coordinates) 1) 'X and Y and their folks'; 2) 'X and Y and another person'; 3) 'X and Y'.

(27) a. die kinders-hulle / the children-them
'the children (plus one or more persons)'
b. Piet en Koos-hulle / Piet and Koos-them
i. 'Piet and Koos and their folks'
ii. 'Piet and Koos and another person'
iii. 'Piet and Koos'

Den Besten argues for a double DP analysis where the plural pronoun, the head of DP_1, takes DP_2 as its complement (28a). The argument is based on the similarity of the construction in question to another construction found in Germanic when the referent of the lower NP is contained in or by the referent of the head noun of the higher NP as depicted for Dutch in (28b) from Den Besten (1996:17).

(28) a. $[_{DP1}$ Pronoun$_{[-SING]}$ [DP_2]]
b. $[_{QP}$ een $[_{NP}$ fles $[_{NP}$ rode wijn]]]
a bottle red wine 'a bottle of red wine'

On the semantic side of the analysis, the interpretive strategy in (29) is proposed which can account for the fact that the number of people denoted by the second DP can be smaller or equal to the number of people denoted by the whole construction, i.e. DP_1.

(29) In case of structure (28a) the following holds for the set of individuals denoted by DP_2:
$\forall x\ (x \in DP_2) \supseteq (x \in pronoun_{[SING]})$
where DP_2 and $pronoun_{[SING]}$ are shorthands for the sets of people denoted by DP_2 and $pronoun_{[SING]}$, respectively (Den Besten 1996:19)

As examined in section 3.1.1.4 (see example (15)), Sakha has two types of associative constructions – one with an overt noun and another with a covert pro N. It is this pro N which functions like the plural pronoun of Afrikaans and is responsible for the relative flexibility of interpretation. We will only consider associatives with a covert noun: whatever is said about them in structural terms automatically carries over to associatives with an overt second noun. As for interpretation, the N-LAAX N construction of (15a) will, quite trivially, always receive a fixed reference.

In addition to the construction in (15b), Sakha has another type of an associative morpheme – the particle *aax* which, just like –LAAX, has no independent lexical meaning and, as betrayed by its looks, is derived from –LAAX. The two elements together perform what is performed by the plural pronoun in Afrikaans. They do not differ in terms of their semantic import, only in terms of nominal structure with which they appear and, as a result, they are in complementary distribution: *aax* is an independent morpheme (reflected in the fact that it is not subject to vowel harmony laws) and can take bigger chunks of nominal structure (whole DPs) as its complement, contrary to –LAAX which must assimilate to the phonological host to which it has cliticized and which is restricted to attach to bare singular nouns as in (15b). Thus, with plural and coordinated DPs *aax* must be used.

(30) a. ol kyrgyt-tar aax / that girl-pl aax
i-ii. 'those girls and {their folks/one or more persons}'
iii. 'those girls'
b. ubaj-ym uonna edjiij-im aax / brother-1sg and sister-1sg aax
i. 'my elder brother and my elder sister and their folks'
ii. 'my elder brother and my elder sister and one or more persons'
iii. 'my elder brother and my elder sister'

As (30b) shows, possessive DPs also take *aax* and not –LAAX. With possessives we get an interesting contrast between *aax* and –LAAX demonstrated in (31) which shows that a difference in the level of attachment (higher for *aax* and lower for -LAAX) is reflected by a difference in scope. In (31a) I know Lena and I may or may not be acquainted with her folks or the other person(s) with whom she is now whereas in (31b) I must know the whole company.

(31) a. Lena-m aax / Lena-1sg aax
'Lena (whom I know) and her folks/another person'
b. Lena-laaq-ym / Lena-LAAX-1sg
'Lena (whom I know) and her folks/another person (whom I also know)'

Just as in Afrikaans, associative DPs in Sakha are [+human] and their interpretation depends on the number of the overt noun phrase with which *aax*/-LAAX is associated. With singular DPs we get the two readings discussed above in 3.1.1.4 with respect to (15b): '1) DP and his/her folks (family, friends, colleagues and the like); 2) N_1 and another person(s) in physical proximity to DP'. With plural DPs, an additional interpretation appears according to which the referent of the overt plural DP is the same as the referent of the whole associative noun phrase.

Den Besten's basic idea of a D lexicalized by a pronoun with the features [+plural] and taking a DP-complement does not seem plausible for *aax*/LAAX constructions. However, it can be directly implemented for a different kind of construction illustrated in (32) in which a proper name appears with the plural marker –LAr. This construction is not very common in Sakha: in general, one would only use it for the plural reading in (i) whereas the associative *Ajaal Tobuukaptaax* would be preferred for the meanings in (ii).

(32) Ajaal Tobuukap-tar / Ajaal Tobuukap-pl
i. 'several persons named Ajaal Tobuukap'
ii. 'Ajaal Tobuukap and his folks/another person(s)'

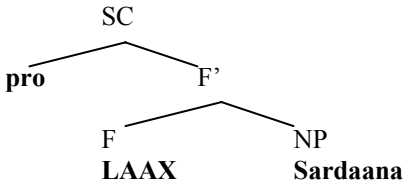
The reason Den Besten's analysis can be transferred to Sakha to account for (32) lies in the nature of the [+plural] marker –LAr[8]. In Vinokurova 1998 I argued that –LAr realizes the Num-node and that there is subsequent Num-to-D movement[9]. To arrive at the associative reading in (32ii) one of two alternative routes could be chosen: either -LAr could be generated in Num (in the usual manner) and raise to D with its DP/NP complement *Ajaal Tobuukap* raising to Spec,DP or –LAr could be generated directly in D thus lexicalizing a [+plural] D taking a DP complement *Ajaal Tobuukap*. In either case it is conceivable that the necessary configuration will be created in order to enable the application of Den Besten's interpretive strategy in (29) accounting for the meaning in (32ii).

As for true associative DPs, we can use the results achieved above in 3.1.2.1 with respect to –LAAX of possession. Transposing the small clause structure in (24) to LAAX-associatives gives (33) in which the functor –LAAX relates the

[8] -LAr is sometimes considered to be endowed with a [+third person] feature in addition to [+plural] (see Tenishev et al. 1988:8). That it is compatible with first and second person subjects as is evident from (25) above refutes this view. Also, as noted in Tenishev et al. (1988:20-21), a similar situation obtains in some other Turkic languages and dialects where –LAr can attach to first and second person plural pronouns.
[9] Motivation for the second assumption (movement of Num to D) was based on arguments given in Longobardi 1994 (for details see Vinokurova 1998). Movement of Num realized by –LAr to D was also proposed for Turkish in Yükseker 1991 but for a different reason, namely, -LAr is referential and raises to D to check its referentiality.

covert pro to the overt NP ((33) is what underlies (15b)). The *aax*-mediated associatives can be assigned to the same structure, except that F is realized by *aax* and takes a DP-complement and not NP like –LAAX.

(33)



The pro N must be interpreted as [+human], having a 'possessive' relationship to the overt noun phrase (i.e. pro cannot be interpreted as any arbitrary noun phrase) and unspecified for number (for instance, the associative DPs in (31) can have either Lena and her mother or Lena and her several siblings as their referents). The non-specification for number is expected given the nominal status of pro (see section 3.4.2.1 on number deficiency in Sakha). As for [+human], this is probably the default interpretation of pro-N (cf. Kester 1996). Finally, the possessive relationship between the pro and the overt noun phrase has its source the predicative functor –LAAX or its variant *aax*.

3.1.2.1.2. Temporal –LAAX

-LAAX appears in four tenses: two in the indicative mood (past episodic and pluperfect episodic) and two in the obligative mood (present obligative and present/future obligative) which were exemplified in (11) through (14). The structure of the indicative mood tenses will be considered in the next chapter where past episodic will be argued to arise from the underlying structure given in (34). Pluperfect episodic involves the same configuration except that Infl is filled with the [immediate past] tense feature (for details see 4.2.1.1 for past episodic and 4.2.1.4 for pluperfect episodic). The two obligative tenses also implicate the same IP-PartP-VP configuration with the Infl and Part heads filled with the relevant features. In addition, the obligative mood, being irrealis, must be licensed in the CP-domain.

(34) Past episodic (11):
[$_{IP}$ [∅] [$_{FP}$ [**LAA-X**] [$_{PartP}$ [**remote past**] [$_{VP}$ [**V**]]]]][10]

(35) Pluperfect episodic (12):
[$_{IP}$ [**immediate past**] [$_{FP}$ [**LAA-X**] [$_{PartP}$ [**remote past**] [$_{VP}$ [**V**]]]]]

(36) Present/future obligative (13):
[$_{IP}$ [∅] [$_{FP}$ [**LAA-X**] [$_{PartP}$ [**aorist**] [$_{VP}$ [**V**]]]]]

[10] Following Baker 2003, we will assume that IP whose head is realized as [∅], i.e. void of temporal feature content, is interpreted as present tense by default; see chapter 4 for discussion.

(37) Future obligative (14):
[$_{IP}$ [∅] [$_{FP}$ [**LAA-X**] [$_{PartP}$ [**future**] [$_{VP}$ [**V**]]]]]

Viewed informally, temporal –LAAX does the same thing as other LAAX's simply because there is only one –LAAX. We will assume that it realizes a functional head as indicated in (34) through (37) which relates an event expressed by the participial phrase to the CP-IP complex. What (34) says is that there is an event of e.g. winning the lottery which took place in the remote past and which is *related* to the realis present tense but not *interpreted* in the present tense. It is this relationship to the realis present that allows the interpretation of (34) (=(11)) as 'viewed from the present moment (by the way), there was an episode in the past when I won in the lottery'.

As for obligative tenses, -LAAX relates e.g. the event of buying a book which is temporally placed in the aorist (i.e. undefined, could be present or future) or future to the irrealis obligative feature in C which results in the interpretation that there is an event expressed by the participial phrase which must take place.

The analysis of LAAX presented here unifies LAAX of possession with LAAX of modality and tense. Thus, LAAX is parallel to English *have* which also demonstrates modal obligative and auxiliary perfective uses besides the possessive one (for some suggestions on unifying possessive, temporal and modal *have*'s see Ritter and Rosen 1997 and Den Dikken 1997).

3.1.2.2. Raising analysis of possession

In this section we will argue for an analysis of possessive clauses with the existential copula *baar* (in the negative – *suox*) according to which both the nominative and the dative possessors have raised out of the possessive DP. It will be assumed that the possessive relationship is encoded inside the possessive DP itself. How it is encoded will be considered in the next subsection.

Above, we have used the contrast in (18)-(19) to show that both the nominative and dative possessors are no longer inside the DP whereas the examples in (20)-(21) served as an argument that both types of possessors originated inside the possessive DP. We would like to propose that there are two positions external to the possessive DP to which the possessor can raise and where the possessor receives its particular case: Spec,IP for nominative possessors and Spec,LocP for datives (where Loc is mnemonic for Location or Locative). The second claim made for datives is similar to the one advanced in Guéron 1995 according to which the locative subject checks dative case in Spec,Loc(ative)P.

This latter assumption represents the opposite of what is proposed for dative possessors in the majority of claims available in the literature, namely, that the possessor's dative case is not assigned in the higher clause. There are two ways this is implemented in the existing analyses depending on how possession is encoded: either as a P-mediated relationship or as a spec-head relationship between the possessor and the possessed. Let's briefly consider the two types of analyses to show that they cannot work for Sakha because dative case on the possessor clearly has a DP-external source.

First, according to the P-mediated view of possession, the possessor can be generated as a noun phrase complement to a dative preposition, as is done e.g. in Freeze 1992, Belvin and Den Dikken 1997, Larson and Cho 1999 among others: [book [$_{PP}$ TO [John]]]. This dative configuration can be embedded under DP (resulting in a possessive DP) or a copula (resulting in a possessive clause). In both cases the dative possessor can retain its original case marking only if the preposition does not incorporate. In the DP-PP structure a non-incorporating derivation would yield adnominal datives such as *secretary to the president; sa mère à lui; dem Kerl seine Mutter* (from Fillmore 1968:5.1.3) whereas incorporating derivation would result in *John's book* (abstracting away from details of execution). In case the dative possessive PP is embedded under a copula (realized as abstract BE), P-incorporation leads to the copula *have* and accusative case on the possessor; lack of P-incorporation allows the copula to surface as *be* and the possessor to surface in its original dative form.

A P-mediated analysis cannot be applied to Sakha for the following reasons. Suppose the underlying structure is [$_{PP}$ kinige [P_{DAT} [Sardaana]]] which becomes embedded under DP. The fact that dative noun phrases cannot be licensed DP-internally in Sakha suggests that P-incorporation is obligatory but even with P-incorporation a lot of purely technical steps seem to be required in order to arrive at the final derivation *Sardaana kinige-te* / Sardaana book-3 'Sardaana's book' where the possessor and the possessed agree in person and number. Another problem with the PP-based analysis as applied to Sakha is the lack of *be/have*-alternation in Sakha. Assuming that (38) with the nominative possessor is derived from (39) via P-incorporation whereas (38) with the dative possessor does not incorporate P to the copula, it would be natural to expect a difference in the realization of the two copulas: on the one hand, just a bare copula and, on the other, P+copula. However, no such difference is observed[11].

(38) Sardaana-qa kinige-te baar. / Sardaana kinige-te baar.
Sardaana-dat book-3 copula$_{EXIST}$
'Sardaana has a book.'

(39) Copula [$_{PP}$ kinige [P_{DAT} [Sardaana]]]

Second, according to the spec-head view of possession, the possessor can acquire its dative ending in Spec,DP as in Szabolcsi's (1984, 1994) analysis of Hungarian. That dative *–nak* in Hungarian has a DP-internal source is justified for two reasons: first, it can appear in vocatives and, second, nominative possessors do not raise in

[11] The analysis of *have* as BE+D à la Kayne (1993, 1994) suffers from the same shortcoming. Note that we are not adopting Muromatsu's (1997) explanation for the lack of *be/have*-alternation in Japanese. Under Muromatsu's analysis the possessive Agr adjoins to D and the Agr+D complex adjoins to BE yielding HAVE. Whether there will be HAVE/BE-alternation or not depends on the nature of Agr which, in turn, depends on one particular parameter: it is proposed that languages can be parameterized to have both construct states and free genitives (CS+FG languages: English) or construct states only (CS-only languages: Japanese, Hungarian and Finnish). Agr of CS+FG languages is prepositional, whence the presence of HAVE/BE-alternation in English while Agr of CS-only languages is not prepositional → no HAVE/BE-alternation in Japanese.

Hungarian. Szabolcsi 1994 analyses Hungarian *have*-sentences such as the one in (38) as existential sentences involving obligatory extraction of the dative possessor to a non-thematic position in the higher clause. If a nominative possessor were able to raise, this would mean that it has skipped the Spec,DP position: since Spec,DP is an escape hatch where the possessor acquires an operator feature to enable its further movement to an A-bar position in the higher clause, it cannot be skipped and therefore any possessor which has raised will be necessarily marked as dative (having acquired this case on its way in Spec,DP).

(40) Mari-nak van-nak kalap-ja-i.
Mari-DAT be-3PL hat-POSS.3SG-PL(-NOM)
'Mari has hats.'

Since in Sakha not only the dative but also the nominative possessor has raised into the higher clause, it cannot be true that the dative picked up its case in Spec,DP. Also, as already noted above, the impossibility of datives inside DPs (including vocatives) makes it unlikely that a dative possessor should be able to receive its case DP-internally. Landau 1999 presents another analysis of possessor raising according to which the dative possessor is generated in Spec,DP which is not a case position and therefore must raise to check its dative case feature in Spec,VP. Thus, for Landau the dative possessor behaves like a syntactic argument of the verb although it is a semantic argument of the possessee[12]. As we will see shortly, an analysis along these lines would account for the raising of dative possessors but leave unexplained the nominative possessor raising.

Assuming that dative case on the possessor has a DP-external source, we would like to argue that the existential copula is a two-place predicate specifying the location and the thing located. It is capable of licensing the projection of a location phrase where dative case can be assigned. Below we first give derivations for dative and nominative possessive clauses and then compare them with existential locatives.

A possessive clause with a dative possessor is derived as in (41). Starting from an initial structure in which the existential copula *baar* merges with a possessive DP as its external argument[13], LocP is merged with this initial structure. The possessor raises to Spec,LocP where it receives a dative case feature which, upon spellout, will be spelled out with the help of the dative case marker resulting in *ejiexe* 'you-dative'.

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[12] Outside of the generative framework, analyses of possessor raising in Relational Grammar also provide empirical evidence that a raised possessor is an argument of the verb, and not the possessee (Ussery 2003).

[13] Cf. Belvin and Den Dikken 1997 on the English existential *there* analyzed as a small clause predicate whose subject can be, among other things, a noun phrase as in *there is no solution*. Since *baar* is predicative but not a verb, the predicate phrase it projects is labeled here as ∃P (ExistP), for expository reasons. With respect to the various contexts discussed in chapter 4, *baar* patterns together with adjectives which are analyzed as one-place predicates. However, the categorial nature of *baar* gravitates heavily towards functional elements which is justified by diachrony: in Sakha the existential copula *baar* and the universal quantifier *bar* are historically derived from the same etymon. Moreover, *baar* is subject to suppletion under negation (its negative allomorph is *suox*). Assuming along with DM that roots (items of the conceptual lexicon) cannot have suppletive allomorphs, *baar* must be classified as an item of the functional lexicon.

(41) Ej-iexe kinige-ler-iŋ baal-lar.
You-dat book-pl-2sg $\text{copula}_{\text{EXIST}}$-pl ‘You have books.’

Initial structure: [$_{\exists P}$ **en kinige-ler-iŋ** [**baal-lar**]]

Merge LocP and raise the possessor to Spec,LocP →

[$_{\text{LocP}}$ **en-**[**dat**] [$_{\exists P}$ t_{en} **kinige-ler-iŋ** [**baal-lar**]]][14]

This analysis predicts that there can be only one location.

(42) *Sardaana-qa kuorak-ka ebee-te/djie-te baar.
Sardaana-dat town-dat grandmother-3/house-3 $\text{copula}_{\text{EXIST}}$
‘Sardaana has a grandmother/house in the town.’

The derivation of a possessive clause with a nominative possessor starts out from the same initial structure as (41) but the possessor raises to Spec,IP. In chapter 4 it will be argued that when a DP raises to Spec,IP, its ϕ-features are copied onto Infl and get spelled out at PF with the appropriate agreement clitics. In (43) the [2SG] features of *en* ‘you’ are also copied to Infl but if they were spelled out the result would be ungrammatical *en kinige-ler-iŋ baal-lar(***-yŋ**)*. This is because there is a morphological constraint which bans the spellout of two distinct sets of ϕ-features on one and the same predicate: whereas the plural agreement marker reflects the number feature of the possessed (head) noun ‘books’, the second singular morpheme *–yŋ* signals the features of the possessor, distinct from the possessum.

(43) En kinige-ler-iŋ baal-lar.
You book-pl-2sg $\text{copula}_{\text{EXIST}}$-pl ‘You have books.’

Initial structure: [$_{\exists P}$ **en kinige-ler-iŋ** [**baal-lar**]]

Merge IP and raise the possessor to Spec,IP →

[$_{\text{IP}}$ **en** [$_{\text{I'}}$ [***2SG***] [$_{\exists P}$ t_{en} **kinige-ler-iŋ** [**baal-lar**]]]]

There is one argument that the possessor has raised to Spec,IP. In chapter 6 (section 6.10) we will argue that only subjects of embedded clauses can raise from Spec,IP to the matrix object position where they receive accusative case marking. As shown in

[14] There are additional final steps involved in the derivation of (41) as outlined below which will be henceforth skipped:
Merge FocusP and move the predicate phrase to Spec,FocusP →
[$_{\text{FocusP}}$ [$_{\exists P}$ t_{en} kinige-ler-iŋ [baal-lar]] [$_{\text{LocP}}$ en-[dat] $t_{\exists P}$]]
Merge TopP and move the dative subject to Spec,TopP →
[$_{\text{TopP}}$ en-[dat] [$_{\text{FocusP}}$ [$_{\exists P}$ t_{en} kinige-ler-iŋ [baal-lar]] [$_{\text{LocP}}$ $t_{\text{en-[dat]}}$ $t_{\exists P}$]]]
Merge CP →
[$_{\text{CP}}$ C [$_{\text{TopP}}$ en-[dat] [$_{\text{FocusP}}$ [$_{\exists P}$ t_{en} kinige-ler-iŋ [baal-lar]] [$_{\text{LocP}}$ $t_{\text{en-[dat]}}$ $t_{\exists P}$]]]]
Move TopP to Spec,CP →
[$_{\text{CP}}$ [$_{\text{TopP}}$ en-[dat] [$_{\text{FocusP}}$ [$_{\exists P}$ t_{en} kinige-ler-iŋ [baal-lar]] [$_{\text{LocP}}$ $t_{\text{en-[dat]}}$ $t_{\exists P}$]]]C t_{TopP}]

(44), this is indeed possible with the nominative possessor *en* 'you' in (43).

(44) Min ejiigin massyyna-ŋ baar dien ihit-ti-m.
I you.acc car-2sg copula$_{EXIST}$ DIEN hear-past-1sg
'I heard that you have a car.'

On the other hand, the fact that the nominative possessed noun *kinigeleriŋ* 'book-pl-2sg' in both (41) an (43) cannot undergo the same kind of raising suggests that it remains in its base generated position, i.e. predicate phrase-internally, as the argument of which the existential copula is predicated.

Since the nominative possessor raises to Spec,IP and not to Spec,LocP, the latter can be projected independently of the possessor and a locative noun phrase (if chosen in the numeration) can merge in Spec,LocP. This explains the grammaticality of (45), in contrast to (42) above. In case no overt locative appears as in (43) or (44), location is interpreted as existentially quantified.

(45) Sardaana kuorak-ka ebee-te/djie-te baar.

One question that needs to be answered is why the possessor is extracted. The reason cannot be Case-motivated: in particular, it cannot be the case that a dative possessor needs to check dative case 'upstairs' (cf. Landau 1999) because nominative possessors also raise. As for the nominative possessor, it also does not have to move for Case reasons since nominative possessors are perfectly fine inside possessive DPs as in *min yt-ym (maŋan e-te)* / I$_{NOM}$ dog-1sg (white aux-past.3) 'my dog (was white)'. The situation is thus different from what happens inside Russian possessive DPs where a prenominal possessor is base-generated in Spec,NP which is not a Case position. Therefore, in order to avoid violating the Case filter, the possessor must either move to a different position inside the same possessive DP where it can be assigned Case or incorporate: it is this latter (incorporation) option which is chosen for Russian prenominal possessors (see Babyonyshev 1997 for details of the analysis).

A non-Case-related reason for possessor extraction is offered in Szabolcsi 1994 where it is argued that possessor extraction is obligatory because the existential verb requires a non-specific indefinite argument and the only way to give a possessive DP a non-specific indefinite interpretation is by extracting the possessor. As a tentative answer to the question «Why does a possessor have to be extracted in order for the DP to have a non-specific reading?» Szabolcsi suggests that the top of a non-specific possessive construction has to be as bare as that of [-poss, -specific] DPs and that the presence of a prenominal possessor prevents that. English can resort to postnominal possessors as in *a book of John's* whereas Hungarian, lacking the English option, has to extract the possessor. Imposing non-specificity also cannot be what motivates possessor raising in Sakha since in the examples considered so far – (41) and (43) through (45) – the possessed noun is specific.

At first sight it appears that nominative and dative possessors are not extracted for the same reason. The existential copula requires a location argument and projects Loc(ative)P in whose specifier such an argument can be licensed. If no locative DP has been chosen in the numeration, the only option is to extract the

possessor in order to satisfy the predicative requirements of the existential copula. However, if a locative DP has been selected in the numeration or if existential quantification has been imposed on Spec,LocP, then there is no need for the possessor to move in order to substitute for the missing argument. Nevertheless, it does move and ends up in Spec,IP separated from its possessum and surfacing in the nominative. So it seems that the reason for possessor raising is to separate the possessor and the possessed noun whereas the position to which the possessor moves is of secondary importance: if *baar* needs an argument, the possessor will move to Spec,LocP becoming the syntactic argument of *baar,* thus satisfying the latter's argument-taking property as a free rider; if Spec,LocP is occupied (or existentially quantified) the possessor will only have the option of moving to Spec,IP. In the following subsection we will argue that separation is dictated by the interpretation of possession. Before we proceed to making this point, it is necessary to have a look at existential locatives.

3.1.2.2.1. Possessives and locatives

Freeze 1992 advances a unified analysis for predicate locatives (*the book is on the bench*), existentials (*there is a book on the bench*) and *have*-structures (*John has a book*)[15]. All three are derived from the same underlying configuration in which a predicate PP is embedded under Infl: the specifier and complement positions of PP are occupied, respectively, by the theme (*book*) and location (*bench, John*) arguments. Freeze's account is particularly interesting from the present perspective since it contains a story on Turkish *var* which corresponds to Sakha *baar*. As shown in (46), both locatives and possessives in Sakha contain the same existential copula. According to Freeze (1992:580, 582) (relativized to Sakha), the appearance of *baar* (which is the copula realization of Infl) in both (46a) and (46b) is an effect of agreement in locative feature between Infl and the locative subject in Spec,IP – *olopposko* 'chair-dat' and *Sardaanaqa* 'Sardaana-dat', respectively.

(46) a. Locative:
Oloppos-ko kinige baar.
Chair-dat book copula$_{EXIST}$ 'There is a book on the chair.'
b. Possessive:
Sardaana-qa kinige-te baar.
Sardaana-dat book-3 copula$_{EXIST}$ 'Sardaana has a book.'

Although location and possession are different notions, a unified analysis may seem conceptually attractive given that the two seem to be closely related[16]. However, a

[15] Belvin and Den Dikken 1997 also propose a unified analysis for *have*- and *there*-constructions albeit relativized to experiencer contexts.
[16] Within the framework of cognitive grammar, Heine 1997 arrives at the conclusion that location and possession are mutually independent domains of human conceptualization although they are linked. "In an utterance like *Our house has four windows on its front side*, the phrase *on its front side* is taken as an instance of location and *has four windows* as an instance of possession, albeit of inanimate possession. To extend the use of the term 'location' to the latter phrase would amount to using this term in such a wide sense that it becomes essentially vacuous" (Heine 1997:25).

unified analysis strictly à la Freeze cannot cover the entire range of locative and possessive facts. First of all, in order to derive possessive clauses with nominative possessors Freeze's analysis would have to assume P-incorporation and therefore predicts *be/have*-alternation, as already discussed above. Second, the analysis cannot explain the agreement difference between locatives and possessives: only in possessives do the possessor and the possessed agree in person and number, in locatives there is no such agreement. Third, under Freeze's analysis both *olopposko* and *Sardaanaqa* are in Spec,IP. Under the present analysis they are both in Spec,LocP; as for 'book', in possessive (46b) *kinigete* 'book-3' has remained in situ, as the small clause subject whereas in locative (46a) we would like to claim that *kinige* 'book' occupies Spec,IP (word order permutations being due to Topic-Focus considerations, Sakha being a language with (relatively) free word order). If the nominative theme argument of existential locatives is in Spec,IP, it is expected to pattern together with the nominative possessor which has raised to Spec,IP and is capable of raising even further to the matrix object position as shown in (44). As (47) confirms, this is indeed the case. Therefore the analysis according to which *baar* spells out agreement in locative features between *olopposko* 'chair-dat' and Infl cannot be correct because it is not *olopposko* which is in Spec,IP but *kinige*.

(47) Min kinige-ni oloppos-ko baar dien bil-e-bin.
I book-acc chair-dat $\text{copula}_{\text{EXIST}}$ DIEN know-aor-1sg
'I know that the book is on the chair.'

In terms of the current analysis, the presence of agreement in (46b) simply reflects the DP-internal origin of the possessor. Conversely, the lack of agreement in (46a) can be explained by the lack of movement dependency between 'chair-dat' and 'book'. The same argument that was given to support the presence of a movement-related link in the examples (20)-(21) above can now be replicated to deny the presence of such a link in existential locatives. (20) repeated below in (48) features a possessive DP with a doubly ambiguous reading of the adjective *urukku* 'former': 'former N' in (a) and 'formerly owned' in (b). The same ambiguity is preserved in a possessive clause with an agreement between the dative possessor and the possessed noun (49a) whereas in locative (49b) with no agreement between location *Ookko* and locatum 'house' the ambiguity disappears. This absence of ambiguity is interpreted here as an indication that dative *Ookkoqo* was base-generated in Spec,LocP and not raised there from a DP-internal position.

(48) Ookko urukku balaqana / Ookko former house-3
a. 'something possessed by Ookko that used to be a house (now possibly a ruin)'
b. 'a house that used to be in Ookko's possession'

(49) a. Ookko-qo urukku balaqan-a baar.
Ookko-dat former house-3 $\text{copula}_{\text{EXIST}}$
'Ookko has what used to be a house.'
'Ookko has his former house.'

b. Ookko-qo urukku balaqan baar.
'Ookko has what used to be a house.'
*'Ookko has his former house.'

To summarize, there are two types of clauses (possessives and locatives) built on the existential copula *baar*. The copula requires two arguments which, for convenience, can be referred to as theme (locatum) and location (no theoretical value should be attached to these labels). Since one and the same predicate underlies both possession and location, the derivation of possessive and locative constructions converges at a number of points: in both cases it is driven by the need to satisfy argument-taking properties of *baar*. At the initial stage of the derivation the copula is merged with a theme DP which can be either possessive or non-possessive. Next, LocP is projected and again two options present themselves: if a location DP has been pre-selected in the numeration, it will merge in the specifier of LocP; if no location DP is selected, then some other means of saturating the copula's open argument position must be found. Let's briefly consider how the interaction of these variables (possessive/non-possessive theme DP; location DP selected/not selected) yields sentences expressing either possession or location. The four possible combinations are sketched in (50). The option in (50b) does not result in any converging derivation: if no location DP is selected but nevertheless required, the only saving measure is to get this location argument from inside other DPs participating in the derivation. In (50b), however, the only available DP is a non-possessive one which does not contain any embedded DP (i.e. a possessor) and therefore corresponds to one discourse referent. In (50d) where the situation with location is analogous, the theme DP is possessive and can 'lend' its possessor so that it becomes the syntactically derived location argument to the existential copula. (50d) cannot end up being a locative because possessor extraction will be argued in section 3.1.2.2.2 to be the syntactic reflex of possessive interpretation. Whereas the possessor raises to Spec,LocP, the possessum in (50d) remains in situ. If it were to raise, the only available target would be Spec,IP in which case the possessive DP would end up c-commanding the extracted possessor. We will assume that this kind of remnant movement is banned because it disrupts the syntactic configuration required for possessive interpretation (see below).

The derivation of (50a) is straightforward: the location DP can merge in Spec,LocP and the non-possessive theme DP moves to Spec,IP. The same thing happens in (50c) under locative reading, except that what moves to Spec,IP is a possessive DP. The possessive meaning of (50c), on the contrary, is derived by splitting the possessive DP and moving the possessor to Spec,IP.

(50) a. Non-possessive theme DP; location selected → locative
b. Non-possessive theme DP; location not selected → *
c. Possessive theme DP; location selected → locative; possessive
d. Possessive theme DP; location not selected → possessive

Thus, considering possessive DPs only and abstracting away from irrelevant details, the following surface structures can be assigned to locative sentences and two types of possessive clauses.

(51) Locative sentences (=locative (50c))
[$_{Spec,IP}$ [$_{DP}$ Possessor Possessum] [$_{Spec,LocP}$ DP$_{LOCATION}$ [$_{\exists P}$ t$_{DP}$ [$_{\exists'}$ baar]]

(52) Possessive sentences with a dative possessor (=(50d))
[$_{Spec,LocP}$ Possessor [$_{\exists P}$ [$_{DP}$ t$_{Possessor}$ Possessum] [$_{\exists'}$ baar]]

(53) Possessive sentences with a nominative possessor (=posessive (50c))
[$_{Spec,IP}$ Possessor [$_{Spec,LocP}$ DP$_{LOCATION}$ [$_{\exists P}$ [$_{DP}$ t$_{Possessor}$ Possessum] [$_{\exists'}$ baar]]

That the position of the possessive DP differs from Spec,IP in (51) to Spec,∃P in (52)-(53) is supported by agreement facts. As mentioned above in 3.1.1.5-6 and illustrated in (54a), in possessive clauses both with a nominative and dative possessor agreement between the copula and the possessum (the head of the possessive DP) is optional. Absence of agreement indicates that the possessum is understood collectively whereas presence of agreement marks not so much the number of the possessum as its distributivity or individuation. This can be best seen from the contrast between (54b) which admits collectivity and (54c) where books are necessarily understood as distributed between two different locations. Thus, we can assume that when the possessum remains in the position where it originally merged (in the specifier of its predicate phrase – Spec,∃P), it does not trigger agreement. On the contrary, in locative (55) where the possessive DP raises to Spec,IP, the canonical subject position, its ϕ-features are copied onto Infl and will be spelled out by an agreement morpheme which will cliticize to the predicate phrase ∃P after the latter has raised to Spec,FocusP (see footnote 15 above and chapter 4 for details).

(54) <u>Possessive</u>:
a. Sardaana/Sardaana-qa kinige-ler-e baal-lar/baar.
Sardaana/Sardaana-dat book-pl-3 copula$_{EXIST}$-pl/copula$_{EXIST}$
'Sardaana (possessor) has the books.'
b. Min tya-qa kinige-ler-im baal-lar/baar.
I forest-dat book-pl-1sg copula$_{EXIST}$-pl/copula$_{EXIST}$
'I have my books in the village.'
c. Min tya-qa uonna kuorak-ka kinige-ler-im baal-lar/*baar.
I forest-dat and town-dat book-pl-1sg copula$_{EXIST}$-pl/copula$_{EXIST}$
'I have my books in the village and in the town.'

(55) <u>Locative</u>:
Min kinige-ler-im Sardaana-qa baal-lar/*baar.
I book-pl-1sg Sardaana-dat copula$_{EXIST}$-pl/*copula$_{EXIST}$
'Sardaana (location) has my books (My books are with Sardaana/at Sardaana's).'

However, the structures in (51)-(53) above raise one question. If the existential copula *baar* is a member of the functional lexicon (see footnote 13), it cannot assign

thematic case to the DP in Spec,∃P of which it is predicated. This DP, however, still requires syntactic licensing (in the form of Case, agreement or some other means): in locative (51) this is achieved by raising the DP to Spec,IP where it enters into agreement relationship with Infl whereas in possessive (52)-(53) we will assume that the remnant DP is licensed by virtue of entering, after possessor extraction, a possession-inducing syntactic configuration, as argued in section 3.1.2.2.2.

Another fact that needs to be mentioned concerns sentences like *I have John's book*. Ritter and Rosen 1997 analyze such examples as in (56) where *have* (which actually consists of two unspecified functional heads) takes a small clause complement whose predicate is a PP which can be overt (56b) or null (56a). The subject of *have* acquires its interpretation by being coindexed with the complement of P (pro or *him*) which is assigned the possessor role.

(56) a. John$_i$ has [$_{SC}$ Bill's$_j$ book [$_{PP}$ P pro$_i$]]
b. John$_i$ has [$_{SC}$ Bill's$_j$ book [$_{PP}$ with him$_i$]]

Current assumptions which do not support a P-mediated analysis of possession for *baar*-clauses allow only one possibility: to analyze the counterparts of (56) in Sakha as locatives as in (55) and (57a). If the locatum DP ('your book') in (57a) has indeed moved to Spec,IP, it should be possible to raise it even further into the matrix object position when (57a) is embedded as in (57b)-(57c). In (57b) the embedded subject stays in the lower clause and therefore appears in the nominative case. In (57c) it leaves the embedded Spec,IP and raises to the matrix object position where it acquires accusative case marking (for details see 6.10).

(57) a. [$_{Spec,IP}$ [**En kinige-ŋ**]$_i$ [$_{Spec,LocP}$ **miexe** [$_{Spec,\exists P}$ t$_i$ [$_{\exists'}$ **baar**]]]]
you book-2sg me.dat copula$_{EXIST}$
'I have your book.'
b. Lookut en kinige-ŋ miexe baar dien bil-er
Lookut you book-2sg me.dat copula$_{EXIST}$ DIEN know-aor
'Lookut knows that I have your book.'
c. Lookut en kinige-q-in miexe baar dien bil-er
Lookut you book-2sg-acc me.dat copula$_{EXIST}$ DIEN know-aor
'Lookut knows that I have your book.'

To conclude this section, Freeze's original insight unifying possessives and locatives turns out to be essentially correct for Sakha, albeit under different terms of execution.

3.1.2.2.2. Capturing the possessor

As widely acknowledged in the literature, possessors enjoy a greater freedom of interpretation compared to other types of arguments.[17] This point is stated most

[17] See e.g. Heine 1997:2ff. for an overview of the domain covered by possession and the difficulty of defining this domain; see also Taylor 1995 for a characterization of prototypical possession involving a long list of prototypical properties.

clearly in Szabolcsi (1994:193): "any ad hoc relation justifies the use of the possessive construction. For instance, *my train* need not be one that I built or one that I own: it may be the one that I ride to work, one that I just missed, one that I like to watch passing by at dusk, or what have you. Such an arbitrary role can hardly be anticipated in the lexical conceptual structure of the noun, especially since we have no evidence for its existence in non-possessive constructions. However, it can naturally be attributed to a functional component of the construction. I assume it comes from the possessive morpheme or, equivalently, the syntactico-semantic feature". The possessive morpheme is generated under the functional head Poss[18]. To enable the arbitrary possessor θ-role assignment in possessive noun phrases, Szabolcsi (1994:193) argues that "thematic role assigning abilities are to be factored into two components: (a) a FORMAL ABILITY to assign a role which merely satisfies the theta-criterion, and (b) an ability to SPECIFY THE CONTENT of a role. It is natural to assume that only lexical categories have the specific ability (b); functional categories may at best have the formal ability (a). In our case, Poss is claimed to have (a) but not (b)".

Our claim concerning possessors is essentially a reformulation of Szabolcsi's. We would like to argue that the possessor argument is introduced syntactically which explains its relative freedom of interpretation. In chapter 2 it was assumed that a major distinction between lexical and syntactic derivation concerns fixing the meaning of a newly derived item which is only possible lexicon-internally but not in the syntax. The reason for this distinction lies in the fundamental division of labor between lexicon and syntax: lexicon is the engine for supplying the lexical stock of the language and therefore any lexically derived word will have its meaning determined once and for all. On the contrary, e.g. denominal verbs derived in the syntax with the verbalizer –LAA will have an unfixed meaning, to be specified later, within the semantics/pragmatics module. In this respect, introducing arguments syntactically is similar to deriving words syntactically: just as with denominal verbs, a possessor's meaning will be calculated depending on the context. There is yet another similarity between syntactic argument introduction and syntactic word derivation. Considered in chapter 2 were instances of some syntactic affixes which induce a certain meaning on the newly derived word: for example, N-msAx → A: 'N-loving', N/A-msYj → V: 'pretend to be/act like N' (examples (37)-(38) in section 2.3.3), N-CI-t → N: 'person whose occupation/hobby pertains to N' (section 2.4.1), etc. For such affixes a treatment parallel to the one in Baker 2003 ad DM was adopted, namely, that they come from the functional lexicon with a particular meaning and when they combine with their host during syntactic computation, the meaning of the derived syntactic unit is calculated from the meanings of the affix and the base. So although both –msAx and –LAA are listed in the f-lexicon and attach to their hosts during syntactic computation, only –msAx is associated with a particular meaning: the meaning of –LAA is too general to be generalized. On a par with specific-meaning-assigning functional morphemes like –msAx are specific-θ-role-assigning functional heads like Loc(ative) for Location arguments, Appl for

[18] Note, however, that Szabolcsi (1994:194ff) actually opts to collapse the Poss and N projections and to generate both the noun and the possessive affix under the conflated N+Poss head.

benefactives (see chapter 6). A functional head like Poss, on the contrary, is like a functional morpheme like –LAA. It would be nonsensical to claim that both Poss and –LAA are meaningless for in that case they would have little raison d'être. Therefore we will assume that Poss has the ability to assign a role whose content it specifies merely as 'Possessor'. Shortly, supporting evidence will be given for the existence of a Possessor role assigned by Poss. Before, however, we would like to provide four arguments for the argument status of possessors inside possessive DPs.

First, the possessor can be extracted under relativization. In chapter 4 (section 4.4.1.3) we show that there is a thematic constraint operative in the formation of relative clauses in Sakha: only those NPs which receive thematic interpretation inside a relative clause can be promoted to Spec,CP (adopting a raising/promotion analysis of relative clauses à la Vergnaud 1974 / Kayne 1994). (58a) is an example of a ditransitive sentence with a possessive accusative object. (58b) is the relativized version of (58a) where the target of relativization is not the entire direct object but only its possessor. The well-formedness of (58b) is expected given the syntactic argument status of the possessor.

(58) a. Min Sargy-ga [üöreteecci kinige-tin] ularsy-byt-ym
I Sargy-dat teacher book-3.acc lend-past-1sg
'I lent out the teacher's book to Sargy.'

b. [min Sargy-ga [Ø kinige-tin] ularsy-byt] üöreteecci-m
I Sargy-dat Ø book-3.acc lend-past teacher-1sg
'the teacher whose book I lent out to Sargy'

Second, if possessors were not arguments but adjuncts/modifiers, one would expect iterability of possessors which could be analyzed as adjunct/modifier stacking. On the contrary, on the argument view of possessors iterating them would mean iterating Poss-functional heads and, as generally assumed, the ordering of functional heads is subject to many restrictions imposed by UG. The complex possessive noun phrase in (59) can only be interpreted as involving possessor embedding and not possessor stacking: the deepmost possessor is Aisen whose possessum is the first *aqa* 'father' → the possessive DP *Aisen aqa-ta* / Aisen father-3 'Aisen's father' takes the second father as its possessum (*aqa-ta* becomes *aqa-tyn* as a result of attaching the genitive combinative morpheme, see section 3.1.1.2) and so on for the others.

(59) Aisen aqa-tyn aqa-tyn aqa-tyn aqa-ta
Aisen father-3.gen father-3.gen father-3.gen father-3
'Aisen's father's father's father's father'

Third, as described above in 3.1.1.2-3, possessors cannot be used in predicate position without the dummy noun *kien*: the presence of the latter makes it clear that only the entire possessive noun phrase can be used as a predicate and not the possessor alone. The significance of this test for the argument/modifier status of the possessor is explored in detail in Partee & Borschev 2003: in particular, if the possessor noun phrase in Sakha were able to occur as a basic <e,t> predicate, that

would suggest that when the same possessor occurs DP-internally in construction with a possessum, it is basically a modifier and not an argument (ibid. p. 80).

Finally, there is agreement between the possessor and the possessed. As shown in chapter 4, there are two sets of agreement markers in Sakha – first and second paradigms (see sections 4.1.2 and 4.2.3 and table 1 in (8) and (67) in chapter 4). Both can equally attach to nouns, adjectives and verbs. The choice between the two sets is regulated by allomorphy rules elaborated in section 4.2.3. The possessive morphemes we are interested in come from the second paradigm: apart from the context of possession, they are also used to signal agreement between the subject and the predicate in a number of tenses (listed in modified table 1 in (67) in chapter 4). That the agreement between possessums and their possessors is parallel to that between predicates and their subject arguments is an additional corroboration of the argument status of possessors. In general, in Sakha there is only agreement between subjects and their predicates, possessors and possessums, antecedents and anaphors. On the contrary, there is never any agreement with adjuncts and modifiers. Under current assumptions, the presence of agreement is viewed as an effect of syntactic DP-licensing, i.e. appropriately linking the DP with other constituents in the syntactic structure which can be achieved through case or agreement.

Above we argued that possessive clauses with nominative and dative possessors are derived from possessive DPs by raising the possessor. In fact, an even stronger point was made: although locatives and possessives start out from the same underlying structure, possessive interpretation requires splitting the possessive DP and separating the possessor from its possessum and therefore whenever possessor extraction takes place, locative interpretation is ruled out. This was schematically outlined in (51) through (53). This preliminary suggestion that possessor extraction is the syntactic reflex of possessive interpretation can now be carved out in more detail.

Consider the examples below. (60) is a possessive DP inside which the possessor enjoys full freedom of interpretation: in addition to the purely possessive reading as the owner, it can take on a variety of other readings depending on the meaning of the head noun and the context. However, when the possessor moves out of the DP (61) or when it is used predicatively accompanied by the dummy noun (62), all readings other than the purely possessive one disappear.

(60) Min ferma-m / I farm-1sg
'the farm I own/built/like/live next to/burnt/where I work, etc.'

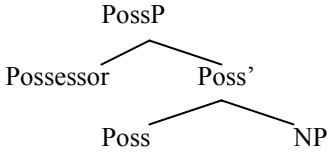
(61) Min/Miexe Xataska ferma-m baar.
I/me.dat Xatas-dat farm-1sg $\text{copula}_{\text{EXIST}}$
'The farm I own/*built/*like/*live next to/*etc. is in Xatas.'

(62) Bu ferma min kien-e. / this farm I KIEN-3
'This is the farm I own/*built/*like/*live next to/*etc.'[19]

[19] The situation in English is similar (from Déchaine 1993).
i. This is Sal's movie. Sal = possessor/director/author
ii. This movie is Sal's. Sal = possessor/*director/*author

We would like to propose that the Poss functional head introduces a Possessor argument whose meaning is simply that of a possessor. A simplified structure is given in (63). Within the semantic module, the argument which finds itself in Spec,PossP will be interpreted as 'possessor'. However, assuming that the interpretive module takes account of contextual information, the meaning of the Possessor will be modulated in accordance with this information. In the case of (63), the relevant context is supplied by the NP – the possessed entity[20].

(63)



When the possessor is separated from its possessum, the latter can no longer influence the possessor's meaning. This happens when the possessor is extracted to Spec,IP or Spec,LocP. The same applies to possessive predicates with the dummy noun: the latter has no meaning and therefore cannot exert any semantic influence on the possessor.

Thus, the present account is similar to the one advanced in Partee and Borschev 2003 who argue that the reading of possession proper comes from the possessive construction itself (in our terms, from Poss) whereas other, contextually determined readings of the possessor come from the possessum. However, for P&B this distinction reflects the modifier/argument ambiguity present in genitives (=possessors): "possession" only is reserved for modifier genitives whereas argument genitives "have a range of interpretations including possession but also including relations typical of argument genitives, where the relevant relation is determined principally by the noun to which the genitive supplies an argument" (ibid. p. 85). An example from German can illustrate the point (Partee and Borschev 2003:85). (64) shows predicate possessives: (64a) is an argument genitive denoting any relation made possible by the children whereas (64b) limited in its interpretation to possession only is a possessive modifier. The pattern of agreement in (64) matches the argument/modifier status of the possessives. As expected, the behaviour of the possessive modifier in (64b) parallels that of predicate adjectives in German which also do not agree with subjects. On the contrary, the argument *meine* in (64a) shows agreement and is analyzed as an elliptical predicate NP, inside which the noun under ellipsis will supply the relation expressed by the possessor.

(64) a. Die Kinder sind meine. (+agreement; any relation)
The children are mine-PL

b. Die Kinder sind mein.
The children are mine
(no agreement; custody fight (possession only))

[20] An additional piece of evidence from adjectival modification for the structure in (63) and the assumptions that go with it will be given in section 3.1.2.4.

The contrast in (64) is also expected from our perspective. (64b) presents 'what you see is what you get': there is no hidden noun that could influence the possessor's interpretation. In contrast, (64a) is an instance of noun ellipsis in which the omitted noun is interpreted as *die Kinder* and can supply more relations to the meaning of the possessor. Note that noun ellipsis is different from dummy noun insertion when readings other than possession proper are filtered out as in (62): in the latter case the meaningless dummy noun itself functions as the possessum while in the former case the identity of the omitted noun is recovered under identity with the antecedent.

P&B note one fact problematic for their approach. It is not always the case that the modifier/argument distinction has a semantic correlate as in (64). When possessors appear inside the possessive noun phrase, in construction with a possessum, they seem to express the same range of meanings independent of whether they are arguments or modifiers. In Russian, for instance, prenominal possessives (*Petin* in *Petin stul* / Petja-POSS-M.SG chair-M.SG 'Petja's chair') are analyzed as modifiers and postnominal genitives (*Peti* in *stul Peti* / chair-M.SG Petja-GEN.SG 'Petja's chair') – as arguments. However, there is a great overlap in the meanings expressed by the two types of possessives. To account for this puzzle P&B assume that the non-argumental "possession" reading can have a variety of metaphorical extensions, some of which may coincide with argumental readings (p. 84ff).

To conclude, the possessor must "run away from home" in order to become what it is supposed to become – a genuine possessor.

3.1.2.3. Inalienable possession

In this section we will consider a potential problem posed for our framework by relational nouns. These are usually analyzed as taking arguments (e.g. Guéron 1985, 1995; Tellier 1990; Déchaine 1993; Español-Echevarría 1997; Postma 1997; Ritter and Rosen 1997; Partee and Borschev 2003): a decision motivated by the fact that the above-mentioned freedom of interpretation seems to disappear if the possessum is a relational noun so that *John* in *John's sister* would be interpreted as *brother*.

The argument-taking view of relational nouns faces a number of problems. For instance, Déchaine 1993:143ff. pushes for a complete analogy between nouns and verbs: both can be 1) obligatorily intransitive like *toy* and *to dine*; 2) optionally transitive like *rival* and *to eat*; 3) obligatorily transitive like *lack, employment* and *to devour*. However, valency tests when applied to transitive (i.e. relational) nouns yield different results than with transitive verbs and ad hoc explanations have to be found for why transitive nouns behave as if they were intransitive. In addition, Déchaine's analysis entails that a relational noun always drags with it a complement, either overt or null as in *Sal is a mother* ∅ and *That ditch is a hazard* ∅. If the complement is null, it is either existentially (in the *mother*-case) or universally quantified (in the *hazard*-case).

Similar problems arise for Partee and Borschev 2003. They explain the contrast between (65a) and (65b) along the following lines. The predicate genitive *John's* is interpreted as an elliptical NP: John's father and John's teacher, respectively. In (65a) *father* is an inherently relational head noun which "must shift

to a non-relational reading in order to be compatible with the demonstrative determiner *that*" (ibid. p. 81). However, although *father* is interpreted non-relationally in the subject, it must be interpreted relationally in the predicate genitive assuming it is elliptical. The oddness of (65a) is due to the fact that although inherently relational nouns can be used non-relationally (with a corresponding meaning shift), "once they have been shifted to a non-relational meaning, they cannot support ellipsis with their original relational reading" (p. 104n.)[21].

(65) a. #That father is John's.
b. That teacher is John's.

(Partee and Borschev 2003:81, ex. #22)

On the contrary, the fully felicitous status of (65b) is suggested to arise from a difference in the lexical entries of *teacher* versus *father*: "*teacher*, unlike *father*, is lexically supplied with equally salient and closely related relational and non-relational readings, so that one would not have to suppress the relational reading by shifting in order to interpret *teacher* in the subject NP non-relationally" (ibid. p. 82). This kind of approach which relies on lexically listing both relational and non-relational meanings with some relational nouns while listing only relational meanings with others will overburden the lexicon by listing more than necessary.

It does not seem plausible that the issue of relationality can be solved at the level of lexicon by simple listing. However, syntax offers more solutions. Most accounts of possession postulate different structures for alienable and inalienable possession. For instance, a review of possession shows that no single analysis assumes that possessors of non-relational nouns are θ-licensed in Spec,NP or as N-complements or that possessors of relational nouns are θ-licensed in Spec,DP. A common assumption is that alienable possessors are licensed higher than inalienable ones – in Spec,DP (Español-Echevarría 1997; Ura 1996; Ritter and Rosen 1997). The position reserved for possessors of inalienably possessed nouns is either Spec,NP (Español-Echevarría 1997; Ura 1996[22]; Vergnaud and Zubizarreta 1992) or as N-complement (Guéron 1985; 1995; Tellier 1990; Ritter and Rosen 1997[23]; Déchaine 1993; Kayne 1994[24]; Partee and Borschev 2003[25]; Larson and Cho 1999[26].

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[21] "It may be that there is a restriction (perhaps a processing restriction) on shifting an expression away from its basic meaning and then back again" (ibid. p. 81).

[22] Ura 1996 assumes that possessors of alienably possessed nouns are θ-marked by D whereas inalienable possessors are θ-marked by N.

[23] For Ritter and Rosen 1997 the subject of *have* acquires its interpretation by coreference with a pro assigned the possessor role inside the possessive DP (this possessive DP is embedded under the functional heads which constitute the verb *have*). The position of the pro depends on the relationality of the possessum: if the head noun is relational, pro appears as its complement; if it is non-relational, pro is licensed in Spec,DP.

[24] Kayne 1994 assumes that relational nouns take one complement: e.g. *chemistry* and *Mary* are complements of *students* and *pictures* in *students of chemistry* and *two pictures of Mary of John's*.

[25] For Partee and Borschev relational nouns are transitive so their possessors are arguments and not modifiers although they assume a relatively neutral syntax: the approximate structure is [N N_{GEN}] (ibid. p. 71). This syntactic structure is uniform for both relational and non-relational nouns: what differs is the interpretation of the genitive noun phrase, either as an argument with relational nouns or as a modifier with non-relational nouns.

[26] Larson and Cho assume that relational nouns license an implicit possessive phrase 'of X's'.

Assuming different syntactic structures for encoding the two types of possession is justified by differences in the syntactic behavior between the two constructions. Examples from German and Turkish are cited below to illustrate these differences. In German inalienable possessors must be presented as datives[27] (66b) in contrast to alienable possessors (Diem (1986:229-30) cited in Heine (1997:17)). This explains a curious fact about (67): in (67b) the subject is typically wearing the pants while this is not necessarily the case in (67a). For Diem, the treatment of 'pants' either as alienable or inalienable has nothing to do with its lexical features but with a particular relation holding between possessor and possessee.

(66) a. Ich wasche mein Auto.
I wash my car 'I wash my car.'
b. Ich wasche mir die Hände.
I wash to.me the hands 'I wash my hands.'

(67) a. Ich zerriss meine Hose.
I tore my pants 'I tore my pants.'
b. Ich zerriss mir die Hose.
I tore to.me the pants 'I tore my pants.'

Turkish does differentiate between alienable and inalienable possession in certain syntactic contexts. First, the possessor can be separated from the possessee only if the possession is alienable. In the case of inalienable possession, separation is not/less acceptable (68a-b). (68b) is infelicitous under the intended reading 'Hasan has one arm in a cast'. However, under the 'disembodied' or alienable possession reading where Hasan has an arm unattached to his body and this unattached arm is in a cast, the sentence is acceptable. Another context for the distinction between the two kinds of possession to appear is the «subject-to-object raising» one. In non-nominalized subordinate clauses where the embedded verb fails to agree with the subject the subject can be marked with accusative case. When the embedded subject is expressed by an inalienable possessive construction, the possessor must 'raise' and, consequently, appear in the accusative (68c). The possessor in an alienable construction must, on the contrary, stay and hence appear in the genitive (68d)[28].

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[27] Cf. Fillmore 1968 who argues that inalienable nouns take an adnominal Dative – *the nose* [$_D$ *to John*] – and that only inalienable dative possessors are allowed to undergo optional raising deriving *Mary pinched John on the nose* along with *Mary pinched John's nose* (both sentences are derived from the same underlying structure).

[28] The contrast in (68c-d) is not replicated in Sakha: raising to the matrix accusative object position is optional independent of the possessor's type. As for (68a-b), both alienable and inalienable possessors can be extracted in Sakha. Nevertheless, the contrast in (68a-b) is also found in Sakha. Under the present analysis it is possible to have location specified when Spec,LocP is not occupied, i.e. with nominative possessors. Therefore the reason that the word-for-word counterpart of (68b) in Sakha has the same grammaticality status as in Turkish is semantic and not structural. Since the noun 'hand' is inalienable, location must be of the same class as well in which case the sentence becomes acceptable as in (i). More on inalienable possession see below.

Kini ajaq-ar tiih-e bary-ta baar.
He mouth-3.dat teeth-3 all-3 copula$_{EXIST}$ 'He has all his teeth.'

(68) a. Hasan-ın garaj-da beş araba-sı var.
Hasan-GEN garage-LOC five car-poss3sg exist
'Hasan has five cars in the garage.'
b. ??/*Hasan-ın alçı-da bir kol-u var.
Hasan-GEN plaster-LOC one arm-poss3sg exist
c. Ben [Hasanı [diş-i] ağrıyor] sanıyordum.
I Hasan-ACC tooth-poss3sg hurts believed
'I believed Hasan to have a toothache.'
d. Ben [[Hasan-ın ev-in-i] yan-dı] sanıyordum.
I Hasan-GEN house-poss3sg-ACC burn-past believed
'I believed Hasan's house to have burned down.'
(Kornfilt 1997:186-187)

In Sakha too, the alienable/inalienable distinction is reflected syntactically. As shown in (69), with accusative possessive objects their possessor can also be marked accusative but only if the possessum is a body part. The grammaticality of (70) and the impossibility of (69b) with a kinship term suggests that double accusative is a property of the part-whole relationship rather than inalienability in general. A similar contrast is found in English: the examples in (71) are parallel to (69).

(69) a. Min Keskil/Keskil-i ataq-yn tep-ti-m.
I Keskil/Keskil-acc leg-3.acc kick-past-1sg
'I kicked Keskil's leg/Keskil on the leg.'
b. Min Keskil/*Keskil-i ubaj-yn tep-ti-m.
I Keskil/Keskil-acc brother-3.acc kick-past-1sg
c. Min Keskil/*Keskil-i oloppoh-un tep-ti-m.
I Keskil/Keskil-acc chair-3.acc kick-past-1sg

(70) Min aan/aan-y tutaaq-yn tep-ti-m.
I door/door-acc handle-3.acc kick-past-1sg

(71) a. I touched John on the/his cheek. Cf. I touched John's cheek.
b. *I touched John on the/his chair. Cf. I touched John's chair.
c. *I touched John on the/his sister. Cf. I touched John's sister.
(Heine 1997:19)

Heine 1997:17ff. presents an overview of various accounts of the (in)alienable distinction existing in the literature. One account is that of Voeltz 1976 who claims that the cross-linguistically relevant category is the part-whole relationship and not inalienability. Although in (69)-(71) this is indeed the case, it is impossible to reduce all instances of inalienability to a single analysis in terms of parts and wholes[29]. The examples below present some syntactic evidence from Sakha which groups body parts together with inalienable kinship terms. In (72a), where the possessor has been extracted, the relational meaning of the possessum is licensed and the meaning of

[29] Heine (1997:182) comes to the conclusion that inalienability is a rather heterogeneous category which subsumes a number of different phenomena.

inalienable possession is available with both 'grandmother' and 'teeth'. In (72b) the relational meaning of 'grandmother' and 'teeth' as kinship terms disappears under predication. The oddness of (72b) is the same as the oddness of (65a): in English too, whereas *John's arm* can be understood as both alienably or inalienably possessed, *This arm is John's* only allows the alienable, transitory interpretation.

(72) a. Sardaana(-qa) ebee-te/tiih-e/massyyna-ta baar.
Sardaana(-dat) grandmother-3/teeth-3/car-3 copula$_{EXIST}$
'Sardaana has a grandmother/teeth/a car.'
b. Bu massyyna/#ebee/#tiis Sardaana kien-e.
This car/#grandmother/#teeth Sardaana KIEN-3
'This car/#This grandmother/#This tooth are Sardaana's.'

So we have the following two sets of data to account for: the part/whole relationship of (69-70) which licenses double accusative and the impossibility of inalienable possession with possessors used predicatively. The issue of double accusative will be considered in detail in chapter 6 within the broader context of accusative case in general and other double accusative structures. In this chapter we will only consider the disappearance of relationality with possessive predicates but first the notion of inalienability will be inspected a bit more closely in order to make it more precise for our working purposes.

3.1.2.3.1. Inalienability as a grammatical category

It is difficult to find for the term 'inalienability' a single definition valid for all languages because there is a wide range of variation in which nouns a particular language decides to encode as inalienable (see Fillmore 1968, Heine 1997:10ff.). For instance, the inalienable category in Pitjantjatjara includes only body-parts, in Choctaw – body-parts and kin terms, in Ewe – kin terms and relational concepts but not body parts and in Kabiye – body-parts, kin terms, and relational concepts (Heine 1997:182). Moreover, in many languages one and the same noun can have overlapping inalienable and alienable uses (Heine 1997:12). Consider the following quote from Heine (1997:11-12):

(73) "The way inalienability is defined in a given case or in a given language is largely dependent on culture-specific conventions. In some languages, concepts like 'neighbour', 'house', 'bed', 'fire', 'clothes', or 'spear' belong to the inalienable category, while in other languages they do not. Languages do in fact differ considerably with regard to where the boundary between inalienably and alienably possessed items is located. Saker, a language of New Guinea, has a consistent alienable/inalienable marking on attributive possession, where the inalienable category consists of kinship terms, body-parts, and relational nouns including parts of the whole, while all other nouns are alienable, yet the nouns for 'husband', 'wife', and 'child' also belong to the alienable category (Z'graggen 1965:124). In Fijian, 'wife' is constructed inalienably, while in the closely related

> Melanesian language Lenakel, this item receives the alienable morphology (Lynch 1973:15)".

Given these considerations as well as the observation that some nouns classed as inalienable can in fact be separated from their 'owners', Fillmore 1968 comes to the conclusion that inalienability is a grammatical, not notional, category. The same conclusion is reached by Heine (1997:182). Taking all this into account and especially the German examples in (67) which are particularly telling, we would like to argue that inalienability is not encoded in terms of listing nouns in the lexicon as either transitive or intransitive: it was a misunderstanding to view relationality of e.g. kinship terms and body parts as having the same status as verbal transitivity. Instead, we would like to argue that inalienability should be encoded in the DP-domain because what is basically understood by inalienability is that an inalienable noun is interpreted as having unique reference in a given domain of discourse. That is, when we talk about a hand in its inalienable usage, we talk about a specific hand which is only possible if it's a hand which belongs to someone known in the context of utterance. Inalienability can be syntactically executed adopting N-to-D raising as proposed in Longobardi (1994, 1996). Longobardi argues that raising to D is also possible for common nouns: however, whereas proper names must raise to D and do so by substitution, common nouns do not display a uniform behaviour. In some languages, e.g. Semitic, where common nouns adjoin to D, the raising process may apply to all common nouns. In other languages where common nouns raise to D by substitution, only a limited class of nouns can be affected: which common nouns raise to D is largely determined by a particular language itself though there is a universal tendency to single out kinship terms from the domain of common nouns. In Italian the class of common nouns which behave like proper names includes kinship terms and *casa* 'home'. In Russian the class of common nouns which can substitute for an empty D node, apart from kinship terms, also contains profession/title designations and animal names as argued for by Babyonyshev 1997 who adopts Longobardi's (1994, 1996) proposal. This converges with the fact that "whenever there is a language having a grammatical distinction between an inalienable and an alienable category, then the former is a closed class, that is, its membership is limited, while the latter category is an open class" (Heine 1997:10).

In Sakha the inalienable class includes kinship terms and body parts. If these can raise to D, they are expected to demonstrate the plural ban (only singular nouns can raise) and rigidity of designation. This is indeed the case. In (74a) and (74b) where the subjects are singular bare nouns of the kinship and body part classes, they are understood as definite, having unique reference, in particular, as referring to the speaker's father or ear. In fact, this is the only interpretation available to the subjects in (74a) and (74b). In comparison, for the singular bare subject of (74c) the definite reading is only one option out of the available ones: in addition, it can also be interpreted as indefinite, non-specific student. In (75) where 'father' and 'ear' are put in the plural, the result is odd for the ear (as if some loose ears are tickling) but still acceptable for the father although 'fathers' can no longer maintain rigidity of designation. Moreover, 'fathers' in (75a) cannot be understood inalienably, in relation to their children: they are understood as loose individuals who happen to be called fathers.

(74) a. Aqa kel-le / father come-past.3
b. Kulgaax kycykalan-ar / ear tickle-aor
c. Studen kel-le / student come-past.3

(75) a. Aqa-lar kel-li-ler / father-pl come-past-pl
b. #Kulgaax-tar kycykalan-al-lar / ear-pl tickle-aor-pl

With respect to kinship terms, two more pieces of evidence can be given for raising to D. First, they can be used as vocatives, i.e. as substitutes for proper names (see Babyonyshev 1997:226). Second, they can appear in one type of emphatic constructions in Sakha which have been analyzed, on independent grounds, as involving either NP-movement to Spec,DP (Vinokurova 1998) or N-movement to D (Vinokurova 1999).

The raising-to-D by substitution analysis for inalienable nouns entails that they would be unmarked as in (74a-b). Indeed, cross-linguistically the inalienable category tends to be formally unmarked receiving zero expression while the alienable category receives some formal marking (Heine 1997:12). Although the following remarks are purely speculative, N-to-D movement seems to be compatible with the data from Aroma (Melanesian, Oceanic) given in (76) (Lynch 1973:6 cited in Heine 1997:12). In (76a) where the noun is used inalienably, there is no possessive marking. When the same noun is used alienably in (76b), the possessive marker ge- appears. Also there is a difference in word order: the inalienable possessee precedes the possessor, the alienable one follows it

(76) a. rauparaupa-ku / picture-my 'a picture of me'
b. ge-ku rauparaupa / poss-my picture 'a picture in my possession'

A situation similar to Aroma arises in Fijian where the possessive morpheme is preposed to indicate alienable possession and suffixed to indicate inalienable possession: "Fijian *uluqu* means the head which is now firmly attached to my neck, while *kequ ulu*, also translatable as 'my head', would refer to the head which, say, I am about to eat" (Fillmore 1968 (5.1.4)).

Encoding inalienability in terms of raising to D (or the DP-domain in general which would also include raising to Spec,DP) can also explain the puzzle with *of*-NPs in English which are licensed in the presence of relational nouns. Déchaine (1993:164-165) distinguishes several subclasses of relational nouns and uses the fact that they can license *of*-NPs as an argument for their transitivity. However, this fact can be looked at from a different angle. Adopting an analysis à la Kayne 1994 according to which *of* is actually a spellout of D, the relational noun will be located in Spec,DP.[30,31]

[30] In general, the tendency is not to analyze *of* as a regular preposition introducing a complement but as a (complex) functional head, cf. Den Dikken's (1995) analysis of *of* and its Dutch counterpart *van* as the nominal copula spelling out the complex head Num+Agr+F formed by incorporation.
[31] An additional curious piece of evidence for a syntactic approach to inalienability comes from Fillmore (1968:5.1.4) who, basing himself on Lévy-Bruhl (1916:96), mentions a case where the word for 'hand' does not by itself function as an inalienable body part but the word for 'left hand' does.

3.1.2.3.2. Absence of relationality with possessive predicates

How can the requirement that inalienability be licensed in the DP-domain account for the disappearance of relationality under predication as shown in (72b) above? To understand this, let's consider the noun *uol* 'boy'. This noun has two meanings: non-relational 'boy' and relational 'son'. The latter meaning only appears in the possessive context[32]. Consider the examples below abstracting away for the moment from the 'son'-meaning in (iii). In the possessive DP in (77) the possessor is licensed by Poss (see (63)) and its meaning can be influenced by the possessum NP in addition to being that of possession only. Since the pure possessor meaning is impossible ('the boy you own'), we will assume that the possession only interpretation corresponds to the reading 'your boyfriend' in (i). In (77ii) the possessor in Spec,PossP receives the meaning negotiated in the context of the noun *uol* 'boy': it can be a boy you know, your neighbour, your student if you're a teacher, etc. In (78) and (79) the contextual meaning in (ii) disappears because the possessor leaves the context of the possessum in (78) while in (79) it finds itself construed with a dummy noun which cannot contribute any additional meaning (recall the discussion of (60-62) in 3.1.2.2.2).

(77) En uol-uŋ / you boy-2sg
i. 'your boy (=boyfriend)' (possession only)
ii. 'the boy you know; the boy who is your pupil, etc.'
iii. 'your son'

(78) En kuorak-ka uol-uŋ baar / you town-dat boy-2sg $copula_{EXIST}$
i. 'Your boy (=boyfriend) is in the town.' (possession only)
ii. *'The boy you know; the boy who is your pupil, etc. is in the town.'
iii. 'Your son is in the town.'

(79) Bu uol ejiene / this boy yours
i. 'This boy is yours.' (possession only)
ii. *'This is the boy you know; the boy who is your pupil, etc.'
iii. *'This son is yours.'

As for the relational 'son' meaning, being inalienable it must be licensed in the DP-domain and acquire unique reference in some contextually relevant domain. However, N-to-D raising, while applicable in (74a-b), can hardly be claimed to take place in the presence of the possessor. Instead, we would like to argue that the possessor raises to Spec,DP if the possessum is to be licensed as an inalienable entity. Let's assume that the empty D node implicated in the N-for-D substitution cases of (74a-b) can have its referential feature checked not only if N raises to D but also if Spec,DP is filled with the possessor argument: in other words, the inalienability of the possessum is licensed by raising the possessor to Spec,DP whereby the possessum receives unique reference as belonging to that particular

[32] Another noun which patterns like *uol* is *kyys* 'girl; daughter'.

possessor in Spec,DP agreeing with D.[33] Thus, in (77) the alienable noun readings in (i) and (ii) imply the possessor in Spec,PossP whereas the inalienable reading in (iii) is derived by possessor raising from Spec,PossP to Spec,DP. Similarly with other nouns which do not combine both alienable and inalienable meanings like *uol* 'boy/son' or *kyys* 'girl/daughter': for instance, *min kinigem* 'my book' will always have the possessor in Spec,PossP because *kinige* 'book' does not belong to the limited class of inalienable nouns. On the contrary, a noun like *ije*, being a member of the inalienable class, will have its possessor moved from the base-generated position in Spec,PossP to Spec,DP. However, as is well-known, relational nouns can shift their meanings to non-relational ones. E.g. *Maxim Gorkaj ijete* 'Maxim Gorky's mother' can refer either to his real-life mother or to the mother figure created by him in the novel of the same name. As shown in (80) and (81), the two meanings differ with respect to the position of the possessor.

(80) $[_{DP}$ [Maxim Gorkaj]$_i$ $[_{D'}$ D $[_{PossP}$ t_i $[_{NP}$ ije-te]]]]
M.G. mother-3
'Maxim Gorky's mother (inalienable)'

(81) $[_{DP}$ D $[_{PossP}$ Maxim Gorkaj $[_{NP}$ ije-te]]]
'Maxim Gorky's mother (alienable): e.g. the literary image of a mother created by the writer'

The assumption that inalienability of the possessum is licensed by raising the possessor to Spec,DP raises one question. According to our analysis, possessive clauses with nominative/dative possessors are derived by extracting the possessor from Spec,PossP to a position outside the possessive DP. This movement does not take place in one fell swoop but proceeds through Spec,DP as an escape hatch. Since this derivational step applies indiscriminately, independent of the type of the possessum, all examples in (72a) take this step. Whereas with inalienables like *ebee* 'grandmother' or *tiis* 'teeth' possessor movement to DP takes place anyway, already at the level of DP-internal possession, with alienables like 'car' from (72a) this step is only necessitated for bringing about clause-level possession. One expects to find some semantic reflex of this movement which sets apart possessive clauses built on alienable nouns from the same type of possessive DPs where no such movement takes place. Indeed, such a reflex is readily found. As already mentioned above in section 3.1.2.2, the alienable possessed nouns in (41) with a dative possessor and (43) with a nominative possessor are specific (the examples are repeated below in (82) and (83)). In contrast, in the corresponding possessive noun phrase in (84) from which (82) and (83) are by assumption derived, the possessed noun can be understood specifically as well as non-specifically. The disappearance of the non-specific reading in (82) and (83) where the possessor has moved out through Spec,DP shows that moving the possessor to Spec,DP triggers specific reading on

[33] The data from Jacaltec, a classifier language, seem to support this view. In Jacaltec some nouns may remain unclassified (see 3.1.2.3.4 below) and among them are body parts, with one important caveat: these appear within possessives where they are indirectly assigned to a noun class through the obligatory presence of the possessor's classifier (Craig 1986:273-4).

the possessed noun. This amounts to saying that in order for a possessed noun to receive a certain interpretation licensed in the DP domain, be it specificity or inalienability, raising the possessed noun to D may not be required and, instead, one can opt to move the possessor to Spec,DP.

(82) Ej-iexe kinige-ler-iŋ baal-lar. / you-dat book-pl-2sg copula$_{EXIST}$-pl
'You have (specific) books.'

(83) En kinige-ler-iŋ baal-lar. / you book-pl-2sg copula$_{EXIST}$-pl
'You have (specific) books.'

(84) En kinige-ler-iŋ / you book-pl-2sg
'Your (specific/non-specific) books'

The behavior of the examples in (80) and (81) at the clausal level also supports the view of inalienability as licensed by the possessor in Spec,DP. When the possessor is extracted e.g. to Spec,LocP as in (85), only the reading in (80) remains: the 'creator'-interpretation of (81), being contextually determined by the possessed noun, is no longer possible because the possessor has moved out.

(85) [$_{LocP}$ [**Maxim Gorkaj**]$_i$ [$_{\exists P}$ [$_{DP}$ t$_i$ [$_{D'}$ D [$_{PossP}$ t$_i$ [$_{NP}$ **ije-te**]]]] [$_{\exists'}$ **baar**]]].
M.G. mother-3 copula$_{EXIST}$
'Maxim Gorky has a mother (inalienable).'

Going back to the examples in (72) and (77)-(79), it can now be explained why inalienable possessors are possible in possessive clauses with nominative/dative possessors (see (72a) and (78)). Here the possessor originates DP-internally and licenses the inalienable possessum by raising to DP. On the contrary, in the context of a possessive predicate as in (79) or (72b) partially repeated below the subject DP *bu ebee* 'this grandma' and the possessive predicate phrase are not transformationally related. The sentence is semantically odd because the inalienable status of *ebee* is not licensed due to lack of a DP-internal possessor.

(86) #Bu ebee Sardaana kien-e. / this grandmother Sardaana KIEN-3
#'This grandmother is Sardaana's.'

However, this account immediately predicts that the oddness of (86) should disappear if inalienability is licensed by another means, namely, substituting N for an empty D node. The prediction is confirmed by (87a) which is perfectly felicitous e.g. in a situation where several grandchildren of one and the same grandmother are having an argument about exactly to which one of her grandchildren their grandmother belongs. (87b) is also a typical possession context presupposing a custody fight.

(87) a. Ebee Sardaana kien-e. / grandmother Sardaana KIEN-3
'Grandma is Sardaana's.'

b. Oqo/Uol/Kyys miene. / child/boy/girl mine
'The child/The son/The daughter is mine.'

3.1.2.3.3. Postpositional phrases

Across languages, two properties of the inalienable class set it apart from other nouns: it tends to be closed and, second, the inalienable meaning must be licensed syntactically, in the functional domain. The second property basically amounts to saying that inalienable nouns, on their inalienable meaning, come from the lexicon as partially meaning-deficient. These two properties lay the road open for grammatical reanalysis: from members of the conceptual lexicon to members of the functional lexicon. The possibility of such reanalysis is confirmed by the data from postpositional phrases in Sakha which come in two varieties: those expressed by postpositions proper and those expressed with the help of auxiliary nouns. It is the latter which are of interest now: they include various relational nouns from the inalienable part/whole class (including body parts) such as *kiin* 'navel; center', *ojoqos* 'rib; side', *bas* 'head', *atax* 'leg', *ürüt* 'top', *alyn* 'bottom', *ilin* 'front', *kelin* 'back', *örüt* 'side', *uhuk* 'endpoint', *is* 'inside', *tas* 'outside', *aryt* 'space between', etc.[34] A relational noun from the auxiliary class combines with another noun in the manner of possessive DPs (88a). Like a regular possessive, the auxiliary noun phrase can become an argument of a verb and receive appropriate case marking (88b).

(88) a. Djie inn-e house front-3 'the front of a house'
b. Djie inn-in kyraaskalaa-ty-m.
house front-3.acc paint-past.1sg
'I painted the front of the house.'

In dative, ablative and instrumental cases auxiliary noun phrases can acquire meanings similar to those of English prepositional phrases. (89) illustrates an adpositional meaning for ablative *alyn* 'bottom'. (90) shows the instrumental and dative paradigm of the relational noun *tus* 'side, direction'.[35]

(89) Battal ann-yttan kuot-ta.
Oppression bottom-3.abl escape-past.3 'He escaped from oppression.'

(90)

About me/you/him/us/you/them	For me/you/him/us/you/them
Min tus-p-unan	*Min tus-p-ar*
I side-1sg-instrum	I side-1sg-dat
En tus-k-unan	*En tus-k-ar*
you side-2sg-instrum	you side-2sg-dat

[34] For a detailed description of the auxiliary noun system see Korkina et al. (1982:407-415).
[35] Hungarian PPs (e.g. *én-mögött-em* / I-behind-1sg 'behind me') are also historically derived from possessive NPs and still retain some of the properties of the latter (Szabolcsi 1994:207-8). Thus, Hungarian demonstrates the same type of reanalysis as Sakha.

Kini tuh-unan	*Kini tuh-ugar*
he side-3.instrum	he side-3.dat
Bihigi tus-put-unan	*Bihigi tus-put-ugar*
we side-1pl-instrum	we side-1pl-dat
Ehigi tus-kut-unan	*Ehigi tus-kut-ugar*
you side-2pl-instrum	you side-2pl-dat
Kini-ler tus-tar-ynan	*Kini-ler tus-tar-ygar*
he-pl side-pl-3.instrum	he side-pl-3.dat

Two pieces of evidence that lexical→functional reanalysis is at play here can be cited. First, the auxiliary noun can be modified by degree words which is never possible with lexical nouns: e.g. *adjas* 'entirely, totally, at all', *oruobuna* 'exactly', *saamaj* 'the very', *cuo* 'exactly', *bukatyn* 'absolutely', *otoj/olox* 'entirely, totally, at all'.

(91) Djie adjas tah-ynan aas-ty-m
House totally outside-3.instrum pass-past-1sg
'I passed very close to the house.'

Second, most auxiliary nouns show optional agreement. In case they do not agree, they bear a default third person marker. Colloquial speech has preference for non-agreeing forms.

(92) Kini ehigi tus-kut-unan/tuh-unan suruj-but-a.
He you side-2pl-instrum/side-3.instrum write-past-3
'He wrote about you.'

Failure to agree brings auxiliary nouns closer to postpositions proper which do not agree with their complements in Sakha and which we take to be functional elements, along with Baker 2003.[36] However, complete functional reanalysis can only be claimed for those relational nouns which are no longer used with their original lexical meaning, e.g. *tus* 'side, direction' in (90) and (92). For relational NP combinations as in (88) we will argue that they are licensed in the usual way, just like other inalienable nouns – with the help of functional structure built on top of them. This analysis converges with Baker's (2003) analysis of *under* and other similar prepositions in English as having two components: a relational noun embedded under an abstract P[37].

[36] See also Beard (1998:53): "The evidence from compounding hence suggests that adpositions are not lexemes in the sense that N, V, A stems are".
[37] If the relational noun conflates with P, the result is used as a regular locative PP as in e.g. *I put it under the table*. If no conflation takes place, the resulting structure can be used as NP: *Under the elm is a nice place for a picnic; I prefer under the maple* (Baker 2003:305n.).

3.1.2.3.4. Q-ish nouns

Although nouns have no lexical theta grids and therefore do not take lexical arguments, syntactic arguments can be introduced with the help of functional structure as in the case of possessors licensed by the Poss head. Besides, some inalienable nouns can themselves acquire a quasifunctional status, e.g. that of adpositions and become capable of licensing NP-complements. Such reanalysis is not restricted to inalienables and appears to be a rather general phenomenon as witnessed by the wide cross-linguistic distribution of the following three types of constructions in which nouns combine with other nouns: affective NPs, container NPs and classifiers. All three will be briefly considered in this section.

What is meant by affective NPs are qualitative constructions of the type illustrated in (93) studied by e.g. Everaert 1992, Den Dikken 1995, Español-Echevarria 1998, Hulk & Tellier 2000[38]. What these analyses have in common is incorporating functionality, in one way or another, on the first noun (the epithets *bijou* or *kasteel*): either by taking it to be a 'defective' or 'auxiliary' noun (Everaert 1992) or by embedding it under a functional projection – NumP (Den Dikken 1995) or QP (Español-Echevarria 1998, Hulk & Tellier 2000).

(93) a. ce bijou d'église Byzantine (French; Hulk & Tellier)
this jewel of church byzantine
b. ons kasteel van een bungalow (Dutch; Everaert 1992:46)
our castle of a bungalow

A more transparent case of N→Q reanalysis is presented by container nouns appearing in pseudopartitive phrasal quantification[39] as in (94a-b) from Swedish (Delsing 1993) and (94c-d) from Sakha.

(94) a. en grupp ungdomar / a group youngsters
b. en låda äpplen / a box apples
c. yaqaja üüt / bucket milk
d. bies ihit kyhyl arygy / five bottle red wine

The analyses of pseudopartitives converge in assigning the measure noun a Q-ish nature. For instance, Giusti & Leko 1995 in their discussion of quantity expressions in Bosnian take measure nouns to belong to a special class of quantity nouns. Löbel 1989 generates the measure noun under the Q functional node. Delsing 1993 divides noun quantifiers in Swedish into two groups: that of genuine quantifiers consisting of nouns regularly used as quantifiers such as *antal* 'number', *dussin* 'dozen', *kilo* 'kilo', etc. and that of pseudoquantifiers consisting of nouns temporarily used as quantifiers such as *flaska* 'bottle', *låda* 'box', *hop* 'crowd', etc. Delsing (1993:207)

[38] For a summary and discussion of the analyses and an extension of Hulk & Tellier's proposal to Sakha see Vinokurova 1999.
[39] The difference between pseudopartitive and partitive constructions is that in the former the quantifier phrase quantifies over an indefinite noun phrase whereas in partitives it quantifies over a definite noun phrase.

suggests that pseudoquantifiers, especially containers, are most likely to be reanalyzed as genuine quantifiers. Vinokurova 1998 presents an analysis of phrasal quantification in Sakha as currently undergoing the process of N→Q reanalysis. It is shown that those nouns which are shifting to the Q-status are losing some of their typically nominal properties such as plurality, having possessors and the ability to be modified by adjectives.

The issue of reanalysis turns on the complex issue of the relationship between functional and conceptual lexicons (see the diagram in (39), chapter 2). Consider the following note from Borer 2004 (chapter 1): "Importantly, the boundary which separates functional vocabulary from substantive listemes is a matter which requires additional investigation. Thus, as just noted, *five* as well as *under*, both ostensibly grammatical formatives, can nevertheless occur as substantive elements, while some substantive listemes occur in functional contexts. How functional/lexical is *cup* in a *cup of flower*? How functional/lexical is *cake* in *a cake of soap*? It is precisely this twilight zone which has led Riemsdijk (1997) to characterize *cake* and *soap* in this context, as well as some prepositions, as *semi-lexical*, and I will refer to them as *quasifunctional*. For such elements, it appears desirable to assume that it is the structure which determines the category membership of such items, classifying them as functional or lexical, in the relevant sense". On this issue we would like to agree with Borer that, indeed, some nouns (members of the conceptual lexicon) can be inserted under functional nodes such as P, Q, CL(assifier) and perhaps some others. If the functional use completely takes over the lexical one, i.e. if a noun from the conceptual lexicon always gets inserted under an F-node and hardly ever under N, then eventually this noun will lose its membership in the conceptual lexicon and become enlisted in the f-lexicon. Apparently, this is what happened to the noun *tus* 'side, direction' which is now used only as an auxiliary postposition-like word.

The bottom line of the above discussion is the following. When a noun appears in combination with what looks like an NP-complement, such structure should not be hastily analyzed as reflecting (lexically determined) predicate-argument configuration. This is done e.g. in Déchaine (1993:164-165) who distinguishes a special class of relational nouns labeled as classifier nouns: *number, bunch, bushel, cup,* etc. The fact that these nouns can appear with of-complements (as in *a cup of coffee, a number of her objections, that sort of cloth, this kind of dog*) is viewed as evidence for their transitivity[40]. In our terms, such analysis is in fact never possible: either there is always some functional argument-introducing structure hidden inside the N-NP configuration or the N is actually a disguised functional head.

A third context when functional heads disguise themselves as lexical nouns is presented by classifiers[41], in particular, numeral classifiers derived from nouns which are encountered in e.g. Chinese, Japanese, Burmese, Thai (Allan 1977), Yagua (Payne 1986) and various Austroasiatic languages (Adams 1986). A

[40] Recall the final paragraph of section 3.1.2.3.1 where a possible solution is offered on how to handle such cases.

[41] Extensive literature is available on classifiers; to cite just a few: Denny 1976; Adams and Conklin 1973; Allan 1977; a collection of papers in Craig 1986.

distinguishing characteristic of numeral classifier languages is that a numeral can combine with a noun only through a classifier. A Thai example is given in (95).[42]

(95) khru laj khon / teacher three person
'three teachers' (Thai; Allan 1977:286)

The treatment received by classifiers in the literature seems to be uniformly functional: they are usually assigned to a closed class of functional morphemes. This is the status assigned to them e.g. within Borer's (2000-2004) framework where they are given a semantic analysis as functions on mass[43] and, syntactically, they are

[42] Apart from i) numeral classifier languages, there are other types of classifier languages as well: ii) concordial classifier languages; iii) predicate classifier languages; iv) intra-locative classifier languages (the classification is from Allan 1977). In concordial classifier languages noun class markers are prefixed to the noun and also to the elements both inside and outside the noun phrase which agree with the noun phrase. This is the case in many African (Bantu and Semi-Bantu) and Australian languages (Allan 1977; Corbett 1991; Mchombo 1998). The example in (i) is from Chichewa (Mchombo 1998:517).

(i) m-kóndó w-angá w-á-tsópanó u-ja ú-ma-sangaláts-á alenje
3-spear 3SM-my 3SM-assoc.-new 3SM-rel.pro. 3SM-hab.-please-fv 2-hunters
'That new spear of mine pleases hunters'

Predicate classifier languages, mostly from the Athapaskan family, have a number of verb stems which are classificatory, by virtue of containing a classificatory morpheme. The Navajo examples in (ii) illustrate this. A system similar to this one involves incorporation of a classifying nominal onto a verb, as a result of which the verb becomes classificatory (Mithun 1986). Classifying incorporation can be found in the Americas as well as Australia and is demonstrated by the examples from Caddo (Caddoan, Oklahoma) in (iii) and Gunwinggu (Australian) in (iv).

(ii) a. béésò sì-?á (Navajo; Allan 1977:287)
money perfect-lie(round entity)
'A coin is lying (there).'
b. béésò sì-nìl
money perfect-lie(collection)
'Some money (small change) is lying (there).'
c. béésò sì-ltsòòz
money perfect-lie(flat flexible entity)
'A note (bill) is lying (there).'

(iii) a. Kapí: kan-čâ:ni'ah (Caddo; Mithun 1986:386)
cofee liquid-buy.past 'He bought (liquid) coffee.'
b. Kapí: dan-čâ:ni'ah
cofee powder-buy.past 'He bought (ground) coffee.'

(iv) bene dulg-naŋ mangaralalymayn (Gunwinggu; Gerdts 1998:90)
they.two tree-saw cashew.nut 'They saw a cashew tree.'

Finally, there are also intra-locative classifier languages (Toba, Eskimo and Dyirbal) where "noun classifiers are embedded in some of the locative expressions which obligatorily accompany nouns in most environments" (Allan 1977:287).

[43] For Borer all nouns, in every language, come out of the lexicon as mass predicates and, in the absence of any 'count' structure, receive the default mass interpretation. It is the job of classifiers to provide the 'count', or dividing structure, both in 'classifier'-languages like Chinese and 'non-classifier'-languages like English. Whereas for Chinese such an assumption is uncontroversial, for English it may seem provocative. Nevertheless, Borer claims that English plural morphology is, in fact, classifier morphology.

taken to instantiate CL(assifier) functional heads. *Three cats*, for instance, is derived as in (96) where Classifier Phrase is dominated by the quantity phrase #P.[44]

(96) $[_{D}{}^{max}$ <e>$_{d}$ $[_{\#}{}^{max}$ three <e>$_{\#}$ $[_{CL}{}^{max}$ cats <e>$_{CL}$ $[_{NP}$ ~~cats~~]]]]

For Borer classifiers also have a nominalizing function on roots, i.e. turn them into nouns, as in (96) where a L(exical)P *cats* is converted to NP when dominated by ClassP. A similar view is adopted in Kihm 2000 who views classifiers as instantiating the little n syntactic node.

F-ness of classifiers also receives support from the fact that, as mentioned in Allan 1977:288, a classifier always forms a constituent with the quantifier and never with the lexical noun it classifies (the latter, the head noun cannot interrupt the quantifier-classifier sequence). This fact motivates a suggestion made by Baker (2003:119n.) that "in the Mayan languages, at any rate, the classifier is probably best treated as a kind of agreement morpheme that appears on the quantifier, similar to the way that determiners agree with their noun complement in gender in many languages".

Other loose pieces of evidence that can be brought to bear upon the F-status of classifiers are the following. First, it is the possibility of reclassification: for instance, people can be counted with animal or inanimate classifiers as a way of treating them derogatorily (Adams 1986:256). Second, it is the existence of inherent-state versus temporary-state classifiers: e.g. Tzeltal has only nine inherent-state classifiers such as *čoht* 'legged' compared to a large number of temporary-state ones such as *čehč* 'non-upright' in *h-čehč meša* 'one non-upright table' (Berlin 1968 cited in Denny 1986:303-4). Third, classifiers can function as nominalizers (and, as already mentioned above, they are treated as such by Kihm and Borer): e.g. in Yagua they can derive nouns when suffixed to verbs or other non-substantival roots (Payne 1986:128)[45]. Finally, classifiers can be left out with some nouns. There seems to be a tendency that such unclassified nouns belong to various types of relational nouns, for example, locative nouns or body parts as in Jacaltec (Craig 1986:273-4). Hopefully for our approach which views nominal relationality as licensed in the functional domain, this is more than just a mere coincidence: for instance, if such nouns were to raise to some functional projection and classifiers were preventing this, then facts would follow.

3.1.2.4. Adjectival modification and temporary possession

Adjectival modification provides additional evidence for the structure in (63) and for the assumption that the possessor receives from the Poss head a 'possessor' role only, with other meanings of the possessor resulting from the interaction with the

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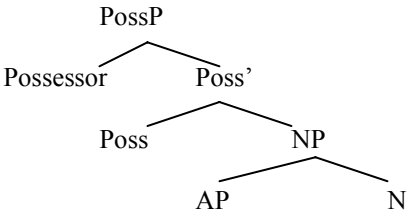
[44] Recall from chapter 1 that in Borer's model functional heads are headed by open values <e>; thus, D is headed by <e>$_{d}$, # by <e>$_{\#}$, CL by <e>$_{CL}$ and so on. An open value must be assigned range by an appropriate range assignor which can be e.g. a lexical item head-adjoined to <e> or a phrase in [Spec, <e>].

[45] This type of derivation in Yagua is often accompanied by a meaning change, as in *nóónoojaá* 'kerosene' derived from *nóóno* 'light ('copal resin' previously used for lighting)' plus *–jaá* '(classifier) liquid' (ibidem).

semantics of the possessum which is only possible if the possessor finds itself in the immediate context of the possessum. The example in (97) is exactly parallel to (60) except that the possessum is modified by the adjective *ulaxan* 'big'. The impossibility in (97) of readings other than the possessive one follows from the structure in (98) (see chapter 4) which precludes the interaction between the possessor and the possessum: if an adjective intervenes, the possessum can no longer modulate the meaning of the possessor. Suppose that, on the processing side, the interpretive module first accesses the possessum and that, in order for it to exert influence on the interpretation of the possessor, the latter must be processed right after the possessum. In (98) this is not the case and the possessor is read only after the adjective applies to the possessum.

(97) Min ulaxan ferma-m
I big farm-1sg
'the big farm I own/*built/*like/*live next to/*burnt/*where I work, etc.'

(98)



Although adjectival modification supports (63), it introduces one important complication into the analysis by creating another context in which the relational/non-relational contrast shows up again. If the adjective is removed in (99b), the kinship term *ubaj* 'brother' and the body part *kylaman* 'eyelash' will be completely acceptable, as in the analogous example in (72a). The reason they are unacceptable in (99b) is because adjectival modification imposes the temporary/transitory reading on possessive clauses and inalienable possession is permanent. Instead of (99b), the LAAX-variants in (99c) must be used.

(99) a. En uhun eterbeh-iŋ/ubaj-yŋ/kylaman-yŋ
you long boot-2sg/brother-2sg/eyelash-2sg
'you long boot(s)/your tall brother/your long eyelashes'
b. Ejiexe uhun eterbeh-iŋ/#ubaj-yŋ/#kylaman-yŋ baar.
You.dat long boot-2sg/brother-2sg/eyelash-2sg
'You have long boot(s)/#a tall brother/#long eyelashes.'
c. En uhun ubaj-daax-xyn/kylaman-naax-xyn.
You long brother-LAAX-2sg/eyelash-LAAX-2sg
'You have a tall brother/long eyelashes.'

One option is that sentences involving permanent and temporary possession start from the same underlying structure but their derivation proceeds along different lines, as suggested in Den Dikken 1997. Alternatively, they may implicate different underlying structures, as argued by Español-Echevarría 1997 for Spanish. For the

Sakha data it seems clear that transitory possession shares its structural base with permanent possession but there is a derivational split (just as in the case with locatives and possessives). The following English pair from Den Dikken (1997:142) is particularly helpful in locating the point of this derivational split. Den Dikken suggests that D-incorporating and P-incorporating derivations of possession can complement each other in deriving different types of possession. More specifically, D-incorporation may be held responsible for permanent possession, whence the lack of the definite article in (100a), whereas P-incorporation can be put to work in (100b).

(100)	a.	John has a car.	Permanent possession
	b.	John has the car.	Temporary/transitory possession

As argued above, the P-incorporation analysis is not empirically justified for Sakha and therefore was rejected in deriving possession. Instead, we would like to argue that transitory possession involves not just possessor extraction to Spec,IP or Spec,LocP but also D-incorporation to Infl: a syntactic configuration with possessive D adjoined to I gets interpreted in the semantic module as temporary/transitory possession. Thus, in (99b) first the possessor raises to Spec,LocP from Spec,DP and, second, D adjoins to the matrix Infl. It is this second step, D-adjunction, which is responsible for the semantic oddness in (99b), viz. that 'brother' and 'eyelashes' can only be understood alienably with respect to the possessor 'you'. We argued above in section 3.1.2.3.2 that inside possessive DPs the relationality (inalienability) of the head noun is licensed by raising the possessor to Spec,DP where it agrees with D checking the latter's referential feature. As a result of this agreement between the possessor in Spec,DP and D, the possessum acquires unique reference as belonging to this particular possessor. It plays no role whether the possessor is later extracted from Spec,DP or not: what is important is that the possessor, on its way, has left its fingerprint on the possessum's D and this is sufficient for the inalienable reading to be activated. However, if the D head were also to raise out of the possessive DP, this would disrupt the inalienability-enabling configuration: when the rules of semantic interpretation apply, they will not detect any signs of syntactic inalienability inside the possessive DPs in (99b), hence no semantic inalienability as well. One question, however, remains unanswered: why does the presence of the adjective necessarily impose a transitory reading or, under current assumptions, why does D have to incorporate to Infl in the presence of the adjective? For the time being, we will have to leave this question dangling in suspense.

As mentioned in sections 3.1.1.5-6, sentences like (41) and (43) can express permanent as well as temporary possession but a new caveat must be introduced: only when there is no adjective. So, if (41)/(43) are permanent, the D belonging to the head noun 'books' remains in situ. If they are transitory, D must incorporate to Infl. Again, if 'books' is replaced by a relational noun, only the permanent reading remains.

3.1.2.5. Concluding remarks on possession

In section 3.1 we considered the syntactic expression of possession in Sakha. It was argued that possession is implemented in one of two ways which are mutually independent and cannot be unified under a single analysis: either with the help of the functor –LAAX which establishes a possessive relationship between its subject (the possessor) and its complement (the possessum) (24) or through the mediation of the functional Poss head which assigns a Possessor role to the noun phrase in its specifier (63). Both LAAX and Poss are implicated in nominal as well as clausal possession which are derivationally related. With LAAX, nominal possession involves embedding the small clause headed by LAAX under DP-NumP whereas in clausal possession the small clause merges with CP-IP. With Poss, possession is first encoded inside the DP, introducing the possessor as a syntactic argument to the head noun. Clausal possession is derived by extracting the possessor.

It was suggested above that possessor extraction is required in order to separate the possessor from the possessum and that such separation is dictated by the need to obtain possessive interpretation. Here we would like to modify the latter assumption because it seems to be wrong. Possessive interpretation is already available inside the DP: the specifier of Poss is interpreted as a pure possessor/owner with extra meanings determined by the head noun. When the possessor is extracted, it only gets rid of the additional, contextual meanings. The loss of contextual meanings resulting from separation may well be a necessary condition for the establishment of clausal possession but it can hardly be sufficient for that purpose. Rather, what seems to be the driving force behind separation is the need for two event participants, each establishing its own discourse referent – this need being explained by the fact that possessive clauses present situations in which one entity has the ownership over another entity. Consider once again structures for possessive sentences with a dative and nominative possessors from section 3.1.2.2.1 repeated below. If the possessor in (101) did not move, there would be one possessive DP corresponding to one discourse referent, e.g. ‘your book’. Even if a location DP were present as in (102), no possessive relationship would be possible between these two discourse referents because no Poss mediates between them. Were it the case that in both (101) and (102) no possessor extraction takes place, the only possible outcome would be a locative sentence as in (103).

(101) Possessive sentences with a dative possessor (=(52))
$[_{Spec,LocP}$ Possessor $[_{\exists P}$ $[_{DP}$ $t_{Possessor}$ Possessum] $[_{\exists,}$ baar]]

(102) Possessive sentences with a nominative possessor (=posessive (53))
$[_{Spec,IP}$ Possessor $[_{Spec,LocP}$ $DP_{LOCATION}$ $[_{\exists P}$ $[_{DP}$ $t_{Possessor}$ Possessum] $[_{\exists,}$ baar]]

(103) Locative sentences (=locative (51))
$[_{Spec,IP}$ $[_{DP}$ Possessor Possessum] $[_{Spec,LocP}$ $DP_{LOCATION}$ $[_{\exists P}$ t_{DP} $[_{\exists,}$ baar]]

In *en kinige-ŋ* 'your book' the possessor *en* 'you' is a DP and the whole possessive noun phrase (*en kinige-ŋ* 'your book') is also a DP. As argued in section 3.4.2, the DP-layer is required in order to enable the nominal expression to refer to discourse individuals. So, since both 'you' and 'you book-2sg' are DPs, both should have discourse referents. However, we are assuming that no discourse referent is established for the possessor: possessive interpretation requires two discourse referents and if a discourse referent were established for the possessor, then it would provide the second, missing referent required for possessivity (the first one being provided by the entire possessive DP). How does all this fall together? We would like to suggest that being a DP is necessary for the establishment of a discourse referent but does not guarantee it. In the case at hand, no discourse referent can be set up for the possessor as long as it is embedded inside another DP. Discourse referents can onnly be established for independent DPs and DPs embedded inside other DPs are dependent. This is the underlying, true reason behind possessor extraction: possessivity requires two discourse referents, that of a possessor and that of a possessum → the possessum being the head of the possessive DP has a referent but the possessor, not being an independent DP, does not → the only way for the possessor to license its own discourse reference is by becoming an independent DP which is achieved by moving the possessor out of the possessive DP.

Another important conclusion stemming from our analysis of possession is that possessors are syntactic arguments, both with relational and non-relational nouns. In order to explain asymmetries between possessors of relational and possessors of non-relational nouns we offered an analysis of inalienability as requiring licensing in the DP-domain. A functional approach to inalienability precludes the treatment of nominal relationality in the same way as verbal transitivity – in terms of predicate-argument structure and allows us to maintain the view that nouns do not take arguments also with respect to relational nouns.

3.2. Nominal compounds: The lexicon/syntax division

Déchaine 1993 views the existence of nominal compounds in English such as *the book title, the river bank, the door key* where the head of the compound is a relational noun from the part-whole class as evidence for the underlying transitivity of relational nouns. Although it is left open how precisely these structures arise, either by compounding or by incorporation (ibid. p. 167), they are claimed to be possible only if the compounded/incorporated noun preceding the relational head noun is the θ-complement of the latter. However, this approach raises more questions than answers. First, the class of relational nouns includes several subclasses[46] and it is highly idiosyncratic which ones do and which ones do not allow compound formation. Notably, the part-whole subclass is subdivided into three types (according to their behaviour in a number of syntactic contexts): part-

[46] The subclasses in question are kinship terms (sister, uncle, cousin), various social relations (ally, doctor, lawyer, neighbour), picture nouns (anecdote, biography, picture, illusion, poem), inherent properties (size, age, depth), body parts (arm, tail, hoofs), parts/wholes (the book's *jacket/title/contents*; the *mouth* of the river, the *arm* of the chair; broom *handle*, car *fender*), classifiers (a number of, a bunch of, a bushel of, a kind of, a sort of, a cup of, a group of) (Déchaine 1993:164-165).

whole 1 and part-whole 2 allow compounds whereas part-whole 3 does not, as illustrated below. Curiously, *chair leg* is acceptable with *leg* being a member of part-whole class 2 but not **chair arm*. If compound formation were really determined by the θ-relation licensed by the relational noun, one would expect it to display less idiosyncrasies than it actually does.

(104) English part-whole nouns inside compounds (Déchaine 1993)

Part-whole 1	Part-whole 2	Part-whole 3
The book jacket	The valley bottom	*The mountain foot
The book title	The hill top	*The river mouth
The book contents	The river bank	*The chair arm
The car fender	The broom handle	
	The table top	
	The chair leg	
	The castle gate	
	The door key	

Second, compound formation is possible with non-relational nouns as heads, cf. *steamboat, doghouse, toy gun, popcorn, rattlesnake,* etc., and such nouns are intransitive under Déchaine's account. These considerations point out that the issue of compounding/incorporation must be separated from the issue of nominal relationality. In particular, the possibility of compound formation cannot mean that the non-head member of a compound is the complement of the transitive head of the compound. To strengthen this point, in this section we will consider compound formation in Sakha which, just like in English, can be built on both relational and non-relational nouns. Types of compounds available in Sakha are root compounds, possessive compounds and dvandva compounds. In none of these cases is it plausible to argue that the non-head member preceding the right-hand head of a compound is an argument of the latter.

3.2.1. Root compounds

Root compounds are either N-N or A-N. Only those nouns and adjectives are allowed which are either underived or derived lexicon-internally (see chapter 2). The right-hand member is the head determining the syntactic behaviour of the whole compound. Semantically, however, not all compounds are endocentric: whereas *ürüŋ as* 'dairy produce; lit. white food' is a kind of food, *saryy kynat* 'bat; lit. suede wing' is not a wing and would qualify as an exocentric compound.

(105) Root compounds in Sakha:

N-N Compound	**Gloss**	**Meaning**
Saryy kynat	Suede wing	Bat (animal)
Er sanaa	Man thought	Courage
Uus tyl	Blacksmith word	Eloquence

At oqus	Horse ox	Bullock
A-N Compound	**Gloss**	**Meaning**
Kyhyl kömüs	Red bury.suffix	Gold
Ürüŋ kömüs	White bury.suffix	Silver
Kyhyl oqo	Red child	Infant
Küöx sürex	Green heart	Lazy person

For root compounds we will assume an analysis in terms of lexicon-internal derivation but we will not elaborate on the precise nature of the morphological rules involved[47] (see Fabb 1998 and references therein for technical solutions). This seems to be a common approach adopted with respect to compounds (with the exception of synthetic ones). Below some arguments follow to prove the correctness of the lexical approach in Sakha.

First, root compounds behave like one word with a fixed, often idiomatized meaning. Second, as already mentioned, their members must be underived or lexically derived like *köm-üs* '(gold or silver) metal; lit. something buried (bury-suffix)'. Third, the occurence of *cran*-morphs inside root compounds (as in *cranberry, ironmonger*) supports their lexicality: an example is *ylgyn cykyja* 'little finger' where both members have no meaning and their origin is unknown or *ooquj oqus* '*ooquj* ox → spider' where the first member is a *cran*-morph. Fourth, root compounds are one of a kind in the sense that they do not themselves follow any productive patterns nor do they give rise to any analogical processes. For example, the nouns *uu* 'water' and *buor* 'soil' combine with the nouns *saxa* 'Sakha' and *nuucca* 'Russian' to give rise to *uu saxa, uu nuucca, buor saxa, buor nuucca,* all with the meaning '"genuine" Sakha/Russian'.[48] It is easily conceivable that the paradigm could be extended further but it cannot: it is impossible to use *uu* or *buor* in combination with any other nationality. Finally, the fact that verbs cannot appear inside root compounds is predicted under the current analysis: a verb, being a two-place predicate, cannot saturate both of its open positions inside a compound. On the contrary, adjectives are associated with one argument and, apparently, this thematic property can be satisfied inside a compound whose head is a noun. For non-predicative nouns the ability to appear compound-internally follows automatically: there are no thematic requirements to be met. This may help explain the cross-linguistic prevalence of nominal compounds (see Fabb 1998).

3.2.2. Possessive compounds

These have the shape of possessive NPs: Noun Noun-3 where 3 stands for the invariable third person marker –(t)A. The reason that the same agreement morpheme is used is because the first noun is always third person singular. Syntactically, possessive compounds are uniformly endocentric, with the second noun marked

[47] For instance, Yükseker 1994 proposes that Turkish root compounds involve lexical head adjunction.
[48] "Genuineness" here is not to be understood genetically: for instance, a Russian person who speaks fluent Sakha will be introduced as *uu saxa*. Also to be noted that *uu saxa/uu nuucca* 'water Sakha/water Russian' are used generally whereas *buor saxa/buor nuucca* are said of a person who is particularly simple and unpretentious, completely down-to-earth.

with –A acting as the head and determining agreement with the predicate. Semantically, just like with root compounds, many possessive compounds are exocentric: for instance, *öj xaa-ta* 'intelligent person; lit. intelligence box-3 (a box of intelligence)' is not a box but a human being. Some examples are given below.

(106) Possessive compounds in Sakha:

Compound	Gloss	Meaning
Baqa batah-a	Frog lance-3	Iris (flower)
Xarax uu-ta	Eye water-3	Tear
Mas uuh-a	Wood smith-3	Carpenter, wood carver
Timir uuh-a	Iron smith-3	Blacksmith
Muos uuh-a	Ivory smith-3	Ivory carver
Kiis tiŋileq-e	Sable claw-3	Stone bramble (kind of berry)
Yt tiŋileq-e	Dog claw-3	Cloudberry
Sir ah-a	Earth food-3	Berries

Possessive compounds having the same Noun Noun-(s)I makeup are also found in related Turkish. Kornfilt (1997:474) takes *–(s)I* to be a compound marker which is identical to the third person singular possessive marker. If –A in Sakha were analyzed as a compound marker, this would make it possible to treat possessive compounds as lexical. On the other hand, their possessive form brings them close to possessive DPs and suggests a syntactic approach. The fact that possessive compounds turn out identical to possessive DPs with a third person singular possessor is to blame on the absence of genitive case in Sakha. If we compare Sakha facts to Turkish, we can see that in Turkish, possessive compounds and DPs differ structurally: in DPs the possessor is marked for genitive (107a), in compounds the first noun is unmarked (107b). In a regular possessive construction the two constituents are independent and may have their own modifiers whereas in a possessive compound no material can intervene between the two elements (Underhill 1976:93-96).[49]

(107) a. bakkal-ın dükkân-ı / grocer-gen shop-3sg (Turkish)
'the grocer's store'
b. bakkal dükkân-ı / grocer shop-3sg
'grocery store'

The second difference with respect to modification also shows up in Sakha implying that the structure of possessive compounds differs from that of regular possessives. (108a) is ambiguous but if the adjective is inserted between the two nouns, the ambiguity disappears together with the compound meaning. The compound meaning can only be preserved if the adjective is inserted in front of the whole construction as in (108c). That a compound can be modified only as a whole is explained by the

[49] See also Yükseker 1994, 1998 for a summary of differences between Turkish possessive compounds and noun phrases and their analysis.

fact that it can also refer only as a whole: its constituent parts are non-referential and understood generically. In contrast, the possessor and possessum of a regular possessive noun phrase can both refer. The same contrast obtains in Turkish (see Yükseker 1998).

(108)	a.	oqo kinigete / child book-3 (Sakha)	
		'the child's book'	(regular possessive DP)
		'a children's book'	(possessive compound)
	b.	oqo saŋa kinigete	
		'the/a child's new book'	(regular possessive DP)
		*'a new children's book'	(possessive compound)
	c.	saŋa oqo kinigete	
		'the/a child's new book'	(regular possessive DP)[50]
		'a new children's book'	(possessive compound)

Apart from modification, compounds differ from DPs in other ways as well. First, they often have non-compositional idiomatized meanings. Second, the first noun inside a compound cannot be pluralized. Third, the relationship between the first and second nouns is that of modifier-modified, not argument-head. For instance, in *mas uuha* 'carpenter', *timir uuha* 'blacksmith', *muos uuha* 'ivory carver' the nouns *mas* 'wood', *timir* 'iron' and *muos* 'ivory' clearly have a modifying function restricting the reference of the noun *uus* 'smith'.

We would like to argue that possessive compounds come in two varieties – lexical and syntactic. Lexical compounds have lexicalized meanings: *yt tiŋileqe* 'cloudberry (lit. dog's claw)'. Syntactic compounds display the modifier-modified relationship: *njirej ferma-ta* 'a farm for breeding calves' where *njirej* 'calf' specifies the meaning of the head noun 'farm'. The source of lexical compounds is syntactic: in other words, they are lexicalized phrases.[51] Found among lexical compounds are combinations like *xoj baha* 'stupid, rubbish' where both members are archaic: *xoj* is the ancient word for 'sheep' no longer in use, *bas* 'head' is found in restricted use.

The existence of the lexical/syntactic dichotomy in possessive compounds is also evident in Turkish. Yükseker 1994, 1998 argues that possessive compounds are derived in the syntax but some can be lexicalized. For instance, *kitap kab-ı* 'book cover (book cover-3)' is a regular (i.e. syntactic) possessive compound and the third person marker following the head is the inflectional possessive affix. *Bin baş-ı* '(military rank) major (lit. thousand head-3)' is a lexicalized possessive compound

[50] The adjective-possessor order in possessive DPs is marked and requires a special dislocation intonation with a pause after the adjective.

[51] See Fabb (1998:76) on the possibility of lexicalizing whole phrases. That such a possibility must indeed be admitted as a grammatical option is witnessed e.g. by the existence of Turkish compounds like *kül bas-tī* / ash press-past '(a particular type of) grilled meat' or *vur-du-m duy-ma-z* / hit-past-1sg feel-neg-aor 'thick skinned (I hit (her) (and) she doesn't feel (it))' (Kornfilt 1997, pp. 477, 480).

A lexicalization analysis of possessive compounds also receives support from intuitions regarding these compounds: people who are not familiar with the idiomatic meanings of *kiis tiŋileqe* 'stone bramble' or *yt tiŋileqe* 'cloudberry' (for instance, because of the restricted geography of these berries) at first understand these combinations literally as 'sable's claws' or 'dog's claws', respectively.

where the third person marker acts like a derivational suffix. When these compounds are pluralized, the plural morpheme (which is assumed to attach in the morphological component) precedes the inflectional but follows the derivational possessive marker. İn addition, syntactic possessive compounds cannot serve as bases for lexical derivation while lexicalized compounds can (see Yükseker 1998 for details).

(109) a. kitap kab-lar-ı / book cover-pl-3 'book covers'
*kitap kab-ı-lar
b. bin baş-ı-lar / thousand head-3-pl 'majors'
*bin baş-lar-ı

The facts in Sakha are slightly more complicated by the behaviour of the third person marker –A. First, with respect to plural formation lexical and syntactic compounds behave similarly: in both cases the plural morpheme is infixed between the head noun and –A.

(110) a. baqa batas-tar-a / frog lance-pl-3 'iris (flowers)'
b. mas uus-tar-a / wood smith-pl-3 'carpenters'

Differences show up with derivational suffixes which can only attach to lexical compounds. The third person marker must be dropped and replaced by these new suffixes. (111) gives an example with the verbalizer –LAA.

(111) a. Yt tiŋilex-tee-ti-m / dog claw-verb-past-1sg
'I picked cloud berries.'
b. *Mas uus-taa-ty-m / wood smith-verb-past-1sg
'I worked as a carpenter.'

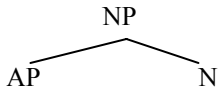
Another difference concerns modification. Lexical compounds can modify nouns and are thus similar to lexical heads like adjectives. Syntactic compounds are ungrammatical in this context.[52]

(112) a. Yt tiŋileq-e baryannja / dog claw-3 jam 'cloudberry jam'
b. *Mas uuh-a oqonnjor / wood smith-3 old.man

The analysis of syntactic compounds must capture the fact that they express the modifier-head relationship, i.e. that they are similar to adjective-noun constructions. These will be argued in chapter 4 (section 4.5.1.3) to involve the structure in (113). If instead of the AP we had another noun, the result could qualify as a syntactic compound.

[52] The compound *xoj baha* 'sheep's head → stupid, rubbish' stands apart from other lexical compounds: it can attach neither plural nor derivational suffixes although it can appear with case suffixes when it is used as a noun with the meaning 'rubbish, stupid talk, etc.'; cf. *Xoj bah-yn tuoj-ar* / sheep head-3.acc say-aor 'he talks rubbish'. It can also appear as a modifier to another noun as in *xoj baha tyl* 'rubbish talk' and thus patterns with lexical compounds in (112a). Apparently, the reason this compound is so inflexible can be blamed on its extremely idiomatic nature.

(113)



However, it will also be argued in chapter 4 that a noun can only be used as an adjective if it is type-shifted because nouns are not inherently predicative (see section 4.5.2). Thus, a noun like *mas* 'wood' can be type-shifted and used attributively resulting in *mas oloppos* 'wooden chair'. If the same type-shifted noun appeared with the noun *uus* 'smith', the result would be **mas uus* 'wooden smith (a smith made of wood)'. Hence, we are led to conclude that a noun which appears in a syntactic compound is not type-shifted and appears in its basic argumental, non-predicative form enabling the interpretation of *mas uuh-a* 'wood smith-3' as 'a smith with respect to wood'. We would like to argue that what makes possible the application of a non-predicative noun to another noun is the morpheme –A which reflects morphologically the presence of a functional head. If (113) with a noun substituted for AP implicated a functional element, this would entail the impossibility of verbalizations (111b): LAA-verbalizations are only possible from lexical heads/phrases. The impossibility of (112b) is also explained: there is no place for a functional phrase inside the structure in (113).

As for lexical compounds, these come out of the lexicon as X-X combinations and, being inherently non-predicative, translate into the syntax as nouns. The resulting N-N compound is a single word with a fixed meaning and therefore, in order to be inserted as such in the syntactic tree, needs a word marker. We will assume that –A performs this function. (111a) and (112a) can now be explained. Since –A is a word marker enabling the N-N compound to be used as an independent word, there is no need for its appearance in (111a) and it can be dropped. Being a lexical word (with –A acting as a word marker and not spelling out a functional head as with syntactic possessive compounds), an N-N compound can also appear in the structure in (113) deriving for example (112a): *yt tiŋileqe* is type-shifted and inserted in place of AP modifying the head noun *baryannja*.

3.2.3. Dvandva compounds

This type of compounds, also called coordinate or appositional, involves a combination of two nouns which are each other's synonyms, antonyms or parallel things (Fabb 1998:67): *atas-doqor* 'friend-friend', *aqa-ije* 'father-mother', *taŋas-sap* 'clothes-thread'. Depending on the nature of the nouns used, three kinds of dvandva's can be distinguished: 1) both N_1 and N_2 can be independent words as in the three preceding examples; 2) only N_1 is independent, N_2 is either archaic (*yys-bydaan* 'smoke-*fog* → dense darkness, thick mist') or has unknown etymology (*tübük-sadjyk* 'worry-*sadjyk*') or is an unpredictable phonetic doublet (*tyal-kuus* 'wind-*kuus'*); 3) neither N_1 nor N_2 are independent (*im-djim* 'silence, quietness').

Dvanda's have no single head because both N_1 and N_2 behave like heads: whatever processes affect one noun must equally apply to the other. For instance, when put in various cases or when appearing with possessive morphemes both

nouns must bear identical markers: *atas-tan – doqor-ton* 'friend-ablative-friend-ablative', *atah-ym – doqor-um* 'friend-1sg-friend-1sg'.

We would like to argue that nouns can combine into coordinate compounds either in the lexicon or syntax. A two-place approach can explain a two-way split in these compounds which shows up in a number of contexts considered below. Examples of lexical and syntactic compounds are given in (114) and (115).

(114) Lexical dvandva compounds in Sakha:

Compound	Gloss	Meaning
Böx-sax	Rubbish-*sax*[53]	Rubbish
Kör-nar	Fun-*nar*	Fun
Saŋa-iŋe	Speech-*iŋe*	Speech
Üp-as	Money-food	Fortune, prosperity
Tyl-ös	Language-word	Language, speech; hearsay, gossip
Djühün-bodo	Appearance-appearance	Appearance
Byhyy-majgy	Shape-mood	Situation, state of affairs
Syt-symar	Smell-*symar*	Strong smell
Üle-iis	Work-work	Work, occupation
Üle-xamnas	Work-salary	Work, professional activities
Erej-buruj	Suffering-guilt	Suffering, hardship
Köt-ör – süür-er	Fly-aorist – run-aorist	Animal kingdom
Surax-sadjyk	News-*sadjyk*	Rumors
Tübük-sadjyk	Worry-*sadjyk*	Worries, troubles, fuss
Yys-bydaan	Smoke-fog	Dense darkness, thick mist
Im-djim	*Im-djim*	Silence, quietness

(115) Syntactic dvandva compounds in Sakha:

Compound	Gloss	Meaning
Küüs-uox	Power-might	Strength, power, might
Ot-mas	Grass-tree	Vegetation
Suor-turaax	Raven-crow	Carrion-crows
Xaar-samyyr	Snow-rain	Rainy weather
Kus-xaas	Duck-goose	Water-fowl
Aat-suol	Name-road	Fame
Djie-uot	House-fire	Home, family
Ihit-xomuos	Kitchenware-dipper	Kitchenware

[53] Italicized nouns for which no glosses are provided are not independent words with a clear lexical meaning of their own.

Atas-doqor	Friend-friend	Friends
Aqa-ije	Father-mother	Parents
Taŋas-sap	Clothes-thread	Clothes, clothing

In the majority of cases nouns which appear inside dvandva's denote synonyms ('power-might', 'friend-friend') or parallel things (like 'snow-rain', 'duck-goose'). When they combine, the meaning of the resulting compound is usually compositional and predictable. In many cases it denotes a collective formed by the members of the compound as in 'father-mother' → 'parents', 'duck-goose' → 'water fowl', etc. This applies to lexical and syntactic dvandva compounds alike. However, only lexical compounds can undergo a semantic shift which makes their meaning no longer predictable as in *byhyy-majgy* 'shape-mood → situation, state of affairs' or *surax-sadjyk* 'news-*sadjyk* → rumors'. The case presented by the compound *uu-xaar* 'water-snow' is particularly interesting. This compound has two meanings: 1) 'water and snow' and, by extension, 'wetness, humidity'; 2) 'lies, untruth'. Under the first reading it is a syntactic compound, under the second 'lies, untruth' it is lexical. This difference is reflected in the syntax as follows. First, when the compound is pluralized, only the syntactic meaning remains (116). Second, only the syntactic compound can be verbalized (117) or adjectivized (118). Third, only a lexical compound can act as a modifier to another noun (119).

(116) Dvandva compounds pluralized: syntactic; *lexical
uu-lar – xaar-dar
water-pl – snow-pl
S: 'waters and snows'[54]
L: *'lies'

(117) Dvandva compounds verbalized: syntactic; *lexical
uu-laa – xaar-daa
water-verb – snow-verb
S: 'provide with water and snow; make wet'
L: *'tell lies'

(118) Dvandva compounds adjectivized: syntactic; *lexical
uu-laax – xaar-daax xallaan
water-adj – snow-adj weather
S: 'wet, rainy weather'
L: *'false, unreliable weather'
uu-laax – xaar-daax kihi
water-adj – snow-adj person
S: #'wet, rainy person'
L: *'false, unreliable person'

[54] While water and snow, being mass, can be counted, wetness and humidity, being abstract, cannot, hence the absence of the reading 'wetness, humidity' in the plural.

(119) Dvandva compounds as noun modifiers: lexical; *syntactic
uu-xaar xallaan
water-snow weather
L: 'false, unreliable weather'; S: *'wet, rainy weather'
uu-xaar kihi / water-snow person
L: 'false, unreliable person'; S: *'wet, rainy person'

A couple of other differences between lexical and syntactic compounds can be noted. First, compound members which are not independent words are only allowed inside lexical compounds (see the unglossed italicized nouns in (114)). Second, productivity: syntactic compounds with a predictable meaning which pattern like syntactic *uu-xaar* 'water and snow; wetness' and unlike lexical *uu-xaar* 'untruth' with respect to the above four contexts in (116) through (119) can be freely formed, especially in creative folklore, as noted in Korkina et al. (1982:113). Third, most compounds whose second member is a phonetic doublet of the first one are lexical. The reason for this lies in the fact that this second member does not follow the general pattern of reduplication in Sakha and therefore its shape cannot be predicted. Hence, both N_1 and the N_1-doublet compound will be listed in the lexicon: for instance, *tyal* 'wind' and *tyal-kuus* 'wind-*kuus*'. Since the number of such compounds is quite few as noted in Korkina et al. 1982:114-5 who cite only five, it should not be a problem to invoke listing. Finally, the present analysis which assumes two places of dvandva compound formation, lexicon and syntax, is the only one compatible with the fact that the two compound members must be equally underived or have the same derivational history. For example, coordinate compounds can be formed from syntactic deverbal nominalizations: *bar-yy – kel-ii* 'go-nom – come-nom', *sir-ii – tal-yy* 'reject-nom – choose-nom → rejecting-choosing (being fastidious)', *sir-der-ii – tal-lar-yy* 'reject-caus-nom – choose-caus-nom → letting/making reject-choose (allowing someone to be fastidious)', *ot-to-n-uu – mas-ta-n-yy* 'grass-verb-benef-nom – tree-verb-benef-nom → cutting grass and trees for one's own benefit', etc. If compounds were only formed in the lexicon, the possibility of such nominalizations would be left unexplained. On the other hand, if all derivation, including compounding, were syntactic, it would be difficult to explain why deverbal nouns like *byh-yy* 'cut-nom → shape' or *xamna-s* 'move-nom → salary' (which, according to the criterion of meaning change (see chapter 2), are derived from verbs in the lexicon) can only combine with underived or other lexically derived nouns and never with syntactic nominalizations.

To conclude this section on compounds, we have argued that compounds can be syntactic as well as lexical: root compounds are formed in the lexicon, possessive and dvandva compounds are derived either in the lexicon or syntax. The different status of lexical and syntactic possessive/dvandva compounds is reflected in their different syntactic behaviors. This lexicon/syntax dichotomy in compound formation is also encountered in other languages. For instance, in Dakota postverbal clitics (which are analyzed by Shaw 1985 as attached in the lexicon) attach to the first member of syntactic compounds but not to the first member of lexical compounds (cited in Fabb 1998:82).

3.3. Baker's (2003) criterion of identity

The analysis of lexical categories developed in this work was to a great extent inspired by Baker's (2003) work on this topic although the two models differ in crucial respects. For Baker only verbs are predicative categories, nouns and adjectives are not. Therefore while the difference between verbs, on the one hand, and nouns and adjectives, on the other, is drawn along thematic lines, the difference between nouns and adjectives is explained in terms of the criterion of identity possessed by nouns but not by adjectives. In chapter 4 we argue that adjectives should be treated as predicative which enables us to derive the existence of the three lexical categories along a single thematic dimension, thereby precluding the need for the criterion of identity. Thus, it is orthogonal to our present concerns, i.e. deriving categorial distinctions, whether the criterion of identity is inherent in nouns or not: as long as the two other categories, verbs and adjectives, are predicative and nouns are not, the fact that nouns are arguments should follow automatically. Therefore, in this section, instead of arguing against the criterion as originally formulated, we would like to consider the problems raised by the criterion in Baker's implementation.

The notion of the criterion of identity comes from Geach (1962) and Gupta (1980) who argue that nouns, just like verbs and adjectives, have criteria of application and, in addition, unlike verbs and adjectives, have a criterion of identity which enables nouns to "set standards by which one can judge whether two things are the same or not".[55] For Baker having a criterion of identity is a lexical semantic property of nouns, the syntactic reflex of which is a referential index – an ordered pair of integers. Consider the sentence in (120) from Baker (2003:105). Here we have two tokens of the noun *pot* and information as to whether we are dealing with one and the same pot or different ones can be read off the referential indices of *pot*-tokens. The first integer expresses the new discourse referent contributed by each use of a full noun and the second integer identifies this new discourse referent with something else in the structure. Since the second integer of the second occurrence of *pot* is identical to the first integer (i.e. the discourse referent) introduced by the first occurrence of *pot*, both pots turn out to be coreferential.

(120) I bought a $\text{pot}_{\{i, k\}}$ and a $\text{basket}_{\{l, m\}}$. The $\text{pot}_{\{n, i\}}$ is heavy.

An obvious problem which first crops to mind is that Baker's use of referential indices is non-Minimalist, as he himself admits, because it violates the inclusiveness

[55] The following quote from Baker (2003:101) gives a clear definition: "The idea that common nouns differ from other categories in having a criterion of identity comes from the logic literature, specifically Geach (1962) and Gupta (1980). According to these authors, common nouns are like intransitive verbs and adjectives in that they all have a "criterion of application". Thus, knowing what *dog* means helps us to know which things are dogs, just as knowing what *soft* means helps us to know which things are soft and knowing what *cry* means helps us to know which things are crying. This criterion of application is what formal semanticists often model by saying that all of these elements denote sets, and are of type <e, t>. However, Geach and Gupta claim that common nouns have something more. In addition to determining which things fall under a certain concept, they also set standards by which one can judge whether two things are the same or not. This is their criterion of identity".

condition. So on theoretical grounds alone the notion of a referential index should be avoided. There are more problems, both of a theoretical and empirical nature, with the use of referential indexes in the syntax that we would like point out here.

Baker assumes that the second integer must be identical to some dependent index in the structure where understood by the dependent index is the index of an element that does not have intrinsic lexical content of its own: a theta-role, a pronominal, a trace or a null operator. This requirement is formulated as the Noun Licensing Condition. Assuming that theta roles are anaphoric and bound by the referential indices of noun phrases in the same way as e.g. self-anaphors are bound by their antecedents cannot explain the link between theta role assignment and accusative case assignment nor the generally established fact that syntactic licensing of noun phrases is usually implemented as the assignment of a particular case to that noun phrase (see the next section and chapter 6). The NLC is also said to derive the fact that NPs cannot by themselves constitute a matrix clause: an independently used noun cannot be coindexed with anything in its c-command domain which should rule it out. However, this leaves the problem of vocatives unexplained.

Next, in order for the referential index to survive the rigors of syntax, it must have solid conceptual grounding which it does – being the syntactic reflex of the criterion of identity, an inherent lexical semantic property of nouns. However, at the same time Baker assumes that functional elements can introduce their own referential indices (cf. ibid. p. 268). For instance, determiners, complementizers and adpositions which are all functional can acquire a referential index with no motivation from the underlying criterion of identity[56]. In this case the link between having a criterion of identity and having a referential index disappears and referential indices turn into ad hoc entities. Another problem is the optionality of the referential index in the case of some ambiguous roots: e.g. those English adjectives which designate material, nationality and sex and which can be used either as Ns or As have a referential index optionally (p. 188). Optionality of the referential index can only be taken to reflect the optionality of the criterion of identity, in other words, the criterion of identity does not have to be inherent to nouns (at least in those few ambiguous cases).

The most troubling aspect of Baker's analysis is the assumption that the referential index is responsible for introducing the discourse referent for the NP. Thus, a noun by itself already can refer and does not need a DP-layer for that: a D is simply a functional category which possesses a referential index and therefore can take an NP-complement but a DP-layer is not required on top of NP, neither for purposes of discourse reference nor for those of argumenthood. This approach cannot explain why the reference of any noun can be cancelled by adding adjectives like 'former'. For instance, *balaqan* 'house' refers to a house and sets the standard of household. However, *urukku balaqan* 'former house (now possibly a ruin or a barn, cattle shed, etc.)' can no longer refer to a house and no longer sets the standard of household. Since in Baker's framework referential indices can be manipulated in a number of ways, in this case too one would have to postulate some mechanism for canceling the referential index of a noun embedded under some adjectives. However, no such ad hoc mechanisms are needed because a much simpler account is

[56] Baker does not show precisely how functional categories come to acquire a referential index.

available provided one relies not on referential indices for introducing discourse referents but rather on the DP-domain (see 3.4.2). As argued above in the section on possession, the adjective *urukku* 'former' can attach at different levels: either to an NP or to a possessive DP. The same situation arises in (121) where we take the demonstrative *bili* 'that' to realize the DP-layer: not only *bili* renders the noun phrase definite, it also fixes a referent for the whole DP. In (121a) the adjective has attached to the noun and therefore the N-modifying 'ruin'-reading is available. In (121b) the adjective has attached to the DP (taking surface order to reflect adjectival attachment and scope). The 'ruin'-reading is ruled out in the second example because the DP's reference has already been fixed as 'that house' and applying *urukku* 'former' would force drastic reanalysis as 'that ruin'. In (121a), on the contrary, *urukku* 'former' applies to N whose discourse reference has not yet been fixed. In contrast, *urukku* 'old style' is not restricted in this way and can modify both N or DP.[57]

(121) a. Bili urukku balaqan-y kör-dü-m.
that former house-acc see-past-1sg
i. 'I saw that old style house.'
ii. 'I saw that former house (ruin).'

b. Urukku bili balaqan-y kör-dü-m.
i. 'I saw that old style house.'
ii. *'I saw that former house (ruin).'

Finally, Baker predicts that nouns, whether incorporated or appearing independently, should have the same referential possibilities for these are supplied by the referential indices possessed by nominal heads of free DPs and by nominal incorporated roots alike. However, the prediction is not borne out. As widely testified in the literature, incorporated nouns are usually generic and nonspecific in reference (see e.g. Hopper and Thompson 1984, Gerdts 1998) whereas independent DPs are free in this respect – a fact that does not follow under the assumption that in both cases we have a two-integer referential index, the first integer introducing the discourse referent and the second integer linking this discourse referent with the syntactic structure.

3.4. Nouns as arguments

In this section we will argue that nouns, being already argumental, do not have to be turned into arguments and consider the relationship between NP, DP and KP. The common view seems to be that nouns are one-place predicates which must be turned into arguments with the help of DP (Higginbotham 1985; Longobardi 1994, 1996; Borer 2000-2004). This view stems from the fact that nouns must satisfy applicability criteria for concepts, just like intransitive verbs and adjectives (see 1.5.1 and 3.3). However, as argued in 1.5.1, nouns always apply to themselves and therefore do not participate in causal relations: i.e. the necessary and sufficient conditions associated with nouns are unavoidably reflexive and cannot be translated into θ-features which means that nouns have no thematic properties, no arguments.

[57] See also chapter 4, section 4.5.1.3.

Since nouns have no open positions in need of saturation, they can be used directly as NP-arguments, saturating open positions in a predicate's theta grid. However, under certain conditions the DP- and KP-layers must be projected. This is the current view which will be elaborated in 3.4.2. In the next section we will consider the deviations from the standard view of nouns as predicates proposed by a number of other authors.

3.4.1. Other proposals for nouns as arguments

That nouns are argumental and thus differ from adjectives and verbs which are predicative has been expressed by several authors: e.g. Kayne 1982, Reuland 1986, Chierchia 1998, Baker 2003 (modulo details of execution). Kayne 1982, based on the informal correlations 'predicate – verb', 'argument – noun', 'predicate ≠ noun', 'argument ≠ verb', advances two principles: 1) N must not govern a maximal projection of N, in other words, [+N] indicates impossibility to take an argument directly; 2) no projection of [+V] can be an argument.

Reuland 1986 takes a similar stand encoding the argument/predicate distinction in terms of the features A(rgument) and F(unctor) related to notions 'bearer of a θ-role' and 'assigner of a θ-role' (as briefly discussed in section 1.6). The traditional category N is replaced by two formally separate syntactic categories E (which stands for Entity Expression and refers to individuals directly) and N (roughly corresponding to Common nouns). Out of these two it is E specified as [+A, -F] which is a pure argument and can never take one itself. N specified as [+A, 0F] has the option of being licensed as a predicate, on the basis of its [0F] feature.

Chierchia's (1998a, b) proposal that not only DPs but also NPs can be arguments has two components. The first one is the Inherent Plurality Hypothesis (Chierchia 1998a) according to which mass nouns are inherently plural kinds which come out of the lexicon with plurality already built in and in this way differ from count nouns. Thus, a distinction is made between lexical plurality (e.g. *change*) and syntactic plurality (e.g. *coins*). The Inherent Plurality Hypothesis admits three types of nouns in the lexicon. First, a noun can lexically opt to denote a predicate: this is the usual case of singular count nouns like *coin* which will be mapped onto predicates and can become argumental only by projecting D. Second and third, nouns can opt to denote individuals (mapped onto arguments in the syntax), either singular or plural: with singular individuals one gets proper names whereas plural ones result in mass nouns. Whether a particular language allows both lexical options (i.e. nouns denoting predicates or arguments) or just one of them is governed by the Nominal Mapping Parameter (Chierchia 1998b). This semantic parameter is encoded in terms of the features ±arg (the ability to denote individuals) and ±pred (the ability to denote predicates) and allows four language types, three of which are realized as shown in (122).[58]

(122) a. N ⇒ [+arg, +pred]: Nouns can denote either individuals or predicates (English)

[58] The fourth language type, with the parameter set to [-arg, -pred], cannot be realized because nouns must be interpreted as either predicates or arguments and the [-arg, -pred] parameter setting prevents that.

b. N ⇒ [+arg, -pred]: Nouns denote individuals (Chinese)
c. N ⇒ [-arg, +pred]: Nouns denote predicates (French)

In languages of the French type, no noun (count or mass, singular or plural) will be able to occur by itself as a bare argument, for predicates are of the wrong logical type for that. In these languages argumenthood requires projecting a DP (the same applies to proper names which are also mapped onto predicates and can become argumental only with the help of the DP-layer). Languages like English which are positively specified for both values of the parameter map proper names and mass nouns onto arguments and count nouns onto predicates. Thus, English will have both DP-arguments (for predicative count nouns) and bare NP-arguments (for mass nouns and proper names). On the contrary, languages like Chinese will have bare NP-arguments throughout. If Chierchia's system is applied to our language of interest, Sakha can be argued to conform to the latter [+arg, -pred] type. First, Sakha is a language with no determiners. Second, nouns in Sakha as they come out of the lexicon can be labeled as mass because they display number ambiguity as exemplified in (123).

(123) Oqo kel-le.
Child come-past.3
'A/The child/Children came.'

Chierchia's system can be elaborated further for Sakha along the following lines. If Sakha is really like Chinese, then it should possess classifier morphology, for the following reason. In Chinese, in order for bare NP-arguments to provide restrictions for quantifiers, they must be turned into predicates which is achieved through one of the type-shifting operations made available by UG. Turning a kind expressed by a mass noun still results in a mass predicate to which a quantifier cannot apply for the same reason it cannot apply to a mass noun in English deriving ungrammatical **three furnitures*. A classifier is required in order to individuate a level suitable for counting, hence the obligatory presence of classifier morphology in languages like Chinese. Although Sakha has no classifiers, its plural morphology can be argued to fulfil this function as suggested for English by Borer (see footnote 43 above).

Chierchia's system will not be adopted in the present framework for a number of reasons, of which two can be mentioned[59]. First, it cannot provide a uniform analysis of all the data pertaining to NP/DP-argumenthood in Sakha. Sakha does have determiners but it just happens so that they are disguised as either covert pro's or overt pronouns[60]. The presence of determiners would make Sakha more like English, with the necessary entailment that count nouns will be realized as DP-arguments whereas mass nouns and proper names will continue being mapped onto bare NP-arguments. However, in this case the number ambiguity of (123) which involves a count noun will not follow from the analysis. On the contrary, the analysis to be provided in the next section connects the non-specification for number in (123) to the possibility of having NP-arguments under the general heading of

[59] See also Borer 2000, 2004 for a critical assessment of Chierchia's system.
[60] On the existence of the category D in Sakha, see Vinokurova 1998 (chapter 1).

structural deficiency. Moreover, it will be shown that one and the same noun can be realized both as an NP- and a DP-argument, with interpretive differences between the two types of arguments following naturally from the analysis of structural deficiency.

The second set of reasons comes from Baker 2003 whose arguments are not directed specifically at Chierchia's account and have a more general nature showing the inadequacy of the standard view that NPs are predicates and determiners turn them into arguments. First, the standard view predicts that in a language where the functional head Pred is overt, realized as a copular particle, it will appear between the determiner and its NP complement giving rise to the structure D-Pred-NP. Such a prediction is false as shown e.g. by the data from Edo. Second, if determiners selected predicates, they could also select adjectives and verbs resulting in structures like D-AP and D-VP functioning as arguments in the same manner as the conventional noun phrase arguments do which is clearly impossible. With respect to Chierchia's Nominal Mapping Parameter, Baker notes that "if Chierchia's approach were correct, we would expect to find a language in which mass nouns need to be introduced by Pred when used as predicates, but count nouns do not. But no such language has been attested in this literature, nor do I know of any plausible cases" (ibid. p. 117). Third, if nouns were inherently predicates, they would not need any supporting functional structure when appearing in their primary incarnation – as predicates. However, in languages like English and Romance and countless many others, nouns, unlike verbs, must be embedded under functional structure in the form of Pred when used as predicates. Extensive evidence to the same effect from Sakha will be provided in chapter 4.

As for Baker's approach to the primary argumental status of nouns, as shown in the previous section, it is derived from the fact that nouns possess referential indexes, the second integer of which binds a theta role in a predicate's theta grid. The analysis based on referential indexes was rejected above. Even if such analysis could be maintained, Baker must still explain why in some languages nouns require determiners in order to become arguments. Baker suggests that no significance should be read into this fact. This may be parameterized with the parameter running as follows: "In some languages, Ns cannot appear directly in argument position; they must be embedded in DPs" (Baker 2003:118, #40). Baker denies "that this shows anything deep about the semantic types of nouns in the languages in question (as for Chierchia), much less about the nature of nouns universally (as for Longobardi). (40) is a mere fact, no more remarkable than the fact that complementizers are required for clausal embedding in some languages (e.g. Romance) but not others (e.g. English), a fact that otherwise tells us little about the internal structure of clauses in the language" (ibid. p. 118). A parametric approach like this is less fine-grained and therefore much less digestible than Chierchia's: what it states is indeed a mere descriptive fact. Besides, it cannot capture how one and the same noun can be realized both as an NP- and a DP-argument, with systematic interpretive differences between the two. Instead of relying on parameters, we would like to argue that whether a nominal argument will be realized as NP or DP depends on a complex interplay between thematic case, structural case and the DP-domain.

3.4.2. The current proposal: NP-arguments versus DP-arguments

In Theta System an NP can become an argument if it is assigned a particular feature cluster (thematic role) associated with a given verb. It will be assumed that theta role assignment is possible if the NP is simultaneously assigned thematic case (accusative or nominative) by the verb. We adopt a componential analysis of case as having both structural and thematic ingredients along the lines in Reinhart, Reuland & Siloni (in progress; as summarized in Reinhart & Siloni 2003). Decomposition of case in Sakha will be discussed in detail in chapter 6, for now only brief remarks are offered. Verbs in Sakha have thematic nominative and thematic accusative components but no structural nominative or structural accusative. The thematic component is present in all languages since it is the implementation of the θ-criterion. Whether the structural component is also present or not depends on the Case parameter setting: in some languages verbs are associated with both thematic and structural case, in others – only with the thematic part. In this section we will concentrate on accusative case, for nominative see 4.2.4. If a verb has only thematic accusative and no structural accusative, then only thematic component needs to be checked off which can be done by any noun phrase and hence no problems arise. However, if the noun phrase which checks off thematic accusative, also has a syntactic feature such as [animate], [human], [definite], [specific] (depending on the language), then Reinhart, Reuland & Siloni assume, adopting Danon's (2002) proposal, that this feature, being syntactic, must be checked by a structural Case checker.

Precisely this kind of situation manifests itself in Sakha. When a noun phrase which checks thematic accusative on the verb carries the syntactic feature [specific], it cannot be a bare NP with no overt case marker and requires the presence of the accusative morpheme *–(n)I* which instantiates the structural case checker K(ase). Slightly reformulating Danon's proposal, we will say that a syntactic feature like [specific] is licensed in the DP-domain and therefore a specific nominal argument must necessarily project up to the DP-level. Being a DP, it cannot be assigned thematic case directly by the verb and requires a structural case checker KP. We would like to suggest that a DP cannot be assigned thematic accusative because thematic accusative can only be assigned to a lexical category – NP. Therefore, whenever the NP is to receive a specific interpretation, thus projecting to become a DP, the verb must transmit its thematic case to the KP projected on top of DP. This is the mechanism of NP- versus DP-argumenthood in a nutshell considered a bit more closely in the next subsection.

3.4.2.1. Structural deficiency in Sakha: The missing DP-layer

Consider the example below: in (124a) the direct object is not marked for accusative even though the verb is accusative-assigning. We would like to argue that the direct object of accusative-assigning verbs can be either an NP as in (124a) or KP-DP-NP as in (124b). The NP is assigned thematic case directly by the verb: direct thematic case assignment is only possible under adjacency explaining why the NP *saharxaj sibekki* must immediately precede the verb, any other order being ungrammatical. In (124b) the NP embedded under KP-DP receives its case from KP, a structural case

checker to which the verbal thematic case has been transmitted and no adjacency between the verb and its direct object is required.

(124) a. Min saharxaj sibekki ürgee-ti-m.
I yellow flower-∅ pick-past-1sg
'I picked a yellow flower/flowers.'
b. Min saharxaj sibekki-ni ürgee-ti-m.
I yellow flower-acc pick-past-1sg
'I picked the yellow flower.'

An obvious choice of analysis is the theory of structural deficiency (SD) advocated by Cardinaletti & Starke 1993/94 for personal pronouns and adverbs, with the possibility of being extended to other types of phrases as well. This is precisely the analysis adopted in Vinokurova 1998 for accusative case drop in Sakha and the one we will follow here though with one modification: it will be assumed that the accusative case morpheme spells out not the D-node but the K-node[61]. SD predicts that the absence of structure drastically limits the syntactic and semantic possibilities of the noun phrase which is confirmed by the existence of various asymmetries between marked and unmarked objects. However, the only asymmetry relevant for present purposes is the lack of referentiality and specificity in deficient NP-arguments and their presence in non-deficient DP-arguments (for a complete overview of all the asymmetries and how they follow from SD, see Vinokurova 1998). The accusative object in (124b) is specific[62] and therefore referential: it refers to a specific yellow flower[63]. On the contrary, the zero-marked object in (124a) is non-specific and non-referential: the speaker is not referring to any particular flower or flowers and the sentence can be translated as 'I did yellow flower-picking'. The non-referentiality of the object is highlighted by the neutrality of the noun phrase with respect to number: *sibekki* can refer either to a single flower or to several flowers.

The weak pronouns discussed by C&S are also non-referential which follows from the lack of the CP-layer (C&S's CP corresponds to DP here). C&S assume that located in C is the referential index whose function is to associate a linguistic element with a non-linguistic entity. Instead of positing a referential index

[61] The reason that the accusative *–(n)I* was confused for D in Vinokurova 1998 has to do with the fact that accusative-marked objects are necessarily interpreted as specific and specificity was taken to be a property of the DP-domain. The same fact follows under the present analysis as well: specific DPs, being functional categories, cannot receive thematic case from the verb and require KP. Thus, the present analysis is more transparent for it has the benefit of keeping apart the two distinct phenomena of Case and specificity. Note also that Cardinaletti & Starke identify *a* present in the strong, non-deficient pronoun *a loro* 'to them' and missing in the weak deficient *loro* as the realization of D (corresponding to C in their terminology).

[62] Even though the accusative object in (124) is translated as definite 'the flower', it is not definiteness but specificity that is at play. This becomes evident when the numeral *biir* 'one' (which also has the non-cardinal reading 'certain') is added to the accusative noun phrase: the latter is rendered indefinite while retaining its specificity ('I picked a certain, specific yellow flower').

[63] Cf. Enç 1991 and Yükseker 1991 who take the Turkish accusative morpheme to be, respectively, a specificity marker and a referentiality marker. Specificity here is understood as being linked to a previously established discourse referent (Enç 1991).

in D, we would like to assume that specificity is licensed in the DP-domain. Since specificity is understood here as being linked to a previously established discourse referent (Enç 1991), it necessarily entails referentiality. Therefore an NP argument cannot be specific and referential for it lacks the required functional structure but this is balanced by its ability to receive thematic case directly from the verb, due to the non-functional status of the noun projection.

As for the number neutrality of (124a) we will follow Kaan & Vinokurova 2003 who argue, following Zribi-Hertz & Mbolatianavalona's (1999) analysis of Malagasy DPs semantically unspecified for number, that 'singular' bare NPs in Sakha are not singular but structurally deficient in lacking the Number projection. Experimental evidence reported in Vinokurova and Kaan 2003 also supports this analysis: when processing ambiguous possessive DPs like *kiniler at-tar-a* / they horse-pl-3 'their horse/their horses' (see 3.1.1.1), the parser has a clear preference for the singular interpretation of the possessee which can be accounted for by the general syntactic parsing principle to choose the most economical structural analysis.

To conclude, a bare NP which is assigned thematic accusative is doubly deficient: it lacks both DP and NumP functional layers. As a result, it has no fixed number and no fixed discourse reference.

3.4.2.2. Discourse reference and the DP-domain

The above discussion suggests that it is simply a matter of coincidence that θ-roles can be assigned either to NPs which lack a discourse referent or to DPs which have one. A verb can assign a θ-role to a noun phrase if it also assigns thematic accusative. Since thematic accusative can only be assigned to NP, specific noun phrases which must be DPs wil be unable to receive thematic case directly. However, in order to function as arguments, they must be assigned thematic case. The only way out is for the verb to transmit its thematic case to KP which will now assign complex structural+thematic accusative to a DP linked to a discourse referent. Thus, all that is required for argumenthood is the double assignment of a θ-role/θ-case and the phrasal status of the nominal argument is of no importance. This condition for argumenthood seems to be too strict: locatives, for instance, are not assigned thematic case but nevertheless have the status of arguments. The same applies to benefactives, possessors and other arguments introduced by functional heads. If θ-role assignment were contingent on θ-case assignment, then all these phrases will never be able to become arguments. Since this is clearly untrue, there must be a second condition enabling argumenthood which we will take to be discourse reference licensed in the DP-domain. Some arguments come from processing studies.

Frazier 1999 argues that language processing mechanism is modular and that interpretation of DPs proceeds in two steps: in the referential and thematic modules. Once a DP is syntactically completed (assigned a structural analysis), the first cycle of interpretation takes place and a discourse referent is established for that DP within the reference module. During the second cycle of interpretation the DP is assigned a thematic role in the thematic component. Suppose that the parser is

dealing with a bare NP and no discourse referent can be assigned to that NP. In that case the NP will only be able to receive a thematic role if it is also assigned a thematic case. If, on the contrary, it is a discourse referent (i.e. KP-DP-NP) which enters the thematic module, it will have no difficulties receiving a θ-role. Kaan & Vinokurova 2003 also present some evidence for the modular approach to DP-interpretation in parsing from the resolution of DP-internal ambiguities in Sakha. If the parser is faced with a DP open to several structural analyses, a choice between these will be made based on a number of factors, among which e.g. structural simplicity. When later disambiguating information is presented which contradicts the initial analysis, the internal structure of the DP will have to be revised. According to the Semantic Cost Principle postulated by Frazier & Clifton 1998, semantically interpreted syntactic decisions are hard to revise where semantic interpretation is understood as thematic role assignment. Kaan & Vinokurova extend this principle by incorporating under the notion of semantic interpretation both theta role assignment and the establishment of a referent. They show that in Sakha, a head-final language, the establishment of a referent takes place prior to theta role assignment: a discourse referent must be established for a DP as soon as possible, i.e. at the first word which does not belong to the DP. They arrive at the conclusion that DP is an independent processing domain in its own right responsible for discourse reference.

It seems that the link between theta role assignment and discourse reference is not just accidental. We would like to suggest that a noun phrase can be assigned a theta role by a verb if either 1) it is also assigned a theta case by the verb or 2) it refers to a discourse individual. The two conditions are mutually exclusive: an argument assigned theta case by the verb cannot refer to a discourse individual and an argument which refers to a discourse individual cannot be assigned theta case by the verb. In the latter case, DP must still be syntactically licensed, i.e. appropriately linked with other constituents in the syntactic configuration which is achieved through the mediation of KaseP. Thus, the DP-layer is responsible for discourse referentiality whereas KP is responsible for syntactic licensing of the DP. Neither KP, nor DP by themselves have the ability to turn a noun phrase into an argument since adjuncts can be KPs as well as DPs (when not assigned a feature cluster by a verb).

3.5. Concluding remarks

In this section instead of providing a traditional summary we will consider loanwords borrowed into Sakha from Russian which provide, in a curious way, support for the current theory.

It is an interesting fact about loanwords that all of them were initially analyzed as nouns in Sakha, independent of whether they were nouns or verbs in the source language. For example, the Russian form *meshaj* is the imperative of the verb *meshat'* 'to bother': as a result of phonetic adaptation it became *mehej* which is a noun in Sakha meaning 'annoyance, nuisance, bother'. The corresponding verb 'to annoy, bother' is formed with the help of the verbalizing suffix –LAA resulting in *mehejdee*. Given in (125) is a sample list of Russian verbs which were borrowed into Sakha: first converted into nouns, then verbalized with –LAA. That a Russian

verb cannot directly be borrowed as a verb into Sakha and must be first analyzed as a noun is also confirmed by the fact that in some cases a Russian verb was made into a non-existing noun which was later verbalized: **buutaj*, **talkaj*, **saraappaj*, **taskaj*.

(125) Loanwords in Sakha[64]

Russian V	**V-Gloss**	**Sakha N**	**N-Gloss**	**N+LAA**	**V-Gloss**
Meshaj	Bother.imper	Mehej	Bother	Mehejdee	Bother
Tolkuj	Interpret.imp	Tolkuj	Thought	Tolkujdaa	Think
Dumaj	Think.imper	Duumaj	Consideration	Duumajdaa	Think, consider
Port'	Spoil.imper	Buortu	Damage	Buortulaa	Spoil, damage
Putaj	Confuse.imp	*Buutaj		Buutajdaa	Confuse
Najmi	Hire.imp	Najmy	Hiring	Najmylaa	Hire
Maraj	Soil/stain.imp	Maraj	Soiling	Marajdaa	Soil, stain
Tolkaj	Push.imp	*Talkaj		Talkajdaa	Push
Tsarapaj	Scratch.imp	*Saraappaj		Saraappajdaa	Scratch
Taskaj	Carry.imp	*Taskaj		Taskajdaa	Carry
Risuj	Paint.imp	Uruhuj	Painting	Uruhujdaa	Paint

The reason why loanwords always end up as nouns in Sakha is because they are treated as non-native concepts and therefore one cannot make any causal generalizations about them, establish the causal relations in which they participate. In other words, it is impossible to determine the necessary and sufficient conditions associated with them. For that reason they cannot be paired with any θ-feature clusters and cannot turn out as verbs or adjectives. The only remaining option is to be encoded as nouns. Since nouns are also not paired with any θ-feature clusters, they can be viewed as the default option which can also be chosen for non-native concepts.

The issue of non-native concepts brings forth the issue of innateness. Here our theory of categorization as determined by human perception of causality connects nicely to Fodor's (1998) atomistic theory of concepts which was outlined in 1.5.1. For Fodor it is not the case that there are innate concepts. Rather, there are concepts which can be learned by getting one's mind locked directly to the corresponding property in the world. For instance, acquiring the concept DOORKNOB consists in getting one's mind locked to the corresponding property of doorknobhood which is constituted by how things that have this property strike us after our experiences with them (ibid. 141ff.). It seems intuitively clear that there is no way we can lock onto properties corresponding to borrowed concepts. Since our mind does not experience the properties expressed by these concepts directly, we are

[64] Some of the verbs given in the table are fully naturalized and may occur in literary language. However, other verbs such as *duumajdaa* 'think', *buutajdaa* 'confuse', *talkajdaa* 'push', *saraappajdaa* 'scratch', *taskajdaa* 'carry' are limited to colloquial language and are considered to be stylistically poor.

not in a position to draw inferences about causal relations into which these concepts enter in the world (no mind-world connection arises in the case of borrowings).

4. ADJECTIVES IN SAKHA

In the preceding chapter we argued that nouns do not take arguments. Starting from chapter 5 we will be motivating our claim made in the introduction that verbs take (at least) two arguments and that no verb can be underlyingly intransitive. As an intermediary step, in this chapter we will empirically motivate the assumption that adjectives are one-place predicates. With this end, we will contrast the behaviour of adjectives with nouns and verbs in a number of syntactic contexts. Since the verbal category is treated extensively in subsequent chapters, here we shall concentrate on nouns and adjectives bringing in comparisons with verbs only where necessary.

The present proposal predicts a three-way asymmetry in predicative contexts. Such an asymmetry is indeed observed and receives natural explanation in terms of underlying thematic properties. This is the topic of section 4.1. Apart from predication, we will also consider tense, embedded clauses, relative clauses, attributive modification, adverbial modification and the use of adjectives as arguments.

4.1. Predication

On the one hand, the present proposal draws a dividing line and therefore predicts the existence of syntactic asymmetries between non-predicative nouns and predicative adjectives and verbs. For the latter two categories predication comes for free: there is already an argument in their thematic grid that they can be predicated of. In contrast, for nouns such an argument must be introduced syntactically. Therefore in the case of nouns we should be able to detect some functional structure (predicator) absent from verbs and adjectives. On the other hand, a further dividing line between adjectives and verbs is made based on the number of arguments and the ensuing argument-merging and –licensing requirements. In particular, (anticipating the discussion in chapter 5ff.) only verbs come with additional case-related requirements and the projection order of their arguments must be respected. Adjectives, having only one argument, escape marking procedures: their sole argument is assigned neither a merging index nor thematic case and is free to merge either externally (under predication) or internally (under attribution). It must, however, be formally licensed, i.e. assigned case. Since the adjective itself cannot do that, its argument will be assigned nominative in Spec,IP. Thus, adjectives are expected to display uniform behaviour as one-place predicates and to contrast with verbs, including derived intransitives: precisely how this contrast between verbal and adjectival predicates manifests itself will appear from discussion in this and subsequent chapters.

The view defended here contrasts with theories of predication advanced e.g. in Déchaine 1993, Bowers 2002 and Baker 2003. For Déchaine 1993 and Bowers 2002 predication is category-neutral and therefore potential categorial asymmetries would be problematic for them. Baker 2003 draws a distinction between verbs which can assign a theta role to their specifier directly, without the support of a functional head and nouns/adjectives which cannot themselves license a specifier and must be

embedded under PredP. Thus, Baker can derive differences between verbal and non-verbal predicates but nominal and adjectival predicates are predicted to pattern alike under his assumptions. The data in this section refute not only categorial neutrality of predication but also Baker's assumption that nouns and adjectives have an equal status as non-predicates. Rather, adjectives pattern with verbs in not requiring the support of a functional head to license their external argument. The final picture will empirically support the current assumption of a three-way split.

Below we shall consider conjunction (4.1.1), agreement (4.1.2) and negation (4.1.3). We will also discuss the nature of the copular verb *buol* 'be' which can optionally appear with both adjectival and nominal predicates in the present tense. Despite its optionality, it still triggers an interpretive asymmetry: with adjectives and verbs alike but not with nouns it induces generic interpretation. This asymmetry will be explained by taking generic reading to be the result of binding an event variable by a generic operator introduced by *buol* 'be' (4.1.5). Adjectives, just like verbs, are predicative categories and can supply an event/state variable. Nouns are not predicates and therefore cannot be associated with an event variable, whence the impossibility of generic reading. Based on the findings in this section, in 4.1.4 and 4.1.6 we will give derivations (in the present tense) for adjectival and nominal predicates with and without the copular verb *buol* 'be'.

4.1.1. Conjunction

The examples below show that mixed conjunctions are ruled out[1].

(1)	a.	Ookko tust-ar da saaxymattyy-r da. Ookko wrestle-aor and play.chess-aor and 'Ookko wrestles and plays chess.'	V-V
	b.	Ookko küüsteex da symsa da. Ookko strong and quick and	A-A
	c.	Ookko bulcut da sirdjit da. Ookko hunter and guide and	N-N
(2)	a.	*Ookko öjdööx da saaxymattyy-r da. Ookko clever and play.chess-aor and	*A-V (also *V-A)
	b.	*Ookko sportsmen da saaxymattyy-r da. Ookko sportsman and play.chess-aor and	*N-V (also *V-N)
	c.	*Ookko öjdööx da sportsmen da Ookko clever and sportsman and	*A-N (also *N-A)

On the other hand, predicates based on the same type of lexical category can combine with each other even if they differ in their internal complexity. In (3) the verbal predicate is based on reflexive, passive, unmarked basic voice and causative verbs. In (4) the adjectival predicate is a combination of basic, denominal, deverbal

[1] We are using the duplex conjunction *... da ... da* 'and' instead of *uonna* 'and' because the latter has a number of additional meanings which interfere with judgements, e.g. 'in spite of'. Historically, *uonna* is complex, derived from *ol kenne* 'after that'.

and compound adjectives. In (5) a non-possessive NP predicate is coordinated with a possessive one.

(3) Michil suu-n-na, möq-ülün-ne, tahyrdja bar-da uonna oqo-nu yta-t-ta.
Michil wash-refl-past.3, scold-pass-past.3, outside go-past.3 and child-acc cry-caus-past.3
'Michil washed himself, was scolded, went outside and made a child cry.'

(4) Bu kihi eder, djon-umsax, ahyn-ygas uonna ös kiir-bex
this person young, people-adj, feel.sorry-adj and word enter-adj
'This person is young, sociable, compassionate and gullible.'

(5) Bu kihi saaxymatcyt da ikkis oskuola direktor-a da.
This person chess.player and second school director-3 and
'This person is a chess player and the director of school №2.'

Baker can capture the above facts except for (2c). In his framework only verbs assign a theta role to their specifier and are therefore not embedded under the functional head Pred. On the contrary, nouns and adjectives need the support of Pred in order to license a specifier in predicative constructions. Therefore Baker predicts a two-way asymmetry between VPs and PredPs which he illustrates with the following examples[2]. We shall not discuss the grammaticality of English (6a) here but note that it is quite possible in English that predicate adjectives and predicate nominals introduced by the indefinite article *a* involve similar structures and are therefore conjoinable, cf. a large number of adjectives beginning with the prefix *a-*: *abed, aboard, aware, asleep,* etc.[3]

(6) a. I consider John crazy and a fool.
I consider John$_i$ [$_{PredP}$ t$_i$ ∅$_{Pred}$ [$_{AP}$ crazy]] and [$_{PredP}$ t$_i$ ∅$_{Pred}$ [$_{NP}$ a fool]]
b. *Eating poisoned food made Chris sick and die.
c. *A hard blow to the head made Chris fall and an invalid.
(Baker 2003:38)

[2] Baker's Pred should not be confused with Bowers' (2002) Pred which is the result of splitting little v into higher Pr(ed) and lower Tr(ans). Whereas Baker's Pred introduces a theme, Bowers' introduces an agent but the main difference between the two is in their distirbution: Baker restricts his Pred to adjectives and nouns whereas Bower's Pred which appears with verbs is identical to the one found with predicate nouns and adjectives. Baker argues against Bowers' analysis which assumes that clauses involving verbal, adjectival and nominal predicates have the same structure implicating a PredP and therefore cannot derive asymmetries concerning e.g. conjunction and adverb placement.

[3] For Baker, Pred selecting a noun and Pred selecting an adjective do have different properties: although both Pred's equally assign a theta role to their subject, the nominal Pred contains a second theta role in its theta grid to license its noun complement → such licensing is forced by the fact that the noun still retains its referential index which must be licensed by being coindexed with a theta role in Pred's theta grid. However, this slight difference in the two types of Pred does not affect their conjoinability. For instance, in the (6a) example the two Pred's are also different but still conjoinable: Pred above *a fool* has two theta roles to assign, Pred above *crazy* has only one theta role.

Conjunction facts point out that we are dealing with three different levels of predicates which therefore cannot be coordinated just like e.g. N cannot be coordinated with NP or NP cannot be coordinated with DP. However, these predicates may be internally complex, cf. the examples in (3-5).

4.1.2. Agreement

There are two sets of agreement markers in Sakha which can be used both in the nominal (nouns and adjectives) and verbal paradigms. What interests us is the nominal paradigm: set I markers (labelled as PRED) indicate finite predication, set II markers (labelled as POSS) – possession (as well as non-finite predication).

(7) a. Min ubaj-byn.
I brother-1sg$_{PRED}$
'I am a brother.'

b. min ubaj-ym
I brother-1sg$_{POSS}$
'my brother'

(8) Table 1: Two types of agreement markers in Sakha

	Set I (PRED) • verbal paradigm • nominal paradigm: finite predication	Set II (POSS) • verbal paradigm • nominal paradigm: possession and embedded (non-finite) predication
1sg	-BYN	-(I)m[4]
2sg	-GYN	-(I)ŋ
3 (=3sg)	-Ø	-(t)A
1pl	-BYT	-BYT
2pl	-GYT	-GYT
PL-3 (=3pl)	-LAR-Ø	-LAR-A

4.1.2.1. Agreement in finite predication

Given below is a finite agreement paradigm for nouns and adjectives. The differences between nominal and adjectival predicates show up in the first and second person plural where only nominal predicates must attach an extra plural marker –LAr (in the singular the difference cannot be seen because singular number is not marked).

(9) Table 2: Finite agreement paradigm in Sakha: Nouns and adjectives

	Set I (PRED-markers)	**Gloss**	**Meaning**
N	Min balyksyp-pyn	I fisherman-1sg	I am a fisherman
A	Min bytaam-myn	I slow-1sg	I am slow
N	En balyksyk-kyn	You fisherman-2sg	You are a fisherman

[4] Given in parentheses are buffer vowels and consonants.

A	En bytaaŋ-ŋyn	You slow-2sg	You are slow
N	Kini balyksyt	He fisherman	He is a fisherman
A	Kini bytaan	He slow	He is slow
N	**Bihigi balyksyt-tar-byt**	**We fisherman-pl-1pl**	We are fishermen
A	**Bihigi bytaam-myt** *Bihigi bytaan-nar-byt	**We slow-1pl** *We slow-pl-1pl	We are slow
N	**Ehigi balyksyt-tar-gyt**	**You fisherman-pl-2pl**	You are fishermen
A	**Ehigi bytaaŋ-ŋyt** *Ehigi bytaan-nar-gyt	**You slow-2pl** *You slow-pl-2pl	You are slow
N	Kiniler balyksyt-tar	They fisherman-pl	They are fishermen
A	Kiniler bytaan-nar	They slow-pl	They are slow

Note that the additional plural marker is not really necessary because the agreement morphemes carry sufficient information – first plural and second plural. If the plural marker is dropped as in (10), we get a possessive noun phrase (which is free to become either an argument or a predicate). Therefore one can be tempted to say that the need for –LAr arises in order to avoid ambiguity and not because nominal and adjectival predicates are inherently different from each other. That this is not so, can be seen from (11) where the verb *buol* 'be; become' is added. The verb has two meanings: the (11a)-sentence without –LAr has a 'become' reading only. To simplify the exposition, below we shall abstract away from this presently irrelevant reading. The (12b) example shows that the extra plural marker appears also in third person plural. Its absence in Table 2 is due to a morphophonological well-formedness condition which bans a sequence of two –LAr's: **kiniler bytaan-nar-dar / they slow-pl-pl* 'they are slow'.

(10) Bihigi balyksyp-pyt we fisherman-1pl 'our fisherman'
Ehigi balyksyk-kyt you fisherman-2pl 'your fisherman'

(11) a. Bihigi balyksyt buolabyt.
We fisherman be(come)-aor-1pl
*'We are fishermen.'
'We will become fishermen (now we are learning the profession).'
b. Bihigi balyksyt-tar buol-a-byt.
We fisherman be-aor-1pl
'We are fishermen.'

(12) a. Ehigi balyksyt-tar/*balyksyt buol-a-qyt.
You fisherman-pl/*fisherman be-aor-2pl
'You are fishermen.'
b. Kiniler balyksyt-tar/*balyksyt buol-al-lar.
They fisherman-pl/*fisherman be-aor-pl

Adjectives can also appear with *buol*. Again, there is no extra plural marker.

(13) a. Bihigi bytaan/*bytaan-nar buol-a-byt.
We slow/*slow-pl be-aor-1pl

b. Kiniler bytaan/*bytaan-nar buol-al-lar.
They slow/*slow-pl be-aor-pl

The data show that nominal predication involves an extra layer of structure represented by –LAr which is absent from adjectival predication. Another thing to keep in mind is that the copular verb is optional with both adjectives and nouns but there are differences in interpretation which will be considered shortly below. The variant without *buol* 'be' is the default, unmarked version with both adjectives and nouns (see section 4.1.4).

4.1.2.2. Agreement in non-finite predication

Next, consider non-finite predicative agreement. In (14) and (15), (a) represents the finite version of predication, (b) shows the same predication structure embedded as a subject complement clause. The pair in (14) built on an adjective shows that an adjective is invariably interpreted as a predicate in both finite and embedded structures. The pair in (15) shows that a noun is interpreted as predicative with a purely predicative morpheme but as a possessee licensing a possessor if the morpheme is ambiguous between predicative and possessive.

(14) a. En öjdööx-xün.
You clever-2sg$_{PRED}$
'You are clever.'
b. En öjdööq-ün bihiexe biller.
You clever-2sg$_{POSS}$ we.dat is.known
'That you are clever is known to us.'

(15) a. En saaxymatcyk-kyn.
You chess.player-2sg$_{PRED}$
'You are a chess player.'
b. En saaxymatcyt-yn bihiexe biller.
You chess.player-2sg$_{POSS}$ we.dat is.known
'Your chess player is known to us (if you are a trainer).'
??'That you are a chess player is known to us.'

In order to get a predicative reading of the noun, a verbal copula is required as in (16).

(16) En saaxymatcyt buol-ar-yn bihiexe biller.
You chess.player be-aor-2sg$_{POSS}$ we.dat is.known
'That you are a chess player is known to us.'[5]

[5] A note of caution is in order with respect to (15b) and (16a). Some speakers seem to accept (15b) with the starred interpretation but a closer investigation reveals the following difference in interpretation. Since the categorial boundary between adjectives and nouns in Sakha is quite unstable, *saaxymatcyt* can be interpreted as 'a chess player (a professional or amateur with sufficient qualifications)' or 'having the property of playing chess/knowing how to play chess'. The latter interpretation is adjectival and can be used to describe professional/amateur chess players with sufficient qualifications or people who simply

The data in this section clearly demonstrate that only adjectives can license a subject in a non-finite predicative construction without the support of the copular verb *buol* 'be' (with adjectives, the copula is optional in embedded clauses; see section 4.1.4). Nominal predication, on the contrary, requires the copula.

4.1.3. Negation

Negation data reveal very interesting asymmetries. Verbs are negated with the help of the negative suffix –MA. This suffix occurs quite high in the structure as shown by the ordering in (17b) where it is further away from the verbal stem than the reflexive and passive voice suffixes.

(17) a. Ajaal bar-ba-ta.
Ajaal go-neg-past.3
'Ajaal did not go.'
b. Suu-n-ullu-**ba**-ta.
wash-refl-pass-**neg**-past.3
'There was no self-washing done (It was not self-washed).'

Adjectives have two options of negation. One is with *suox* which is the negative counterpart of the existential copula *baar*, cf. (19). *Suox* can also be used as a negative answer to questions and is thus similar to English 'no'. The second option is to use the negative copula verb *buolbatax* (be(come)-negative-subjunctive). Since *buol* is ambiguous between 'be' and 'become', *buolbatax* is also ambiguous between the identity-denying reading 'is not' and the past reading 'did not become' as in (20). In (18b) we are abstracting away from the irrelevant reading 'Ookko did not become ready/wise'. The negative element in *buolbatax* is the regular verbal negative suffix –MA (-ba- being its allomorph): *buol* is a verb and therefore –MA is its only negation option. The first and second options differ in interpretation. (18b) is categorical, complete denial; (18a) can be understood likewise categorically but also less so: Ookko may be ready/wise to some degree but not sufficiently.

(18) a. Ookko belem-e / myndyr-a suox.
Ookko ready-3 / wise-3 no
'Ookko is not ready (yet) / wise (enough).'
b. Ookko belem / myndyr buol-ba-tax.
Ookko ready / wise be-neg-subj
'Ookko is not (at all) ready / wise.'

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know the rules of the game but are not qualified enough (who only sometimes play chess with their neighbours or children and who cannot participate even in amateur competitions). Speakers who accept (15b) with the starred interpretation can use it with respect to Kasparov (and qualified players in general) or their unqualified neighbour. The same group of speakers can only use (16) with respect to qualified players but not with respect to their unqualified neighbour (unless intended ironically).

(19) Xos-ko oloppos baar. Xos-ko oloppos suox.
Room-dat chair BAAR room-dat chair SUOX
'There is a chair in the room.' 'There is no chair in the room.'

(20) Lookut cempion buol-but. Lookut cempion buol-ba-tax.
Lookut champion become-past Lookut champion become-neg-subj
'Lookut became a champion.' 'Lookut did not become a champion.'

As (18a) shows, when *suox* is used, the adjective attaches a person marker –A[6]. This marker appears invariantly across all person/number combinations. It is the default person marker which, in a number of contexts, shows compatibility with all persons. Since first and second persons have their own highly specified morphemes chosen in the majority of contexts while third person does not, -A is by default used with third person and therefore for convenience we shall label it as '3' throughout.

(21) min xaram-a suox-pun I thrifty-3 no-1sg
en xaram-a suox-xun you thrifty-3 no-2sg
kini xaram-a suox he thrifty-3 no
bihigi xaram-a suox-put we thrifty-3 no-1pl
ehigi xaram-a suox-xut you thrifty-3 no-2pl
kiniler xaram-a suox-tar they thrifty-3 no-pl
('I am not thrifty; you are not thrifty; he is not thrifty; etc.')

Curious declension is displayed by adjectives derived from nouns with the suffix –LAA-x. This suffix is complex and contains the productive verbalizer –LAA plus the productive adjectivizer –x (also a productive nominalizer). (22a) shows how the adjectives 'happy' and 'strong' are derived from the nouns 'happiness' and 'strength'. (22b) shows that if the adjectival suffix –x is not added, the nouns will end up being verbs.

[6] -A is supposed to be a third person marker but in a significant number of contexts it is compatible with other persons. This led me to assume in Vinokurova 1998, following Sigurðsson 1996, that third person is no person, 'impersonal', i.e., that the third person specification on a noun phrase is the absence of any specification for person features. Such view does not seem to be correct. It is more plausible to assume that –A is the default, less specified person, as will be done throughout this work. Note also that in approaches which do not view person features [1], [2] and [3] as atomic (e.g. Reuland 1996, Halle 1997), third person comes out with negative specification for the constituent features as shown in the table below. Since it is neither participant/author nor speaker/addressee, it is easy to reinterpret third person as lacking specification altogether in which case its range of application would increase dramatically.

	Reuland 1996		Halle 1997	
	[±speaker]	[±addressee]	[±participant-in-speech-event]	[±author-of-speech-event]
1	+	-	+	+
2	-	+	+	-
3	-	-	-	-

(22) a. Sardaana djol-loo-x / küüs-tee-x
Sardaana happiness-verb-adj / strength-verb-adj
'Sardaana is happy / strong.'
b. Sardaana ijetin djol-loo-to / küüs-tee-te.
Sardaana happiness-verb-past.3 / strength-verb-past.3
'Sardaana made her mother happy / strong.'

–LAA-x adjectives also have two options of negation. While *buolbatax* attaches to the whole N-LAA-x adjective, *-3 suox* attaches to the N-part only. Therefore (23b) has a transparently nominal reading 'we have no strength'.

(23) a. Bihigi küüs-tee-x buol-ba-tax-pyt.
We strength-verb-adj be-neg-subj-1pl
'We are not strong.'
b. Bihigi küüh-e suox-put / *küüs-tee-q-e suox-put.
We strength-3 no-1pl / *strength-verb-adj-3 no-1pl
'We are not strong; we have no strength.'

We know that *buolbatax* is a regular verb plus the verbal negative suffix –MA which occurs high in the structure. What we do not know is the status of *suox*. The examples in (23) make clear that *suox* is structurally lower than *buolbatax* 'be-negative-subjunctive'. The different status of the two types of negation is further underlined by the contrast in (24) which shows adjectival reduplication under negation. At this point let's quickly digress from the topic to consider reduplication. As briefly described in chapter 2 (section 2.1.1.1), two types of reduplication are available with adjectives – either of the initial syllable or of the whole word – both of which have the same degree intensifying effect. In 2.1.1.1 we considered the second type (see examples (10) and (11) in chapter 2). (24a) and (24b) show the first type – of the initial syllable. Nouns and verbs in Sakha can also undergo reduplication but only the second type – full reduplication of the whole stem mediated with the particle *da*: e.g. *kinige da kinige* 'what a book (book particle book)', *küler da küler* 'laughs a lot (laugh-aor particle laugh-aor)' versus adjectival *yraax da yraax* 'very far (far particle far)'. Reduplication of the initial syllable is impossible with nouns and verbs but possible with adjectives: cf. **kip-kinige*, **küp-küler* versus *yp-yraax* 'very far'. We will follow Mchombo 1998 in taking reduplication as a test of lexical integrity: it targets elements which are heads and therefore form integral units. The fact that initial syllable reduplication can violate the surface integrity of an adjectival stem reveals that an adjective like *söp* 'right, correct' is not a head (X^0-level category) and is internally complex combining Deg and A: it is the Deg head which can be targeted by reduplication resulting in *sörü-söp, söbüs-söp*. At the same time, the whole Deg-A structure can also act as a domain for reduplication as in *söp da söp*.

Going back to the main topic, a reduplicated adjective is incompatible with *suox* negation (24a) but possible with *buolbatax* (24b) implying that Neg *suox* competes with Deg realized by the reduplicator and occurs as low as Deg. Finally, (25) shows that the two negations can cooccur. All these facts put together suggest

the following picture: there is an AP-specific Neg-Deg functional head which can be realized either by the negative particle *suox* or by the intensifying reduplicator.

(24) a. *As dep-delej-e suox.
Food red-abundant-3 no
b. As dep-delej buol-ba-tax.
Food red-abundant be-neg-subj
'Food is not very abundant.'

(25) As delej-e suox buol-ba-tax.
Food abundant-3 no be-neg-subj
'It is not the case that food is not abundant.'

In section 4.1.1.1 we showed that nominal predication involves an extra layer of structure absent from adjectival predication represented by the number agreement marker –LAr. In this section we saw that adjectival predication also has some hidden structure represented by the person marker –A which shows up when the adjectival predicate is embedded under the negation *suox*. As mentioned in footnote 5, -A marks the default, least specified person feature compatible with all other persons (cf. (21)), although we will continue glossing it as "3".

The difference between –LAr and –A is the following: -LAr is a number agreement marker appearing only when the subject is plural, -A is the default person marker appearing invariably in all persons and numbers. These facts would follow under the assumption that adjectives are one-place predicates and –A refers to the argument of the adjective. Because adjectives are inherently predicative, they can license their subject themselves without the support of functional structure. If –A were a functional head signalling predication relation between an adjective and its subject: 1) one would expect agreement holding between the adjective and its subject but there is no agreement: -A is constant; 2) one would expect –A to appear in all predicative contexts but it only appears under negation, as if to reestablish the thematic link between the adjective and its subject where such a link is being negated. In nominal predication, on the contrary, -LAr signals agreement in number between the nominal predicate and its subject and is therefore restricted to plural subjects, singular number having no exponent in the language. –LAr also appears in all contexts where a predication relation is being established between a noun and another noun.

So far we have established that both verbs and adjectives are associated with their own negation: verb-specific suffix -MA and adjective-specific *suox*. The latter triggers the appearance of the default person marker –A on the adjective which we argued to refer to the adjectival argument. This analysis predicts that nouns which which take no arguments are incompatible with *suox* as is indeed the case. Instead, they require the copular verb *buol* 'be' which, being a verb, can be negated with the help of the verbal suffix –MA as in (26b).

(26) a. *Bu kyyl beder-e suox.
This animal lynx-3 no

b. Bu kyyl beder buol-ba-tax.
This animal lynx be-neg-subj
'This animal is not a lynx.'

4.1.4. Structures for adjectival predication without *buol* 'be' (present tense)

So we can tentatively assume the structure in (27) for an adjectival predicate, with optional NegP or DegP.

(27) $[_{D/NegP}$ N/Deg $[_{AP}$ Subj$_{DP}$ Adj]

(27) underlies (28) with no copula. The DP subject *ehigi* 'you (pl.)' is predicated inside AP of a bare adjective. It then moves to Spec,IP where I acquires a [2pl] feature which is later spelled out as –ŋyt. The adjective does not raise to I (on Infl and movement see section 4.2.1.6). To derive the right word order, two XP-frontings take place: first the AP to Spec,FP (suggestive of Focus Phrase), then the subject to Spec,TopP (mnemonic of Topic Phrase)[7].

(28) Ehigi bytaaŋ-ŋyt.
you slow-2pl
'You are slow.'

$[_{IP}$ I $[_{AP}$ **ehigi** $[_{A}$ **bytaan**]]] →

$[_{IP}$ **ehigi**$_k$ $[_{I}$ [**2pl**] $[_{AP}$ t$_k$ $[_{A}$ **bytaan**]]]] →

$[_{TopP}$ **ehigi**$_k$ $[_{FP}$ $[_{AP}$ t$_k$ $[_{A}$ **bytaan**]]$_i$ $[_{I}$ [**2pl**] t$_i$]]]

Let's consider more complex structures. As shown above in (24a), the reduplicative element and negation *suox* are incompatible with each other: this fact is taken to indicate that the two are in competition to be inserted under the N/Deg functional head. (29) and (30) give derivations for N/Deg realized as Neg and Deg, respectively. Both derivations respect cyclicity and derive the right word order (in fact, they are the only ones which do).

(29) Ehigi bytaan-a suox-xut.
you slow-3 not-2pl
'You are not slow.'

$[_{NegP}$ $[_{Neg}$ **suox** $[_{AP}$ **ehigi** $[_{A}$ **bytaan**]]]

The subject moves to Spec,NegP →

[7] The proposal that the top layer of sentence structure in Sakha involves a CP-TopP-FP configuration was advanced in Vinokurova & Holmberg 1997; see also Rizzi 1995, Bianchi 1995. The unmarked word order in Sakha is SOV where S is interpreted as Topic and OV as Focus. If the subject is the focus, then the order becomes OSV, with the object interpreted as Topic, and so forth.

[$_{NegP}$ **ehigi**$_k$ [$_{Neg}$ **suox** [$_{AP}$ t_k [$_A$ **bytaan-a**]]]][8]

AP is fronted to Spec,FP above NegP[9] →

[$_{FP}$ [$_{AP}$ t_k [$_A$ **bytaan-a**]] [$_{NegP}$ **ehigi**$_k$ [$_{Neg}$ **suox** t_{AP}]]]

The subject moves to Spec,IP →

[$_{IP}$ **ehigi**$_k$ [$_I$ [**2pl**] [$_{FP}$ [$_{AP}$ t_k [$_A$ **bytaan-a**]] [$_{NegP}$ t_k [$_{Neg}$ **suox** t_{AP}]]]

FP is fronted to Spec,FocusP →

[$_{FocusP}$ [$_{FP}$ [$_{AP}$ t_k [$_A$ **bytaan-a**]] [$_{NegP}$ t_k [$_{Neg}$ **suox** t_{AP}]]] [$_{IP}$ **ehigi**$_k$ [$_I$ [**2pl**] t_{FP}]

The subject is fronted to Spec,TopP →

[$_{TopP}$ **ehigi**$_k$ [$_{FocusP}$ [$_{FP}$ [$_{AP}$ t_k [$_A$ **bytaan-a**]] [$_{NegP}$ t_k [$_{Neg}$ **suox** t_{AP}]]] [$_{IP}$ t_k [$_I$ [**2pl**] t_{FP}]][10]

(30) Ehigi byp-bytaaŋ-ŋyt.
you red-slow-2pl
'You are very slow.'

[$_{DegP}$ [$_{Deg}$ **RED** [$_{AP}$ **ehigi** [$_A$ **bytaan**]]]]

The subject moves to Spec,IP (through Spec,DegP); I acquires the features [2pl] →

[$_{IP}$ **ehigi**$_k$ [$_I$ [**2pl**] [$_{DegP}$ t_k [$_{Deg}$ **RED** [$_{AP}$ t_k [$_A$ **bytaan**]]]]]]

DegP is fronted to Spec,FocusP →

[$_{FocusP}$ [$_{DegP}$ t_k [$_{Deg}$ **RED** [$_{AP}$ t_k [$_A$ **bytaan**]]]] [$_{IP}$ **ehigi**$_k$ [$_I$ [**2pl**] t_{DegP}]]]

The subject is fronted to Spec,TopP →

[$_{TopP}$ **ehigi**$_k$ [$_{FocusP}$ [$_{DegP}$ t_k [$_{Deg}$ **RED** [$_{AP}$ t_k [$_A$ **bytaan**]]]] [$_{IP}$ t_k [$_I$ [**2pl**] t_{DegP}]]]]

In (30) RED is a proclitic attaching to the adjective whose phonological features it copies: in the case at hand, it will be spelled out as *byp(-bytaan)*. Now consider the examples in (31): the ungrammaticality of (31b) would follow if two degree elements (degree adverb *nahaa* 'very' and the reduplicator) were competing for the same slot – Deg. However, this cannot explain (31c). *Nahaa* 'very' can also occur as a VP-adverb, in which case it is most likely analyzed as VP-adjoined (*nahaa söbülüür* 'likes a lot (lit. very likes)'). If *nahaa* is a phrase, then it could occur in Spec,N/DegP. Such an analysis does not seem plausible: 1) a derivation for (31b) is available respecting both cyclicity and deriving the right word order; it can only be banned by disallowing DegP to be doubly-filled but such a constraint seems ad hoc;

[8] The appearance of the default (="3") person marker –A on the adjective can be explained as allomorphy conditioned by the negative head or as triggered by subject movement to Spec,NegP.
[9] Alternatively, if one's theory supports multiple specs, then AP could move to the higher Spec,NegP. Here and throughout we adopt a simpler, single-spec-view.
[10] Again, the [2pl] feature in I, /–GYt/, is an agreement clitic which would cliticize to the final element in Spec,FocusP – here the negative element *suox* resulting in *suox-xut*.

2) the possibility of (31c) would mean that the specifier position of N/DegP is filled by a degree element whereas its head – by Neg: [$_{DegP}$ nahaa [$_{Neg}$ suox]] but such a structure seems incoherent and, most importantly, it could allow the adverb to scope over Neg. In (31c) the adverb can scope only over the adjective, below the negation. Let's assume therefore that the adverb is adjoined to AP and (31c) is derived as in (32).

(31) a. Ehigi nahaa bytaaŋ-ŋyt.
you very slow-2pl
'You are very slow.'
b. *Ehigi nahaa byp-bytaaŋŋyt.
c. Ehigi nahaa bytaan-a suox-xut.
You very slow-3 not-2pl
'You are not very slow.'

(32) Derivation for (31c):

[$_{NegP}$ [$_{Neg}$ **suox** [$_{AP}$ **nahaa** [$_{AP}$ **ehigi** [$_{A}$ **bytaan**]]]]

The subject moves to Spec,NegP →

[$_{NegP}$ **ehigi**$_{k}$ [$_{Neg}$ **suox** [$_{AP}$ **nahaa** [$_{AP}$ t_{k} [$_{A}$ **bytaan-a**]]]]]

AP is fronted to Spec,FP above NegP →

[$_{FP}$ [$_{AP}$ **nahaa** [$_{AP}$ t_{k} [$_{A}$ **bytaan-a**]]] [$_{NegP}$ **ehigi**$_{k}$ [$_{Neg}$ **suox** t_{AP}]]]

The subject moves to Spec,IP →

[$_{IP}$ **ehigi**$_{k}$ [$_{I}$ [**2pl**] [$_{FP}$ [$_{AP}$ **nahaa** [$_{AP}$ t_{k} [$_{A}$ **bytaan-a**]]] [$_{NegP}$ t_{k} [$_{Neg}$ **suox** t_{AP}]]]

FP is fronted to Spec,FocusP →

[$_{FocusP}$ [$_{FP}$ [$_{AP}$ **nahaa** [$_{AP}$ t_{k} [$_{A}$ **bytaan-a**]]] [$_{NegP}$ t_{k} [$_{Neg}$ **suox** t_{AP}]]] [$_{IP}$ **ehigi**$_{k}$ [$_{I}$ [**2pl**] t_{FP}]

The subject is fronted to Spec,TopP[11] →

[$_{TopP}$ **ehigi**$_{k}$ [$_{FocusP}$ [$_{FP}$ [$_{AP}$ **nahaa** [$_{AP}$ t_{k} [$_{A}$ **bytaan-a**]]] [$_{Neg}$ **suox** t_{AP}]]] [$_{I}$ [**2pl**] t_{FP}]]

4.1.5. *Buol* 'be' introducing a generic operator

In sections 4.1.2.1/2 it was shown that under finite predication the copular verb is optionally possible with both adjectival and nominal predicates. In embedded sentences it becomes obligatory only with nouns; with adjectives it is still optional. Also, it was mentioned that depending on whether *buol* is absent or present there are differences of interpretation which will be discussed now. Embedded sentences will be considered later in section 4.3.

[11] The structure is simplified removing the intermediate traces of the subject (t_{k}) in Spec,NegP and Spec,IP.

Consider the pairs with(out) *buol* in (33) and (34). The a-variants without *buol* are the unmarked ones chosen by default. The b-variants are chosen when additional interpretive conditions must be met. For sentences with nominal predicates the introduction of *buol* emphasizes the predication relation established between the subject ([Bu maqahyyn klien-nar-a]) and the predicative noun phrase ([oskuola oqo-lor-o]). With adjectival predicates emphasis is also possible (though more marginal) but there is in addition another, generic interpretation which appears when *buol* is present. This generic interpretation is absent from (33b). Therefore the example in (34b) has different truth conditions from the other three examples. For instance, in a situation where 70% of the shop customers are young, (34a) without *buol* would be false and (34b) with the copula would be true. On the contrary, in a situation where 70% of the shop customers are schoolchildren, neither (33a) nor (33b) would be true. Generic interpretation of (33a-b) becomes possible if the adverb *sünnjünen* 'overall, generally' is added. The same applies to (34a).

(33) a. [$_{\text{DP-SUBJ}}$ Bu maqahyyn klien-nar-a] [$_{\text{NP-PRED}}$ oskuola oqo-lor-o].
[this shop client-pl-3] [school child-pl-3]
'This shop's clients are schoolchildren.'

b. [Bu maqahyyn klien-nar-a] [oskuola oqo-lor-o] buol-al-lar
[this shop client-pl-3] [school child-pl-3] be-aor-pl
'This shop's clients are schoolchildren (emphasized).'

(34) a. Bu maqahyyn klien-nar-a eder-der.
this shop client-pl-3 young-pl
'This shop's clients are young.'

b. Bu maqahyyn klien-nar-a eder buol-al-lar
this shop client-pl-3 young be-aor-pl
'This shop's clients are young (emphasized).'
'This shop's clients are generally/usually young.'

Now the reason why (33b) is less preferred than default, unmarked (33a) is clear: it is simply redundant, unless the context is emphatic. However, if (34b) involves not just emphasis but also a reading absent from (34a) and hence is not redundant, then it is less clear why it is marked. The reason for the markedness of (34b) seems to be the fact that it is easier to use an overt adverb (*sünnjünen* 'overall, generally'), as mentioned in the previous paragraph, rather than to resort to a covert operator.

The facts in (33-34) have the following bearing on the current issues. Larson 1999 assumes, in line with Chierchia 1995, that individual-level predicates are licensed by a local generic operator "Gen" quantifying over events. This operator is adjoined to the i-level predicate as in (35). When a noun is modified by adjectives, the i-level adjective is structurally closer to the noun than s-level ones and therefore falls under the scope of Gen which binds the event/state variable carried by the noun.

(35) Capella is [$_{\text{SC}}$ Gen [$_{\text{NP}}$ a star]]

(36) a. The visible$_{\text{I-LEVEL}}$ stars visible$_{\text{S-LEVEL}}$ include Capella.[12]
b. The visible$_{\text{S-LEVEL}}$ visible$_{\text{I-LEVEL}}$ starts include Capella.
c. [AP$_{\text{S-LEVEL}}$ [Gen [AP$_{\text{I-LEVEL}}$ N]] AP$_{\text{S-LEVEL}}$]

Larson views nouns, just like adjectives, as one-place predicates – "star(x)" – but he further introduces an event parameter inside a nominal – "star(x,e)". There are two ways to introduce events inside NPs: by the lexical argument structure of the noun itself (*dancer, student, manager, cellist, president, friend*) or by the nominal construction (*a recent letter, a quick cup of coffee*)[13]. Thus, some nouns like *cellist* turn out to be hiddenly relational (relativized to events) just like eventive verbs, e.g. *dance*. Larson's event variable is understood as event/state because nominal predicates map to states whereas verbal predicates can map either to states or events.

Taking nouns to be predicates true of individual-event pairs runs counter to our assumption that nouns take no arguments. In the introduction we argued, on grounds of causality, that nouns are not predicates true of individuals. From this it follows automatically that they also cannot introduce events/states. In order to introduce an event/state variable, an expression must have an open slot for the variable. Nouns which take no arguments are closed expressions and as such cannot accommodate an event/state variable. Therefore the i-level/s-level distinction and the (non-)intersective ambiguity of attributive adjectives require a different approach which, unlike Larson's account, does not invoke the event variable introduced by a noun. These two issues are postponed until section 4.5.3.

On the contrary, an adjective does refer to a particular state of its sole thematic argument and, being a predicative category, it can host an event/state variable. Under this assumption the facts in (33)-(34) follow. If generic interpretation results from the presence of a generic operator introduced by the verb *buol* 'be', possibility of such interpretation in (34) but not in (33) is expected. A generic operator can trigger generic reading only if there is an event variable to bind which is indeed the case in (34) with an adjectival predicate. By contrast, in (33) the NP predicate is not associated with an event variable and hence there is nothing for the generic operator to quantify over, whence the lack of generic reading in (33b). Also, consider the examples in (37). In contrast to (37a) with a perfectly felicitous kind-referring reading, (37b) is at first judged as unacceptable but on second thought turns out to be true if Kesha is tall in all or the majority of situations in which Kesha's height is compared to the height of others. That there is indeed an event variable in (37b) that the generic operator can quantify over is supported by the parallel example with a verbal predicate in (37c). (37c) is derived from (37d) in which the predicate *siir* is an aorist (temporally undefined) participle[14]. Since *siir* is a non-finite form of the verb, the auxiliary *buol* 'be' can be added resulting in (37c)

[12] (36a) and (36b) are interpreted as "The inherently visible stars that happen to be visible at the moment include Capella" (Larson 1999).
[13] Larson's analysis of attributive modification and, in particular, his use of the event variable to derive non-intersective readings of modifying adjectives will be considered in more detail in section 4.5.3.
[14] (37d) is a finite sentence even though its predicate is in the participial form. See discussion below in this section and section 4.2.

where the event of Kesha's eating meat in the morning is generically quantified over.

(37) a. Bu kyyl uhun buol-ar.
This animal tall be-aor
'Species of this kind of animal are in general tall.'

b. Kesha uhun buol-ar.
Kesha tall be-aor
'Kesha is (generally) tall (=In general, for events/situations that Kesha is in, those events/situations are the ones in which Kesha is tall).'

c. Kesha sarsyarda et sii-r buol-ar.
Kesha morning meat eat-aor be-aor
'Kesha usually eats meat in the morning.'

d. Kesha sarsyarda et sii-r.
Kesha morning meat eat-aor
'Kesha eats meat in the morning.'

Based on these facts, we can conclude that adjectival predicates can and nominal predicates cannot introduce an event variable. More support for this view will come in the next section 4.2 where it will be shown that tense requires the presence of an event variable.

4.1.6. Structures for adjectival predication with *buol* 'be' and for nominal predication (present tense)

Now we are in a position to give derivations for adjectival predication involving *buol* and for nominal predication with(out) *buol* in the present tense (past tense will be considered in the next section). First of all, structures with *buol* involve an extra syntactic head, call it "Be", which is absent from structures without *buol*. Second, since *buol* is a verb, there is a participial phrase – PartP – on top of BeP. Be raises to Part but does not raise further to I (on Infl, Part and movement see section 4.2.1.6). Infl can be filled with a tense feature (see section 4.2.1) but in the derivations given above and in this section I has no temporal content. In (28), for instance, empty I is merged with AP with subsequent raising of the subject to Spec,IP and the resulting sentence is interpreted as present tense. We will assume, in line with Baker 2003:46ff., that present is the default interpretation imposed on an empty I.

Given below are derivations for finite adjectival predication in the present tense with Be (38) (the counterpart of (38) without Be is (28)) and for finite nominal predication without Be (39) and with Be (40). Note that when the subject raises to Spec,IP, the I node is assigned the phi-features of the subject. These phi-features are spelled out by agreement morphemes – elements with clitic-like behaviour which would cliticize to the final element in Spec,FocusP.

(38) Finite adjectival predication in the present tense with Be:
Bihigi bytaan buol-a-byt.
We slow be-aor-1pl 'We are slow.'

[$_{AP}$ **bihigi** [$_{A}$ **bytaan**]] →

Be is merged, the subject moves to Spec,BeP →

[$_{BeP}$ **bihigi**$_k$ **buol** [$_{AP}$ t_k [$_{A}$ **bytaan**]]]

Part is merged → *buol* moves to Part, the subject to Spec,PartP →

[$_{PartP}$ **bihigi**$_k$ [$_{Part'}$ **buol**$_j$-[**aorist**] [$_{BeP}$ t_k t_j [$_{AP}$ t_k [$_{A}$ **bytaan**]]]]]

AP is fronted into Spec,FP →

[$_{FP}$ [$_{AP}$ t_k [$_{A}$ **bytaan**]] [$_{PartP}$ **bihigi**$_k$ [$_{Part'}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j t_{AP}]]]]

empty I is merged → the subject moves to Spec,IP, I acquires the required features →

[$_{IP}$ **bihigi**$_k$ [**1pl**] [$_{FP}$ [$_{AP}$ t_k [$_{A}$ **bytaan**]] [$_{PartP}$ t_k [$_{Part'}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j t_{AP}]]]]]

FP is fronted into Spec,FocusP →

[$_{FocusP}$ [$_{FP}$ [$_{AP}$ t_k [$_{A}$ **bytaan**]] [$_{PartP}$ t_k [$_{Part'}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j t_{AP}]]]] [$_{IP}$ **bihigi**$_k$ [**1pl**] t_{FP}

the subject is fronted into Spec,TopP →

[$_{TopP}$ **bihigi**$_k$ [$_{FocusP}$ [$_{FP}$ [$_{AP}$ t_k [$_{A}$ **bytaan**]] [$_{PartP}$ t_k [$_{Part'}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j t_{AP}]]]] [$_{IP}$ t_k [**1pl**] t_{FP}]]]

(38) is finite and therefore involves CP above TopP → TopP moves to Spec,CP →

[$_{CP}$ [$_{TopP}$ **bihigi**$_k$ [$_{FocusP}$ [$_{FP}$ [$_{AP}$ t_k [$_{A}$ **bytaan**]] [$_{PartP}$ t_k [$_{Part'}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j t_{AP}]]]] [$_{IP}$ t_k [**1pl**] t_{FP}]]] C t_{TopP}][15]

(39) Finite nominal predication in the present tense without Be:
Bihigi kolxuos bastyŋ balyksyt-tar-a-byt.
We kolkhoz best fisherman-pl-3-1pl
'We are the best fishermen of the kolkhoz.'

Inside the small clause the DP subject *bihigi* is predicated of the NP predicate[16] →

[$_{SC}$ [$_{DP}$ **bihigi**] [$_{NP}$ **kolxuos bastyŋ balyksyt-tar-a**]]

Empty I is merged with SC; the subject moves to Spec,IP and I is valued →

[$_{IP}$ **bihigi**$_k$ [$_{I'}$ [**1pl**] [$_{SC}$ t_k [$_{NP}$ **kolxuos bastyŋ balyksyt-tar-a**]]]]

SC is fronted to Spec,FocusP →

[$_{FocusP}$ [$_{SC}$ t_k [$_{NP}$ **kolxuos bastyŋ balyksyt-tar-a**]] [$_{IP}$ **bihigi**$_k$ [**1pl**] t_{SC}]]

[15] To simplify exposition, we will usually omit CP and avoid this final step in the derivation. It should be noted that finite structures involve CP above TopP, non-finite structures – KP above TopP (see section 4.3) and relative clauses – a KP above DP above CP with no TopP or FocusP (see section 4.4).
[16] Note that in the initial structure in (38) the subject DP is predicated of a bare adjective whereas in (39) as well as (40) it is predicated of NP – a phrasal predicate involving possessive substructure.

The subject is topicalized into Spec,TopP

[$_{TopP}$ **bihigi**$_k$ [$_{FocusP}$ [$_{SC}$ t_k [$_{NP}$ **kolxuos bastyŋ balyksyt-tar-a**]] [$_{IP}$ t_k [**1pl**] t_{SC}]]]

(40) Finite nominal predication in the present tense with Be:
Bihigi kolxuos bastyŋ balyksyt-tar-a buol-a-byt.
We kolkhoz best fisherman-pl-3 be-aor-1pl

Buol 'be' is merged with SC; the subject moves to Spec,BeP →

[$_{BeP}$ **bihigi**$_k$ **buol** [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]]]

Part [aor] is merged; *buol* moves to Part, the subject to Spec,PartP →

[$_{PartP}$ **bihigi**$_k$ [$_{Part}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]]]]]

SC is fronted into Spec,FP above PartP →

[$_{FP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{PartP}$ **bihigi**$_k$ [$_{Part}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j t_{SC}

Empty I is merged; the subject moves to Spec,IP →

[$_{IP}$ **bihigi**$_k$ [$_{I'}$ [**1pl**] [$_{FP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{PartP}$ t_k [$_{Part}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j t_{SC}]]]]]]

FP is fronted to Spec,FocusP →

[$_{FocusP}$ [$_{FP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{PartP}$ t_k [$_{Part}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j t_{SC}]]]] [$_{IP}$ **bihigi**$_k$ [$_{I'}$ [**1pl**] t_{FP}]]]

the subject moves to Spec,TopP →

[$_{TopP}$ **bihigi**$_k$ [$_{FocusP}$ [$_{FP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{PartP}$ t_k [$_{Part}$ **buol**$_j$-[**aor**] [$_{BeP}$ t_k t_j t_{SC}]]]] [$_{IP}$ t_k [$_{I'}$ [**1pl**] t_{FP}]]]]

4.2. Tense and the three types of predicates

Above (in section 4.1.5) we argued that adjectives (but not nouns) introduce an event variable and therefore we took adjectives to be predicates true of individual-event pairs. A decisive piece of evidence was (37): *buol* 'be' induced a generic interpretation in both (37a/b) with an adjectival predicate and (37c) with a verbal predicate. Assuming that generic interpretation results from the presence of a generic quantifier which binds an event variable in its scope, we are led to the natural conclusion that an event variable is provided not only by the verbal predicate (an uncontroversial assumption) but also by the adjectival predicate. In this section we will see how the presence of an event variable makes adjectives behave differently from nouns with respect to tense. To illustrate, consider (41) which gives past tense forms of verbal, adjectival and nominal predicates. Listed in the first column are the forms derived with the help of the auxiliary verb *e-* (inflectionally defective and devoid of any semantic content) which carries the immediate/definite past tense morpheme –DI plus an agreement marker. *Ete* merges either with an aorist participial phrase (41a), an AP (41b) or a nominal small clause (41c). For

verbs and adjectives alike a reduced past tense form is also available as the second column shows: here there is no auxiliary and past tense is spelled out by a zero allomorph of –DI (see below). The non-reduced auxiliated forms and the reduced ones are semantically equivalent. For a nominal predicate, on the contrary, presence of the auxiliary verb is obligatory.

(41)	a.	Baaska ülelii-r e-t-e.	=	Baaska ülelii-r-e.
		Baaska work-aor aux-past-3		Baaska work-aor-3
		'Baaska was working.'		'Baaska was working.'
	b.	Baaska bytaan e-t-e.	=	Baaska bytaan-a.
		Baaska slow aux-past-3		Baaska slow-3
		'Baaska was slow.'		'Baaska was slow.'
	c.	Baaska byraas e-t-e.		*Baaska byraah-a
		Baaska doctor aux-past-3		Baaska doctor-3
		'Baaska was a doctor.'		*'Baaska was a doctor.'
				(o.k.: Baaska's doctor)

The possibility of past tense interpretation with verbs and adjectives without the mediation of the auxiliary as in the second column of (41) but not with nouns follows under the assumption that, on the semantic side, tense is an operator that needs an event variable to bind: such an event variable is present in (41a) and (41b) but must be supplied independently of the nominal small clause by an auxiliary verb in (41c). The auxiliary verb providing an event variable can be either *e-* or *buol* 'be': since *e-* is inflectionally defective and can only attach immediate past –DI or remote past –BYT, for other tenses *buol* is required. To account for the grammaticality of non-auxiliated nominal predication in the present tense (examples such as *Kini byraas* 'he (is a) doctor' derived as in (39)), we will assume that an event variable is needed only when Infl is filled with a tense feature and, as argued above, in the present tense Infl is not associated with any tense feature. An empty I devoid of all temporal content does not require an event variable and therefore can merge with a nominal small clause directly, without a mediating auxiliary.

However, there are still some asymmetries between verbs and adjectives. For instance, there are nine tenses in the indicative mood in Sakha but not all of them can be associated with adjectival predicates. This question will be considered in sections 4.2.1.6 and 4.2.2. In particular, it will be argued that VPs are associated with an event variable whereas APs are associated with a state variable.

Section 4.2 is structured as follows. To begin, we will give an overview of tenses in Sakha and their structural representations (4.2.1). The results of section 4.2.1 will be used to derive morphosyntactic asymmetries between verbs and adjectives in section 4.2.2 as well as in section 4.2.4 which is devoted to root infinitives. 4.2.5 will present a sample derivation for a nominal predicate in tenses other than present. Section 4.2.3 is devoted to allomorphy: that allomorphy facts follow in a simple and natural manner provides further evidence for the correctness of the track we are pursuing. If the thematic, syntactic and morphological domains translate into each other without any ad hoc mapping procedures, this scores another point in favour of the current framework.

4.2.1. Overview of tenses in Sakha (in the indicative mood)

Korkina et al. 1982 distinguish 10 moods in Sakha: indicative, imperative, conditional, affirmative, obligative, habitual, dubitative, unrealized, subjunctive, suppositional. Of these, we shall concentrate on the indicative which is the only mood showing three-dimensional tense distinctions. The following indicative tenses exist: 1) present/future; 2) future; 3) immediate/definite past; 4) remote/reported/narrative past; 5) resultative; 6) past episodic; 7) past imperfect; 8) pluperfect; 9) pluperfect episodic. Depending on their structural realization, these tenses can be divided into four groups.

4.2.1.1. $INFL_{[-TENSE\ FEATURE]}$-PART-VP

In the derivations given so far in this chapter an empty (without tense feature) Infl node merged directly with a nominal small clause, an AP or an aorist (temporally undefined) participial phrase. Present tense interpretation assigned to such clauses resulted not from the temporal content of I but was imposed on the latter by default (cf. Baker 2003:46ff.). However, one important difference was glossed over in the discussion above: with adjectives and nouns present tense interpretation is indeed the default one imposed on a featureless I whereas with verbs this is not the case because a featureless I merges not with VP but with a participial phrase which is itself associated with temporal content (on why a featureless I cannot merge directly with VP see section 4.2.1.6). It is the combination of an empty I with an aorist (temporally undefined) participle which results in present tense reading. This tense is in fact labelled 'present/future' because it also allows a future reading.

(42) En aaq-a-qyn.
You read-aor-2sg
'You read/will read.'

$[_{VP}$ **en** $[_{V'}$ **aax** $]]]$ → merge Part: move V to Part and subject to Spec,PartP →

$[_{PartP}$ **en**$_i$ $[_{Part'}$ **aax**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ → merge I, move subject to Spec,IP →

$[_{IP}$ **en**$_i$ $[_{I'}$ I-**[2sg]** $[_{PartP}$ t_i $[_{Part'}$ **aax**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]]]$

merge FocusP, move PartP →

$[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **aax**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ [_{IP}$ **en**$_i$ $[_{I'}$ I-**[2sg]** t_{PartP} $]]]$

merge TopP, move subject →

$[_{TopP}$ **en**$_i$ $[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **aax**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ $[_{IP}$ t_i $[_{I'}$ I-**[2sg]** t_{PartP} $]]]]$

merge CP, move TopP to Spec,CP →

$[_{CP}$ C $[_{TopP}$ **en**$_i$ $[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **aax**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ $[_{IP}$ t_i $[_{I'}$ I-**[2sg]** t_{PartP} $]]]]]$
→
$[_{CP}$ $[_{TopP}$ **en**$_i$ $[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **aax**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ $[_{IP}$ t_i $[_{I'}$ I-**[2sg]** t_{PartP} $]]]]$ C t_{TopP} $]$

A featureless I can also merge with other types of participles. In these cases as well, an empty I will be interpreted as present tense by default; an additional temporal meaning will be contributed by the participial feature and the overall temporal interpretation of a sentence will be determined by the combination of the two tense features of I and Part. In (42) the participle is temporally undefined and therefore the overall temporal interpretation of (42) depends on I only. As for the future reading of (42), we will assume that it is not primary but rather contextually derivable similar to English present tense 'I go' which can be interpreted as future when an appropriate adverb is added. In Sakha too, adding an adverb facilitates obtaining future tense reading.

Another way to get future tense is by combining an empty I with a future participle realized by the suffix –YAX. The same element also appears in the subjunctive mood (44).

(43) En aaq-yaq-yŋ. You read-fut-2sg 'You will read.'

$[_{VP}$ **en** $[_{V'}$ **aax** $]]]$ → merge Part: move V to Part and subject to Spec,PartP →

$[_{PartP}$ **en**$_i$ $[_{Part'}$ **aax**$_k$**-[future]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ → merge I, move subject to Spec,IP →

$[_{IP}$ **en**$_i$ $[_{I'}$ I-**[2sg]** $[_{PartP}$ t_i $[_{Part'}$ **aax**$_k$**-[future]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]]]$

merge FocusP, move PartP →

$[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **aax**$_k$**-[future]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ [_{IP}$ **en**$_i$ $[_{I'}$ I-**[2sg]** t_{PartP} $]]]$

merge TopP, move subject →

$[_{TopP}$ **en**$_i$ $[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **aax**$_k$**-[future]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ $[_{IP}$ t_i $[_{I'}$ I-**[2sg]** t_{PartP} $]]]]$

merge CP, move TopP →

$[_{CP}$ $[_{TopP}$ **en**$_i$ $[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **aax**$_k$**-[future]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ $[_{IP}$ t_i $[_{I'}$ I-**[2sg]** t_{PartP} $]]]]$ $C_{irrrealis}$ t_{TopP} $]$

(44) Min aaq-yax e-ti-m.
I read-fut aux-past-1sg 'I would read/I would have read.'

We will assume that if Part is realized by the feature [future], it needs licensing by a special irrealis C (assuming that C is the locus of illocutionary force; cf. Rizzi 1995). Irrealis C is different from 'realis' C in (42). This latter C was also encountered in all of the above derivations although it was usually omitted except in (38): elsewhere it was implied that realis C merged with TopP with subsequent movement of TopP to Spec,CP (see footnotes 6 and 14). The difference in complementizers between (42) and (43) also explains why (43) cannot be used in embedded clauses (45a) but can be used in relatives (45b). As already mentioned in footnote 14, non-finite, embedded clauses involve merging KP with TopP-FocusP while finite structures are CP-TopP-FocusP (further elaborated in sections 4.3 and 4.4). Thus, if (42) were embedded inside a matrix clause, the last step in the derivation would involve merging K(ase) with TopP and moving the latter into Spec,KP. Assuming

that realis is the default interpretation assigned to C without any other content, it does not require a specific functional head; KP structures will be interpreted in the realis by default and not as a result of K being assigned realis by default. In fact, K cannot be assigned neither realis nor irrealis because it has nothing to do with illocutionary force. Therefore irrealis interpretation requires the presence of C and can plausibly be analyzed as resulting from the presence of an irrealis operator in CP[17]. On the other hand, relative clauses are KP-DP-CP-IP, adopting a promotion analysis à la Kayne 1994, and therefore can host an irrealis operator.

(45) a. En aaq-ar-yŋ/*aaq-yaq-yŋ bil-l-er
you read-aorist-2sg/*read-fut-2sg know-pass-aorist
'It is known that you read/*will read.'
b. xohoon aaq-ar/aaq-yax kihi
poem read-aor/read-fut person
'a person who reads poems / a person who will/would/could read poems'

Two more cases when I is devoid of a tense feature are presented by past resultative and past episodic. The derivation of these tenses proceeds as in (42) except that the Part node is filled with a [remote past] feature (for [immediate past] see 4.2.1.2). In addition, past episodic contains an extra structural node realized by –LAA-X, a morpheme operational in deriving adjectives from nouns and in expressing both NP-level and clause-level possession (see chapter 3) which can be translated into English as 'with' (recall from chapter 2 that –LAA-X contains a productive verbalizer –LAA and a productive nominalizer/adjectivizer -x). We will assume that it is this morpheme which is responsible for the 'there was once an episode' reading.

(46) Past resultative: [$_{IP}$ [∅] [$_{PartP}$ [**remote past**] [$_{VP}$ [**V**]]]]
Min lotereja-qa süüj-büp-pün.
I lottery-dat win-rem.past-1sg
'It turns out I won in the lottery (comes as a surprise).'

(47) Past episodic: [$_{IP}$ [∅] [$_{FP}$ [**LAA-X**] [$_{PartP}$ [**remote past**] [$_{VP}$ [**V**]]]]]
Min lotereja-qa süüj-büt-teex-pin.
I lottery-dat win-rem.past-LAAX-1sg
'By the way, there was an episode in the past when I won in the lottery.'

Continuing the line of analysis adopted above, past resultative results from combining the tense features of I and Part – [present] (assigned to I by default) and [remote past] whereas past episodic interpretation arises by combining [present], -LAA-X 'with' and [remote past]. This structural analysis predicts some semantic interplay between [present] and [remote past] which is borne out. In both (46) and (47) the action denoted by the verb (winning the lottery) takes place in the past but is

[17] Cf. e.g. Hyams 2001 who assumes, following Guéron 1998, that an irrealis clause contains an irrealis operator in CP which binds mood variables (however, the same applies to realis clauses which also contain a realis operator in the CP domain).

interpreted with respect to the present moment. In the past episodic tense the relevant episode which took place earlier is recalled at the present moment (rendered by the English paraphrase using 'by the way'). As for past resultative tense, it has an element of surprise so that the result of the action which took place in the past is discovered only now. Most likely, this element of surprise is licensed by an operator in the CP-domain which would explain why embedded past resultative has no connotation of surprise (see sections 4.2.4 and 4.3).

4.2.1.2. INFL$_{[+\text{TENSE FEATURE}]}$-VP

In this section we will consider two indicative tenses which involve merging Infl directly with VP, without the mediating participle. In the immediate (also called definite) past, Infl is associated with [immediate past] feature; in the remote (also known as reported, or narrative) past, Infl is filled with [remote past] tense feature.

(48) Immediate/definite past: [$_{IP}$ [**immediate past**] [$_{VP}$ [**V**]]]
Ölöksöj Aisen-y kör-dö.
Ölöksöj Aisen-acc see-immed.past.3
'Ölöksöj saw Aisen (not so long ago).'

(49) Remote/reported/narrative past: [$_{IP}$ [**remote past**] [$_{VP}$ [**V**]]]
Ölöksöj Lenin-y kör-büt-e / *kör-dö[18].
Ölöksöj Lenin-acc see-rem.past-3 / see-immed.past.3
'Ölöksöj saw Lenin (long ago/*not so long ago).'
'They say, Ölöksöj saw Lenin.'

The primary meanings of immediate/definite past and remote/reported/narrative past are, respectively, immediate past and remote past, other meanings being derived. Since immediate past is closer to the present time than remote past, one can judge with a greater degree of certainty whether the event in question actually took place or not, whence the second name – definite/categorical past. Conversely, since remote past is further away on the timeline from the present and therefore harder to verify, it is often used for hearsay and statements of reported truth as well as in narrative discourse, whence the other two names – reported and narrative past. We shall use either the full names of these tenses or simply the reduced versions – immediate past and remote past.

4.2.1.3. INFL-AUX-PART-VP

The derivation of pluperfect is more complex than the cases considered above: in addition to I and Part associated, respectively, with tense features [immediate past] and [remote past], there is an inflectionally defective and semantically empty auxiliary verb *e-* intervening between I and Part. Semantically, pluperfect expresses

[18] (49) with *kördö* 'see-immediate.past.3' is grammatical only if Ölöksöj has recently been to the mausoleum.

past tense but more remote in the past than remote past tense considered in the previous section.

(50)

Remote past	Pluperfect
Min alta-qa ahaa-byt-ym. ≠	Min alta-qa ahaa-byt e-ti-m.
I six-dat eat-past-1sg	I six-dat eat-past aux-past-1sg
'I ate/had eaten at 6.'	'I had already eaten before 6.'

(51) Sample derivation for pluperfect:

Initial structure: [$_{VP}$ **min** [$_{V'}$ **ahaa**]]]

Merge Part [remote past][19]: move V to Part and subject to Spec,PartP →

[$_{PartP}$ **min**$_i$ [$_{Part'}$ **ahaa**$_k$-[**remote past**] [$_{VP}$ t_i [$_{V'}$ t_k]]]]

Merge Aux, move subject to Spec,AuxP →

[$_{AuxP}$ **min**$_i$ [$_{Aux'}$ **e-** [$_{PartP}$ t_i [$_{Part'}$ **ahaa**$_k$-[**remote past**] [$_{VP}$ t_i [$_{V'}$ t_k]]]]]

Merge I [immediate past], move Aux to I and subject to Spec,IP →

[$_{IP}$ **min**$_i$ [$_{I'}$ **e-**[**immediate past**]+[**1sg**] [$_{AuxP}$ t_i [$_{Aux'}$ t_{Aux} [$_{PartP}$ t_i [$_{Part'}$ **ahaa**$_k$-[**remote past**] [$_{VP}$ t_i [$_{V'}$ t_k]]]]]]]

Merge FocusP, move PartP to FocusP →

[$_{FocusP}$ [$_{PartP}$ t_i [$_{Part'}$ **ahaa**$_k$-[**remote past**] [$_{VP}$ t_i [$_{V'}$ t_k]]]] [$_{IP}$ **min**$_i$ [$_{I'}$ **e-**[**immediate past**]+[**1sg**] [$_{AuxP}$ t_i [$_{Aux'}$ t_{Aux} t_{PartP}]]]]

Merge TopP, move subject to Spec,TopP →

[$_{TopP}$ **min**$_i$ [$_{FocusP}$ [$_{PartP}$ t_i [$_{Part'}$ **ahaa**$_k$-[**remote past**] [$_{VP}$ t_i [$_{V'}$ t_k]]]] [$_{IP}$ t_i [$_{I'}$ **e-**[**immediate past**]+[**1sg**] [$_{AuxP}$ t_i [$_{Aux'}$ t_{Aux} t_{PartP}]]]]][20]

4.2.1.4. Alternating forms: INFL-PART-VP or INFL-AUX-PART-VP

Next on the agenda are alternating forms. In the indicative mood we have two alternating tense forms: past imperfect and pluperfect episodic. Consider, for instance, past imperfect in (52). (52a) gives the full, auxiliated form which has the same structure as pluperfect except that the Part node is associated with the [aorist] feature. (52b) gives the reduced form, without the auxiliary *e-*.

(52)

a.	Min bil-er e-ti-m.	
	I know-aor aux-past-1sg	'I used to know.'
b.	Min bil-er-im.	
	I know-aor-1sg	'I used to know.'

[19] Note that [remote past] feature can be associated with both Part and Infl nodes, cf. (49) above. This also means that the morpheme –BYT realizing [remote past] can be inserted under both Infl and Part.
[20] Last step (merging CP) is, as usual, omitted.

Meaning-wise, (52a) and (52b) are identical. The only difference is the presence of the auxiliary and the immediate past tense morpheme –DI attached to the auxiliary. Since (52b) has the same meaning as (52a), both must have the same source of past tense interpretation, namely, an Infl node filled with the [immediate past] feature overtly expressed only in (52a). Derivations for (52a-b) are given below.

(53) a. Min bil-er e-ti-m.
I know-aor aux-past-1sg 'I used to know.'

Initial structure: $[_{VP}$ **min** $[_{V'}$ **bil** $]]]$

Merge Part [aorist]: move V to Part and subject to Spec,PartP →

$[_{PartP}$ **min**$_i$ $[_{Part'}$ **bil**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$

Merge Aux, move subject to Spec,AuxP →

$[_{AuxP}$ **min**$_i$ $[_{Aux'}$ **e-** $[_{PartP}$ t_i $[_{Part'}$ **bil**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]]$

Merge I [immediate past], move Aux to I and subject to Spec,IP →

$[_{IP}$ **min**$_i$ $[_{I'}$ **e-[immediate past]+[1sg]** $[_{AuxP}$ t_i $[_{Aux'}$ t_{Aux} $[_{PartP}$ t_i $[_{Part'}$ **bil**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]]]]$

Merge FocusP, move PartP to FocusP →

$[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **bil**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ $[_{IP}$ **min**$_i$ $[_{I'}$ **e-[immediate past]+[1sg]** $[_{AuxP}$ t_i $[_{Aux'}$ t_{Aux} t_{PartP} $]]]]$

Merge TopP, move subject to Spec,TopP →

$[_{TopP}$ **min**$_i$ $[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **bil**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ $[_{IP}$ t_i $[_{I'}$ **e-[immediate past]+[1sg]** $[_{AuxP}$ t_i $[_{Aux'}$ t_{Aux} t_{PartP} $]]]]]$

b. Min bil-er-im.
I know-aor-1sg 'I used to know.'

Initial structure: $[_{VP}$ **min** $[_{V'}$ **bil** $]]]$

Merge Part [aorist]: move V to Part and subject to Spec,PartP →

$[_{PartP}$ **min**$_i$ $[_{Part'}$ **bil**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$

Merge I [immediate past], move subject to Spec,IP →

$[_{IP}$ **min**$_i$ $[_{I'}$ **[immediate past]+[1sg]** $[_{PartP}$ t_i $[_{Part'}$ **bil**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]]]$

Merge FocusP, move PartP to FocusP →

$[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **bil**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ $[_{IP}$ **min**$_i$ $[_{I'}$ **[immediate past]+[1sg]** t_{PartP} $]]]$

Merge TopP, move subject to Spec,TopP →

$[_{TopP}$ **min**$_i$ $[_{FocusP}$ $[_{PartP}$ t_i $[_{Part'}$ **bil**$_k$**-[aorist]** $[_{VP}$ t_i $[_{V'}$ t_k $]]]]$ $[_{IP}$ t_i $[_{I'}$ **[immediate past]+[1sg]** t_{PartP} $]]]]$

So the final structures submitted to spellout are given in (54), with the irrelevant details (e.g. intermediate traces) omitted. The only difference between (52-53-54a) and (52-53-54b) is that the auxiliary *e-* has been chosen only in the numeration for the former. The spellout of (54a) would proceed unconntroversially, with all the nodes overtly realized by the appropriate morphemes. As for (54b), if it were spelled out as it is, the result would be ungrammatical although note that the same structure is grammatical in related Turkish (55) where it is labeled 'aorist perfect' (adapted from Mardin 1961:184).

(54) a. Min bil-er e-ti-m.
I know-aor aux-past-1sg 'I used to know.'

[$_{TopP}$ **min** [$_{FocusP}$ [$_{PartP}$ [$_{Part'}$ **bil-**[**aorist**]]] [$_{IP}$ [$_{I'}$ **e-**[**immediate past**]+[**1sg**]]]]]

min bil-[**aorist**] **e-**[**immediate past**]-[**1sg**] → **min bil-er e-ti-m**

b. Min bil-er-im.
I know-aor-1sg 'I used to know.'

[$_{TopP}$ **min** [$_{FocusP}$ [$_{PartP}$ [$_{Part'}$ **bil-**[**aorist**]]] [$_{IP}$ [$_{I'}$ [**immediate past**]+[**1sg**]]]]]

min bil-[**aorist**] [**immediate past**]-[**1sg**] → ***min bil-er-di-m**

(55) Ben bil-ir-di-m. (Turkish)
I know-aorist-definite.past-1sg 'I used to know.'

Grammaticality of (55) in Turkish and ungrammaticality of its direct (morpheme-for morpheme) counterpart in Sakha suggests that solution must be sought along morphosyntactic lines, in the nature of particular morphemes realizing morphosyntactic features. Recall from discussion above that agreement morphemes are clitics which cliticize to the material in Spec,FocusP. For instance, in the derivations given in section 4.2.1.1 as well as in all the derivations preceding 4.2.1.1 the Infl node is empty and acquires phi-features after the subject raises to Spec,IP. Subsequent to subject movement, a predicate or a larger category containing a predicate is fronted to Spec,FocusP: the category fronted can be AP, nominal SC or (FP-)PartP. When a derivation is submitted to PF, an appropriate agreement morpheme is inserted in I spelling out the phi-features. Since this morpheme is a clitic, it cliticizes to the predicate in Spec,FocusP. That agreement morphemes are clitics is also supported by diachronical data: person/number agreement markers were originally full-fledged pronouns[21] following a predicate which, in the course of their historical development, lost their independent status and were reanalyzed as dependent elements in need of a phonological host, subject to vocalic and consonantal harmony laws. If in (54b) the suffix –DI exponing [immediate past] were also a clitic, (54b) would be unproblematic: the [immediate past]+[1sg]

[21] See e.g. Sevortjan 1961:6ff. Korkina et al. (1982:129, 155) mention that, although detailed studies of how the "pronoun → agreement marker" reanalysis in Turkic languages took place are lacking, such reanalysis is a generally recognized thesis in turkology.

sequence in Infl would be spelled out by two clitics –DI and –m which would both attach to a phonological host in Spec,FocusP. However, there are no independent grounds for analyzing –DI as a clitic. Therefore, since –DI is truly an affix, it needs a lexical host (verb) in I to which it can suffix. In 4.2.1.3 (pluperfect derivation) the auxiliary verb raises to I; the same happens in (53a). This brings us to I-VP structures of 4.2.1.2 giving rise to immediate and remote past tenses. There too we are led to assume that V raises to I.

As for (54b) and all other cases where there is no support in I for –DI, we propose that [immediate past] is spelled out not by –DI but by its zero allomorph. Being phonologically null, this zero element does not need a lexical head in I and does not prevent an agreement clitic from cliticizing to a phrase in Spec,FocusP. The suffix –DI has a morphological property of attaching only to verbs (lexical or auxiliaries). Therefore it can only occur in I-VP structures (4.2.1.2) and in compound tenses provided an auxiliary has been chosen for the computation, cf. (54a). In all other contexts, including compound tenses discussed in this section, the [immediate past] tense feature in Infl is replaced by the zero allomorph of –DI. This is what happens in e.g. (54b) in the context of the [aorist] feature on Participle and in the absence of any verb in the domain of allomorphy for Infl (for more on allomorphy see section 4.2.3).

The suffix –BYT realizing remote past in I-VP structures (4.2.1.2) is also restricted in its attachment possibilities to verbs only[22]. This explains the ungrammaticality of (56a) which has the same status as (54b) except that I in (56) is filled with [remote past]. However, since –DI has a zero allomorph, (54b) can be spelled out as (52b). –BYT, on the contrary, has no zero allomorph and the only way to get a well-formed sentence with [remote past] Infl and [aorist] participle is by using the auxiliary as in (56b). Note that if –BYT also had a zero allomorph, (56a) would be spelled out exactly like (52b) which would be ambiguous between past imperfect and reportative past imperfect. Furthermore, since in moods other than indicative there are more compound tenses with underlying "$I_{\text{IMMEDIATE PAST}}$-Participle" or "$I_{\text{REMOTE PAST}}$-Participle", all these structures would turn out to be ambiguous were it the case that both –DI and –BYT had zero counterparts. Thus, endowing only –DI with a zero allomorph avoids massive ambiguities since only –DI can occur in non-auxiliated compound tenses.

(56) a. *Min bil-er-bit-im.
I know-aorist-remote.past-1sg

b. Min bil-er e-bit-im.
I know-aorist aux-remote.past-1sg 'It is said that I knew.'

On the contrary, in Turkish both -MIŞ (the Turkish counterpart of -BYT) and –DI (55) can occur in compound tenses: (56a) would be grammatical in Turkish labelled as 'reportative aorist' (Mardin 1961:62). This suggests that in Turkish neither –DI nor –MIŞ have zero allomorphs. Furthermore, it is possible that both suffixes have

[22] The special status of –DI and –BYT as attaching to verbs only is also underlined by the fact that the inflectionally defective auxiliary verb *e-* is restricted to occur with precisely these two suffixes and none other.

been reanalyzed as clitics which allows them to attach not only to pure verbs as in Sakha but also to participles, nouns and adjectives[23].

Another alternating compound tense form is pluperfect episodic which is derived just like past episodic in (47) except that I is filled with [immediate past] tense feature the spellout of which follows the conventions just discussed.

4.2.1.5. Summary 1: Simplex and compound tenses in Sakha

To summarize, from a structural point of view verbal tenses in Sakha are either simplex or complex (compound). In this section we will summarize structural facts about tenses in Sakha and list basic properties associated with their derivations. In the next section it will be shown that all these properties are reducible to one single property associated with VPs, viz. that VPs introduce an event variable. The same property can also derive the verb/adjective asymmetry in a number of tense-related contexts, as discussed in 4.2.1.6 and 4.2.2.

Simplex tenses involve an I merged directly with VP: 1) immediate/definite past; 2) remote/reported/narrative past. Two features of simplex tenses discussed in the next section are the following: 1) V raises to I; 2) there is no converging derivation in which a featureless I (interpreted as present by default) merges with VP.

All other tenses discussed above are complex and involve two nodes – Infl and Part. Their properties are as follows:

1. Part always carries some temporal content – [aorist], [future], [remote past]
2. Infl has two options: it can be empty or associated with a tense feature
3. The verb always raises to Part after Part is merged with VP
4. V-Part does not raise to I

When Infl in Infl-Part-VP configuration is empty (featureless), it is interpreted as present by default. Such an I can combine with the following participles: [aorist] → present/future tense; [future] → future tense; [remote past] → resultative tense and past episodic tense (the latter involves an additional head – LAAX 'with').

A second option for Infl which combines with PartP is to be filled with a tense feature, either [immediate past] or [remote past]. Combining [immediate past] Infl with [aorist] Part yields past imperfect tense, with [remote past] Part → pluperfect or, if –LAAX is implicated, pluperfect episodic. Replacing [immediate past] in Infl with [remote past] yields the same types of tenses but more remotely located in the past.

When the underlying structure is IP-PartP-VP, there are some complications regarding realization of Infl with the actual morphemes. Realization of Part is straightforward. At spellout a morpheme realizing [aorist], [future] or [remote past] would replace these features in Part and since this morpheme (-AR, -YAX, -BYT) is a suffix, it would need a lexical host. As already mentioned, V does raise to Part and therefore the suffix inserted in Part at spellout will have a host to

[23] As Mardin 1961:128 mentions, the auxiliated form using *i-di* 'aux-past' is archaic: *su ılık idi* 'water was lukewarm'. The form in current use is the one without intervening *i-* (corresponding to *e-* in Sakha): *su ılık-tı* 'water was lukewarm (water lukewarm-definite.past)'.

attach to, hence the derivation is morphologically well-formed. As for Infl, when it is empty, the problem of finding a lexical host does not arise: I will contain only an agreement clitic which will cliticize to the phrase in Spec,FocusP. When I is filled with a tense feature, at spellout a suffix realizing this tense feature will be inserted but since V-Part does not raise further to I, the host requirement for the suffix must be satisfied in some other way.

There are two tense features the I node can be associated with in the IP-PartP-VP configuration: either [immediate past] or [remote past]. Consider the first case. The [immediate past] feature has two options of morphophonological realization – either –DI or ∅. If I were realized by –DI in the absence of a lexical host in I, the structure would be ruled out for morphological reasons: -DI, being a suffix and not a clitic, will not be able to cliticize to the material in Spec,FocusP. A way to save the derivation is presented by the zero allomorph of –DI. Another option is to merge an auxiliary with PartP and then merge the auxiliary with I, as in (53a).

On the contrary, [remote past] is invariably realized by –BYT which is also a suffix in need of a lexical host in I. However, since –BYT has no zero allomorph, the only way to save the structure is by using the auxiliary.

The following table gives a summary of the results achieved so far in section 4.2.1.

(57) Table 3: Structural realization of tenses in Sakha: Summary

	INFL	**AUX**	**F**	**PART**	**VP**
1. Immediate past	[immediate past]	-	-	-	VP
2. Remote past	[remote past]	-	-	-	VP
3. Present/future	∅	-	-	[aorist]	VP
4. Future	∅	-	-	[future]	VP
5. Past resultative	∅	-	-	[remote past]	VP
6. Past episodic	∅	-	LAAX (‘WITH’)	[remote past]	VP
7a. Past imperfect	[immediate past]	-	-	[aorist]	VP
7b. Past imperfect	[immediate past]	AUX	-	[aorist]	VP
8. Pluperfect	[immediate past]	AUX	-	[remote past]	VP
9a. Pluperfect episodic	[immediate past]	-	LAAX (‘WITH’)	[remote past]	VP
9b. Pluperfect episodic	[immediate past]	AUX	LAAX (‘WITH’)	[remote past]	VP

4.2.1.6. Summary 2: On the relationship among I, Part, VP and AP

Two fundamental properties of simplex tenses to consider are: 1) V raises to I; 2) there is no converging derivation in which a featureless I (interpreted as present by default) merges with VP. Consider the second property first. It brings to light the following contrast. In the I-Part-VP configuration I can be featureless whereas in I-VP it must be filled. There is no possible derivation for a VP which merges with an empty I. We will assume that the reason for this lies in the obligatory event variable

associated with VPs which must be licensed through binding by a tense operator[24]. When I in the I-VP configuration is empty, there is no tense operator and the event variable remains unbound, hence the structure is ruled out. In the I-Part-VP configuration Infl can remain empty because the job of binding an event variable has already been done by the tense feature in Part (property 2 of compound tenses). This also explains away property 1 of compound tenses, namely, that the Part node is always associated with a tense feature.

The presence of an event variable introduced by VP which must be bound by tense also helps explain property 1 of simplex tenses (V raises to I) and properties 3 and 4 of complex tenses (V raises to Part; V-Part does not raise to I). We will assume that licensing an event variable by a tense operator requires, on the syntactic side, obligatory raising of V to a functional node which hosts a tense feature. In the I-VP configuration this functional node is I, in 'I-Part-VP' it is Part. This syntactico-semantic analysis converges with the morphological analysis given above for the suffixes –DI and –BYT, exponents of the features [immediate past] and [remote past], respectively. It was claimed above that these suffixes are subcategorized to attach to verbs. In I-VP structures this requirement is fulfilled as a free rider since V raises to I independently, in order to enable licensing an event variable by tense (and not in order to satisfy the morphological properties of the suffix in I). In I-Part-VP structures there is no free ride since nothing raises to I so the morphological properties of the suffix in I are satisfied in one of two ways extensively discussed above – either merging an auxiliary with PartP (available for both –DI and –BYT) or inserting a zero allomorph in I (available only for –DI).

If verbs are banned from merging with a featureless I because their event variable will remain unbound, what about adjectives? In section 4.1.5 we suggested that adjectives introduce an event/state variable just like verbs (recall, for instance, discussion of (37)). Yet, they are possible in the I-AP configuration where I is devoid of temporal content, cf. (28) in section 4.1.4.

This contrast between $I_{[\varnothing TENSE]}$-AP and $*I_{[\varnothing TENSE]}$-VP can be explained along the following lines. In section 4.1.5 we were using the terms 'event variable' and 'event/state variable' as meaning the same thing. However, there seems to be a difference between an event variable typically associated with a VP and a state variable more likely to be introduced by an AP. Adjectives are one-place predicates denoting properties of individuals: they refer to the state of having a particular property in which their thematic argument finds itself. On the contrary, verbs, under current assumptions, are relations (one-place verbs having been derived by reduction[25]). If we assume that properties are associated with a state variable whereas relations – with an event variable, then both symmetries and asymmetries between verbs and adjectives would follow. On the one hand, in an $I_{[+TENSE]}$-AP

[24] Below we will see that a tense operator also needs to be licensed, through binding either an event variable or a state variable. That a tense operator must be licensed rules out structures such as $I_{[+TENSE]}$-NP or $Part_{[+TENSE]}$-NP where the NP can provide neither an event variable nor a state variable. Going a bit ahead, an event variable is introduced by VPs whereas a state variable – by APs. Thus, licensing an event variable (an event variable is licensed if it is bound by tense operator) and licensing a tense operator (a tense operator is licensed if it binds either an event or a state variable) are two different procedures.

[25] Intransitive verbs pattern like two-place verbs and not like adjectives: unlike the latter, they cannot appear in I-VP structures where I is temporally empty.

structure, there is a state variable that a tense operator can bind. Thus, $I_{[+TENSE]}$-AP is parallel to $I_{[+TENSE]}$-VP where a tense operator binds an event variable made available by the VP and different from ungrammatical *$I_{[+TENSE]}$-NP where there is no event/state variable for a tense operator to quantify over and therefore an auxiliary is obligatorily inserted. On the other hand, a state variable is different from an event variable in not requiring licensing by a tense operator. Thus, perfectly acceptable $I_{[\varnothing TENSE]}$-AP differs from *$I_{[\varnothing TENSE]}$-VP which is ruled out because no tense operator binds the event variable in the VP. Instead, $I_{[\varnothing TENSE]}$-AP parallels $I_{[\varnothing TENSE]}$-NP; both are acceptable but for slightly different reasons: in the latter (NP) there is no event or state variable and I *must* be empty while in the former (AP) there is a state variable which, unlike an event variable, does not need to be licensed by a tense operator and I *may* be empty.

(58) Table 4: The possibility of merging [+tense]/[∅tense] Infl directly with the three types of predicates

- $Infl_{[+TENSE]}$: tense operator is present and must be licensed
    - a tense operator is licensed if it binds either an event or a state variable
- $Infl_{[\varnothing TENSE]}$: no tense operator present, no event/state variable required

	VP	AP	NP
$I_{[+TENSE]}$	O.k. Event variable and tense operator mutually license each other	O.k. State variable available to be bound by tense thereby licensing the tense operator	* No event/state variable for tense to bind: tense operator is not licensed
$I_{[\varnothing TENSE]}$	* Event variable present but not bound by tense	O.k. State variable does not have to be bound by tense	O.k. No event/state variable for tense to bind and no tense operator to require such a variable

4.2.2. Deriving tense asymmetry between verbs and adjectives

One asymmetry has already been revealed in the previous section, viz. APs can and VPs cannot merge with an empty Infl: 1) APs introduce a state variable which does not require licensing by tense, hence Infl can be [tense feature]-less; 2) VPs introduce an event variable which requires licensing by tense, hence Infl cannot be [tense feature]-less. For a sample derivation involving an $INFL_{[\varnothing TENSE]}$-AP configuration see (28) in section 4.1.4.

Apart from present tense derived from an $INFL_{[\varnothing TENSE]}$-AP configuration, two more simplex tenses are possible with adjectives: immediate/definite past and remote/reported/narrative past resulting, respectively, from [$INFL_{IMMEDIATE\ PAST}$-AP] and [$INFL_{REMOTE\ PAST}$-AP] structures. The [immediate past] tense feature can be realized by –DI or -∅, whereas [remote past] has only one exponent, –BYT. Both –DI and –BYT are suffixes in need of a lexical host in I. However, adjectives, unlike

verbs, cannot move to Infl because APs do not introduce an event variable. Therefore, an alternative derivation using an auxiliary verb is available for both $I_{IMMEDIATE\ PAST}$-AP (59b) and $I_{REMOTE\ PAST}$-AP (59c). The $I_{IMMEDIATE\ PAST}$-AP configuration, in addition to the auxiliated derivation, can give rise to (59a) conditioned by the availability of a zero allomorph for –DI.

(59) a. As minnjigeh-e. (Immediate Past Tense)
food delicious-3
'Food was delicious.'

b. As minnjiges e-t-e. (Immediate Past Tense, with Aux)
food delicious aux-immed.past-3
'Food was delicious.'

c. As minnjiges e-bit-e. (Remote Past Tense)
food delicious aux-remote.past-3
'Food was delicious (long ago) / Food was reportedly delicious.'

The distribution of temporal adverbs also supports the analysis of (59a) as involving a zero allomorph of –DI substituting for the feature [immediate past]. The range of adverbs that can be used with adjectival immediate past tense using the zero allomorph is the same as with verbal immediate past tense using –DI.

(60) Bügün üs caas-ka min bytaan-∅-ym/bytaar-**dy**-m.
Today three hour-dat I slow-immed.past-1sg/slow-immed.past-1sg
'Today at three o'clock I was slow/slowed down.'

Another tense-related contrast between APs and VPs is that adjectives cannot form compound tenses directly (*I-Part-AP is ruled out) although merging an auxiliary allows APs to partake of the whole temporal range presented in (57) in which case the relevant substructure is [I-Part-Aux-AP]. It is through the mediation of an auxiliary verb that one can get e.g. future, past resultative and pluperfect tenses built on top of what is an adjectival base.

(61) a. As kemci buol-uoq-a. (future)
Food scarce be-future-3
'Food will be scarce.'

b. En xolku e-bik-kin. (past resultative)
you calm aux-rem.past-2sg
'It turns out you are calm.'

c. En sudurgu e-bit e-ti-ŋ. (pluperfect)
you simple aux-rem.past aux-immed.past-2sg
'You had been simple.'

As argued above, Part is always filled with a tense feature and therefore always hosts a tense operator. Since I-AP structures in which I hosts a tense feature are possible (namely, $I_{[IMMEDIATE\ PAST]}$-AP and $I_{[REMOTE\ PAST]}$-AP), the impossibility of

$Part_{[+TENSE]}$-AP configurations comes unexpected. The reason for this may be purely morphosyntactic. Let's briefly consider this option. The Part node in compound tenses can be associated with features [aorist], [future] and [remote past] (see table 3 in (57)). As (59c) shows, the last feature can also become the feature of Infl. However, (59c) can only be derived from $INFL_{[REMOTE\ PAST]}$-Aux-AP and not directly from $INFL_{[REMOTE\ PAST]}$-AP because the latter configuration is ruled out by a combination of morphological and syntactic causes: since AP introduces a state, not an event variable, the head of AP does not raise to I and, consequently, at spellout the suffix –BYT inserted in I to replace the [remote past] feature will have no host. The other underlying configuration, $I_{[IMMEDIATE\ PAST]}$-AP (along with $I_{[IMMEDIATE\ PAST]}$-Aux-AP) is possible because the suffix exponing [immediate past] has two allomorphs one of which is zero and therefore can do without a lexical host. The same reasoning could apply to $PART_{[REMOTE\ PAST]}$-AP which allegedly would be unable to result in a convergent derivation: no A-to-Part raising will take place[26] leaving the suffix –BYT inserted in Part without a host. Hence, a converging derivation is only possible for $PART_{[REMOTE\ PAST]}$-Aux-AP where Aux (the verb *e*-) can raise to Part. The same considerations would carry over to the exponents of the other two features with which Part can become associated: both –AR for [aorist] and –YAX for [future] have no zero allomorphs and require a lexical host.

Such a morphosyntactic analysis implies that there is no inherent compatibility between Part and A and therefore it is possible to merge Part with AP, provided there is a zero suffix insertable in Part. Unfortunately, it is impossible to test this empirically for no suffix replacing the tense feature in Part has a zero allomorph: [immediate past] feature can never become associated with Part, only with Infl.

However, a morphosyntactic analysis seems to be intuitively wrong. Informally speaking, participles form a purely verbal category which allows verbs to participate in nominal inflectional paradigms: participial verbs can attach case markers (like nouns and adjectives) and modify nouns (like adjectives). Therefore, if Part turns a verb into an adjective-like category, then it should follow that Part cannot merge with APs, unless the AP has been first merged with Aux which is a verb and Part can apply to it. An answer emerges from the previous section: we will assume that Part not only introduces a tense operator which binds VP's event variable but also introduces a state variable, thus accounting for the similarity between participles and adjectives and for the incompatibility of PartP and AP.

To conclude this section, all asymmetries between adjectives and verbs in the domain of tense in Sakha are reducible to one single difference between them, viz. the association of APs with a state variable and of VPs with an event variable.

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[26] A-to-Part raising would imply, on the semantic side, that state variable must be licensed by the tense operator but, as argued in section 4.2.1.6, this is not the case. State variable introduced by AP can be bound by tense thereby licensing the tense operator in Part but itself does not require licensing by tense. On the contrary, event variable introduced by VP establishes a mutual licensing relationship with the tense operator in Part: on the one hand, the tense operator has an event variable to bind and hence licensed, on the other, an event variable must be licensed by the tense operator which, on the syntactic side, translates as obligatory raising of V to Part (or any other functional node hosting a tense feature).

(62) Table 5: Summary of V/A asymmetries in the domain of tense

Structural contexts	AP (s)	VP (e)
I-[∅tense]	O.k.	*
Part-XP	*	O.k.
X-to-Infl/Part	*	O.k.

4.2.3. Deriving allomorphy

Above we have already considered an instance of allomorphy in the realization of the [immediate past] tense feature. Here we shall consider two more types of allomorphy concerning the [aorist] feature in Part and the right choice of agreement clitics, set I or set II.[27] The feature [aorist] can be spelled out as /-AR-/, /-A/ or /-T-/. The first suffix is the regular one, the second is used in the present/future tense (with the exception of 3SG/PL where regular –AR appears) and the third follows the negative verbal suffix –BA. As for the second type of allomorphy, we have been assuming throughout that when the subject moves to Spec,IP, its phi-features are copied onto I and later spelled out by the appropriate agreement clitic. Since for each person/number combination there are two sets of agreement clitics (see table 1 in section 4.1.2), the right choice has to be made.

Before explaining allomorphy facts we have to spell out our assumptions about spell-out and allomorphy. In this we will adopt, to a large extent, DM's approach based on Late Insertion: elements on which syntax operates are, on the one hand, phonologically specified roots (*aax* 'read', *bil* 'know', *buol* 'be, become', etc.) and, on the other, phonologically unspecified grammatical features ([immediate past], [aorist], [remote past], etc.). Late insertion was implicit in the derivations given throughout this chapter[28]. When a derivation is submitted to spellout, vocabulary insertion takes place and morphosyntactic features are replaced by specific morphemes: affixes, clitics, free morphs. For instance, as we saw above, [remote past] is replaced by the suffix –BYT, [1sg] – by the clitics –m or –BYN and so on.

With respect to allomorphy, we will follow Bobaljik's (1999) proposal that there are two domains for determining the choice of a particular allomorph – phonological (vocabulary items) and morphosyntactic (grammatical features) (although the practical implementation of this idea will not be strictly à la Bobaljik). Consider aorist allomorphy first. The default aorist suffix is –AR which is truncated into –A in 1/2-SG/PL in the present/future tense. Given in (63) is the final structure

[27] A different analysis than the one presented here was proposed in Vinokurova 2003 for the second type of allomorphy. We no longer support that analysis.

[28] In all of the above derivations we have assumed that *e-*, the syntactically defective auxiliary devoid of semantic content, is merged as it is, i.e. phonologically specified. *E-* is most likely to be analyzed as a functional morpheme and not as a root, in which case, in accordance with Late insertion, what will be merged syntactically is not *e-* but the syntactic Aux head. Another possibility is to follow Borer in assuming that functional morphemes are phonologically specified. Nothing in the overall discussion hinges on whether it is *e-* or Aux that merges in the syntax.

submitted to spellout with a 2sg subject (=(42) in section 4.2.1.1). Assuming that at spellout the tree is inspected bottom-up and since everythng else has moved out, the first thing to be spelled is empty C (interpreted as realis by default; see section 4.2.1.1). Since it is empty, no vocabulary item needs to be inserted.

Now suppose that C contained the feature [irrealis]. However, there is no phonological expression insertable in C with such feature. Therefore the feature [irrealis] remains undeleted in C until subsequent pruning. Before we go back to (63), a point of regression on spellout (vocabulary insertion) and subsequent PF-derivation. We will assume that the function of spellout is to substitute features with actual morphemes where possible: substitution will delete the morphosyntactic features. In case no morpheme is available, the feature will remain undeleted. However, the structure submitted to spellout after vocabulary insertion will undergo further PF-manipulations which will erase the remaining PF-uninterpretable morphosyntactic features. These PF-operations also account for allophony. For instance, the [immediate past] feature can be realized by one of the two allomorphs – either –DI or zero. At spellout (at the point of vocabulary insertion) a particular allomorph will be chosen depending on the context. Suppose –DI is chosen and inserted as it is. Now –DI is subject to phonological rules which take place after vocabulary insertion: these rules will determine which allophone of –DI fits the given phonological environment[29]. In this section we will limit our attention to what happens at spellout without going too deep into PF.

Returning to (63), after C vocabulary insertion (VI) moves to [2sg] and inserts the appropriate clitic (agreement allomorphy will be discussed shortly). Now it is time to spell out [aorist]. At this point VI can see two immediately adjacent elements: the verbal root 'read' which does not determine allomorphy and the agreement clitic inserted in I. VI can also see further backward, up to (realis by default) C. However, C in this case does not determine allomorphy for –AR alternates with –A in different persons (1/2 → /-AR/, 3 → /-A/) while tense and modality stay the same. Therefore the only candidate left is the agreement clitic. Note that it cannot be the phi-feature combination [2sg] because this feature can be spelled out either by /-ŋ/ (set II agreement clitic) or /-GYN/ (set I agreement clitic) but only in the latter case the truncated allomorph –A is inserted. Therefore we are led to assume that –A insertion (alternatively, -AR truncation into –A) is triggered by the morphemes –BYN (1sg), -GYN (2sg), -BYT (1pl), -GYT (2pl).

[29] 16 allophones of the immediate/definite past tense marker –DI are the following:

Kiir-di-m 'I entered'	Kör-dü-m 'I saw'	Ytyr-dy-m 'I bit'	Tur-du-m 'I stood'
Sie-ti-m 'I ate'	Büt-tü-m 'I finished'	Tas-ty-m 'I carried'	Sot-tu-m 'I wiped'
Kel-li-m 'I came'	Kül-lü-m 'I laughed'	Yl-ly-m 'I took'	Bul-lu-m 'I found'
Tiren-ni-m 'I leaned'	Tönün-nü-m 'I returned'	Tyyn-ny-m 'I breathed'	Suun-nu-m 'I washed'

(63) En aaq-a-qyn. You read-aor-2sg'You read/will read.'

[$_{CP}$ [$_{TopP}$ **en**$_i$ [$_{FocusP}$ [$_{PartP}$ t_i [$_{Part'}$ **aax**$_k$-[**aorist**] [$_{VP}$ t_i [$_{V'}$ t_k]]]] [$_{IP}$ t_i [$_{I'}$ I-[**2sg**] t_{PartP}]]]] C t_{TopP}]

In fact, only –BY and –GY need to be taken into account because the above four morphemes are clearly decomposable into person and number markers (/-BY/ for [1], /-GY/ for [2]; /-n/ for [sg], /-t/ for [pl]) as the paradigm in (63) indicates. Such decomposition also concurs with diachrony: both –n and –t are ancient markers of singular and plural number, respectively. They still remain in two nouns: *tojon* 'lord, master' – *tojot* 'lords, masters', *xotun* 'lady, mistress' – *xotut* 'ladies, mistresses'[30].

(64)	bil-e-**bi-n**	know-aor-**1-sg**	'I know'
	bil-e-**bi-t**	know-aor-**1-pl**	'we know'
	bil-e-**qi-n**	know-aor-**2-sg**	'we know'
	bil-e-**qi-t**	know-aor-**2-pl**	'we know'

As can be seen from table 1 in (8) (section 4.1.2), in 1/2PL the agreement morphemes are identical in both PRED- and POSS-paradigms. Yet, aorist –AR is only truncated in the context of set I –BYT and –GYT and not in the context of set II –BYT and –GYT. This may appear problematic but it is not. We assumed that set I suffixes are decomposable into person and number markers. Such decomposition is well-motivated by the regularity with which they combine to yield all four possible person-number combinations, cf. (64). On the contrary, in set II the decomposition of –BYT and –GYT into –BY, -GY and –T is not justified: neither –BY nor –GY appear in the singular. Therefore in set II we have –BYT and –GYT in 1PL and 2PL whereas in set I we have –BY(-N/T) and –GY(-N/T) which yields the desired results: aorist allomorphy (-AR truncation) is triggered by –BY and –GY, hence it can only be triggered in the first agreement paradigm (the second agreement paradigm has –BYT and –GYT, not –BY and –GY). It also follows trivially why –AR truncation does not take place in 3SG/PL: the relevant context, viz. –BY and –GY, is simply absent.

Another thing to note is that only in the present/future indicative tense can the agreement clitic influence the realization of [aorist] and only in this tense is the agreement clitic immediately adjacent to the aorist, i.e. spellout of [aorist] immediately follows spellout of [ϕ]. In all other tenses where the [aorist] feature appears in Part, and [ϕ] is spelled out as set I, there is no immediate adjacency and there is no allomorphy. For instance, the derivation of present/future tense in the obligative mood in (65) is identical to that of (42) (=63) except that –LAAX (discussed in chapter 3) merges with PartP. As we can see, in the final structure in (65) submitted to spellout VI will inspect the tree branch by branch and therefore the spellout of [aorist] will not be able to immediately follow the spellout of [2sg].

[30] These two nominal suffixes, singular –n and plural –t, were also reanalyzed as verbal suffixes used in contexts involving valency manipulations: -n is used in reflexives, passives and unaccusatives and –t is used in causatives. The latter suffix appears in two more contexts involving plurality: frequentative/distributive aspect and frequentative adverbs.

(65) En aaq-ar-daax-xyn. You read-aor-LAAX-2sg 'You have to read.'

[$_{VP}$ **en** [$_{V'}$ **aax**]]] → merge Part: move V to Part and subject to Spec,PartP →

[$_{PartP}$ **en**$_i$ [$_{Part'}$ **aax**$_k$**-[aorist]** [$_{VP}$ t_i [$_{V'}$ t_k]]]]

merge LAAX, move PartP to Spec,LAAX →

[$_{LAAX\text{-}P}$ [$_{PartP}$ **en**$_i$ [$_{Part'}$ **aax**$_k$**-[aorist]** [$_{VP}$ t_i [$_{V'}$ t_k]]]] [**-LAAX** t_{PartP}]]

merge I, move the subject to Spec,IP[31] →

[$_{IP}$ **en**$_i$ [$_{I'}$ I-[**2sg**] [$_{LAAX\text{-}P}$ [$_{PartP}$ t_i [$_{Part'}$ **aax**$_k$**-[aorist]** [$_{VP}$ t_i [$_{V'}$ t_k]]]] [**-LAAX** t_{PartP}]]]]

merge FocusP, move LAAX-P →

[$_{FocusP}$ [$_{LAAX\text{-}P}$ [$_{PartP}$ t_i [$_{Part'}$ **aax**$_k$**-[aorist]** [$_{VP}$ t_i [$_{V'}$ t_k]]]] [**-LAAX** t_{PartP}]] [$_{IP}$ **en**$_i$ [$_{I'}$ I-[**2sg**]]]]

merge TopP, move subject →

[$_{TopP}$ **en**$_i$ [$_{FocusP}$ [$_{LAAX\text{-}P}$ [$_{PartP}$ t_i [$_{Part'}$ **aax**$_k$**-[aorist]** [$_{VP}$ t_i [$_{V'}$ t_k]]]] [**-LAAX** t_{PartP}]] [$_{IP}$ t_i [$_{I'}$ I-[**2sg**]]]]]

merge CP, move TopP to Spec,CP →

[$_{CP}$ [$_{TopP}$ **en**$_i$ [$_{FocusP}$ [$_{LAAX\text{-}P}$ [$_{PartP}$ t_i [$_{Part'}$ **aax**$_k$**-[aorist]** [$_{VP}$ t_i [$_{V'}$ t_k]]]] [**-LAAX** t_{PartP}]] [$_{IP}$ t_i [$_{I'}$ I-[**2sg**]]]]] C t_{TopP}]

This suggests that vocabulary insertion is strictly local sensitive to the two immediately adjacent elements – the vocabulary item which has just been inserted (or the feature which failed to be spelled out) and the feature to be spelled out (or the root which is already phonologically specified)[32]. For instance, given the string of grammatical features [U]-[W]-[X]-[Y]-[Z] which needs to be spelled out and where the realization of [X] involves a choice between two allomorphs, vocabulary insertion will proceed cyclically from [Z], insert morphemes replacing [Z] and [Y] resulting in [U]-[W]-[X]-vi$_{[Y]}$-vi$_{[Z]}$. When it comes to [X], VI can see only [W] and vi$_{[Y]}$: only these two items can serve as the context for choosing the right allomorph for [X].

There is one more allomorph of [aorist] - /-T/ used in negative contexts throughout all tenses and independent of which agreement clitic is chosen. The

[31] The subject is in Spec,PartP and PartP is in Spec,LAAX. Extracting the subject would violate Ross's Left Branch Condition. If this is a viable condition, then it is possible to extract the subject beforehand by first merging F with PartP, moving the subject to Spec,FP, then merging LAAX with FP and moving PartP to Spec,LAAX and only then merging INFL.

[32] This provides evidence for Trommer's (1999) version of locality defined in terms of structural adjacency. Halle & Marantz 1993, on the contrary, admit of a vast domain of allomorphy which is defined in terms of the government relation: a morpheme may influence the realization of another morpheme if it governs the latter. This view allows for morphosyntactic features on more deeply embedded nodes to influence the phonological realization of peripheral nodes which is the case in Potawatomi as they claim.

negative equivalent of (63) submitted to spellout would be as in (66). Here the spellout of [aorist] is influenced from two directions: on the one hand, given what was said above, the agreement clitic –GY-N would impose the –A allomorph and, on the other, the [neg] feature dictates the choice of –T. The latter wins. This suggests that in the ordering of allomorphy rules the morphosyntactic domain takes precedence over the phonological one, i.e. the rule triggered by the morphosyntactic feature [neg] applies before the rule triggered by the vocabulary items –BY/-GY[33].

(66) En aax-pa-k-ky-n[34]. you read-neg-aor-2-SG 'You don't read.'

[$_{CP}$ [$_{TopP}$ **en**$_i$ [$_{FocusP}$ [$_{PartP}$ t$_i$ [$_{Part'}$ **aax**$_k$-[**neg**]-[**aorist**] [$_{NegP}$ t$_k$-t$_{[NEG]}$ [$_{VP}$ t$_i$ [$_{V'}$ t$_k$]]]]] [$_{IP}$ t$_i$ [$_{I'}$ I-[**2SG**] t$_{PartP}$]]]] C t$_{TopP}$]

Finally, we can consider what conditions agreement allomorphy.

(67) Table 1 (modified): Two types of agreement paradigms in Sakha

	Set I (PRED)	Set II (POSS)
1sg	-BY-N	-m
2sg	-GY-N	-ŋ
3 (=3sg)	-Ø	-A
1pl	-BY-T	-BYT
2pl	-GY-T	-GYT
PL-3 (=3pl)	-LAR-Ø	-LAR-A
Context	**Present/future tense:** I$_{[∅]}$-Part$_{[AORIST]}$-V **Past resultative:** I$_{[∅]}$-Part$_{[REMOTE\ PAST]}$-V **Past episodic:** I$_{[∅]}$-LAAX-Part$_{[REMOTE\ PAST]}$-V	**Future tense:** I$_{[∅]}$-Part$_{[FUTURE]}$-V **Immediate past:** I$_{[IMMEDIATE\ PAST]}$-V **Remote past:** I$_{[REMOTE\ PAST]}$-V **Past imperfect:** I$_{[IMMEDIATE\ PAST]}$-Part$_{[AORIST]}$-V **Pluperfect:** I$_{[IMM.PAST]}$-Aux-Part$_{[REM.PAST]}$-V **Pluperfect episodic:** I$_{[IMM.PAST]}$-LAAX-Part$_{[REM.PAST]}$-V

A look at the contexts in which set I and set II morphemes appear makes it clear, given what was said above in section 4.2.1, that the PRED-paradigm is restricted to

[33] There are two more types of allomorphy which can be explained along the same lines: 1) [remote past] is realized as –TAX in negative contexts and as –BYT elsewhere; 2) [future] is realized as the complex (double) suffix –YA-X but the second member can be optionally dropped in 1/2/3sg; in negative contexts –X is obligatorily dropped, also in 1/2/3sg.

[34] /-k/ is the allophone of /-t/.

empty I tenses while the POSS-paradigm is used in those temporal contexts where I is filled with a tense feature except for future. Recall from section 4.2.1.1 that future interpretation involves irrealis modality and hence a special type of C hosting [irrealis] feature. In other cases involving temporally empty Infl and set I agreement paradigm (present/future; past resultative; past episodic) the complementizer is default realis. In 4.2.1.1 we proposed that realis is the default interpretation assigned to C without any other content, in particular, it does not require a specific functional head which explains that structures without CP, namely, non-finite embedded clauses (=KasePs) are always interpreted as realis and cannot support irrealis modality.

The facts in (67) suggest that the spellout of [ϕ] is sensitive to the presence of a tense feature in Infl. If Infl is associated with a tense feature, [ϕ] will be expressed with a set II agreement clitic. If Infl is empty, then C will determine the correct choice for [ϕ]: empty (default realis) C → set I; irrealis C → set II[35]. The [irrealis] feature in C is able to trigger allomorphy on Infl because it was not deleted by spellout: vocabulary insertion can only delete a feature if VI substitutes a morpheme for that feature and in Sakha there is no phonological expression capable of being inserted in C in (69).

(68) Present/future tense: default Infl → default C → set I (PRED)
En aaq-a-**qyn**. You read-aor-2sg 'You read/will read.'

[$_{CP}$ [$_{TopP}$ **en**$_i$ [$_{FocusP}$ [$_{PartP}$ t$_i$ [$_{Part'}$ **aax**$_k$-[**aorist**] [$_{VP}$ t$_i$ [$_{V'}$ t$_k$]]]] [$_{IP}$ t$_i$ [$_{I'}$ I-[**2sg**] t$_{PartP}$]]]] C t$_{TopP}$]

(69) Future tense: default Infl → irrealis C → set II (POSS)
En aaq-yaq-y**ŋ**. You read-fut-2sg 'You will read.'

[$_{CP}$ [$_{TopP}$ **en**$_i$ [$_{FocusP}$ [$_{PartP}$ t$_i$ [$_{Part'}$ **aax**$_k$-[**future**] [$_{VP}$ t$_i$ [$_{V'}$ t$_k$]]]] [$_{IP}$ t$_i$ [$_{I'}$ I-[**2sg**] t$_{PartP}$]]]] C$_{irrrealis}$ t$_{TopP}$]

The spellout of agreement features in (68-69) also corroborates the above finding that spellout first looks forward to the morphosyntactic domain which is yet to undergo VI and only then backward to the phonological domain which has already undergone VI (recall that the [neg]-triggered allomorphy rule on [aorist] took

[35] That set I markers are inserted in the presence of both default I and default C suggests that they are also default. If we look at the composition of the morphemes in (67), we can make a historical conjecture that set II markers were derived from set I markers which, in turn, were derived from pronouns. This conjecture is supported by the fact that in modern language, set I markers are morphologically much closer to personal pronouns than set II markers: e.g. one of the allophones of the [1sg] clitic –BY-N is –*min* and the [1sg] pronoun 'I' is also *min*.

We can assume that set II –m (1sg) and –ŋ (2sg) were derived from set I –BY-N and –GY-N by dropping the singular number marker –n (-Y- can be viewed as a buffer vowel). Since the singular marker disappeared, the singular/plural opposition expressed by –n/-t stopped being operative and in 1/2pl the –t also lost its plural meaning. Since dropping –t would lead to homonymy between 1sg/2sg and 1pl/2pl, -t was instead accreted to the preceding person marker, resulting in further unanalyzable –BYT and –GYT in the second paradigm, as opposed to decomposable –BY-T and –GY-T in the first paradigm. In third person (both singular and plural), reanalysis from set I to set II involved addition of –A, the default person number.

precedence over the allomorphy rule triggered by a phonologically specified agreement clitic). In the case at hand spellout first inspects for the presence of [tense] in Infl and if there is no tense feature in Infl, then it looks backward to C. As it turns out, C is not phonologically specified because spellout was forced to skip it for the lack of the appropriate morpheme. Therefore C still contains a feature which can influence allomorphy on [ϕ] located in Infl.

Another thing of interest for morphological theory which emerges from the present analysis is that in the morphosyntactic domain (when spellout looks forward) only those ms-features can trigger allomorphy which are found under the same node as the feature to be spelled out. Thus, both in (68) and (69) the spellout of [2sg] is followed by the spellout of a tense feature, [aorist] and [future]; however, this tense feature is located under a different node than [ϕ], namely, Part and not Infl, and therefore VI cannot see it. Similarly, (66) shows that [neg] is found under the same node as [aorist], for which it determines the right allomorph. On the contrary, when allomorphy is determined from backward, it can be determined by a vocabulary item or an undeleted feature which is under a different node (although this vocabulary item (or undeleted feature) must be adjacent in the sense that its spellout immediately precedes the spellout of the feature whose allomorph is now being chosen). Thus, there is an asymmetry in forward- and backward-allomorphy: forward-allomorphy is restricted to the same structural node, backward-allomorphy is not restricted in this way.

Finally, agreement allomorphy has another interesting property which follows directly from our analysis: it is only encountered in matrix sentences, in embedded clauses the second agreement paradigm is chosen throughout. The issue only arises for present/future, past resultative and past episodic since in other tenses set II markers are used anyway. Precisely in these three tenses the Infl node lacks a [tense] feature and contains only [ϕ] → in order to insert the correct allomorph for [ϕ], the spellout procedure must look back. Since embedded clauses are not CPs but KPs (see 4.3 for more on embedded sentences), VI will see K. All that needs to be assumed now is the existence of another allomorphy rule triggered by K which dictates the choice of a set II agreement clitic.

4.2.4. Matrix bare verbs

This section finalizes the discussion of tense with verbs and adjectives by considering one peculiar context – bare verbs occuring sentence-finally in matrix clauses. An example is given in (70). Such constructions are characterized by the obligatory animacy of their subjects and an obligatory element of surprise such that the event described by the sentence is interpreted as sudden and unexpected[36]. The verb must be sentence-final and devoid of all tense/agreement inflection, i.e. appear in its bare, basic form which is identical with the 2sg imperative (there is no separate infinitival marker in Sakha). Marking voice oppositions (causative, passive, reflexive, reciprocal) as well as negation on matrix bare verbs is also disallowed.

[36] Such constructions have a very limited use. They are very rare in written language and seem to be restricted to colloquial speech although they do not occur in emotionally neutral, normal speech. The contexts in which they appear can be characterized as “exaggerated spoken narration”.

However, denominal verbs are allowed. Also, argument-taking possibilities of bare verbs are not restricted: transitive, intransitive, agentive, experiencer predicates are possible. (71) shows a denominal experiencer verb: since the verb is not inflected for agreement, the subject's person/number can take any value (the same applies to (70) and all other sentences with bare verbs).

(70) Bihigi beqehee Saaska-ttan suruk tut.
We yesterday Saaska-abl letter receive
'(All of a sudden) Yesterday we received a letter from Saaska.'

(71) Min/en/kini/bihigi/ehigi/kiniler emiske kyyyhyr[37].
I/you/he/we/you/they suddenly become.angry
'I/you/he/we/you/they suddenly became.angry.'

Sentences with bare verbs always receive past (completed) tense interpretation and can be paraphrased using the immediate past tense marker –DI although the paraphrase will lack the sudden surprise connotation. Note that (72) allows a punctual as well as continuous reading of both bare *ystan* and inflected *ystannybyt*. It is generally the case that bare verb sentences have temporal meanings identical to those involving the immediate past tense suffix –DI plus the 'sudden surprise'-reading. It is this surprise part which accounts for differences in distribution. For instance, in a situation where Kesha and Lusha are in the room and Kesha suddenly drops a vase which breaks, he cannot utter (73b) but he can say (73a). However, if Kesha broke a vase e.g. yesterday and tells Lusha about it today, both sentences in (73) would be felicitous although using (73b) may describe Kesha as prone to hyperbolization.

(72) Bihigi beqehee ystan (=ystan-ny-byt).
We yesterday jump (=jump-immed.past-1pl)
'Yesterday, suddenly, we jumped (once/repeatedly).'

(73) a. Min vasa-ny aldjat-ty-m.
I vase-acc break-immed.past-1sg
b. Min vasa-ny aldjat.

Such correlation between bare verbs and DI-marked verbs is expected since –DI, the exponent of the [immediate past] tense feature, is the only suffix which has a zero allomorph, given what has been said above. Therefore we can assume that bare verbs, just like regular DI-marked verbs, involve an $I_{[\text{IMMEDIATE PAST}]}$-VP structure except that the verb does not raise to I, hence [immediate past] must be spelled out as zero. Furthermore, the subject also does not raise to Spec,IP accounting for the lack of agreement marking on the verb. As for the element of surprise, recall that in the discussion of past resultative which also involves an element of surprise (section

[37] The analysis of bare verb constructions below will assume that the verb and its arguments stay VP-internal, without moving to the IP-domain. Therefore word order permutations arise as a result of moving different chunks of structure to Topic and Focus projections.

4.2.1.1) we have suggested that this element of surprise is most likely licensed by an operator in the CP-domain. This is supported by the following two observations. First, when past resultative is embedded under K(ase)P resulting in a non-finite embedded clause, the connotation of surprise disappears but the past resultative meaning remains (see section 4.3.1 below). Second, bare verbs are allowed only in matrix clauses: a sentence with a bare verb cannot be used as either a non-finite or finite embedded clause. Lack of non-finite embedded clauses with bare verbs is clear: C but not K can host the surprise element. Lack of finite embedded sentences with bare verbs needs some explication. Finite embedded sentences are possible and they do involve a C (not K) but this C is overt *dien* or *dii*[38] and is not associated with a surprise-interpretation. Furthermore, it is irrealis: *dien*-clauses are usually embedded under such matrix verbs as 'hope', 'fear', 'think', etc.; when they are embedded under 'say', 'speak', 'sing' and the like, we may be dealing with direct speech since both *dien* and *dii* are derived from the verb *die* 'say'. On the contrary, the surprise-C is always realis, both with past resultatives and bare verbs.

Matrix bare verbs pose two questions: first, why doesn't the verb raise to I which contains the [immediate past] feature and, second, why doesn't the subject raise to Spec,IP? It was assumed above that licensing an event variable requires V-movement to I (or Part, if applicable). In the $I_{[\text{IMMEDIATE PAST}]}$-VP configuration the tense operator will be licensed since there is an event variable provided by VP for the tense operator to bind. The event variable also needs licensing the syntactic reflex of which is V-to-I raising. So the first question in addition requires specifying a licensing mechanism for the event variable in the absence of V-movement. The second question has to do with licensing the subject NP: is the subject assigned nominative (without moving to Spec,IP) and if yes, how?

At this point, it may be interesting to compare VPs and APs: the latter can also be embedded under $I_{[\text{IMMEDIATE PAST}]}$ (see 4.2.2) but no A-to-I movement takes place since APs provide a state variable which does not have to be licensed by moving to I. The sole adjectival argument, however, must escape AP for it will not be formally licensed AP-internally. Therefore it must raise to Spec,IP to be assigned nominative case. With matrix bare verbs, since these are fully grammatical, there must be some way to license their subject. One possibility presents itself which is fully consistent with what has been said above in chapter 3 about accusative Case deficiency. Recall that we argued for an analysis of accusative case along the lines in Reinhart, Reuland & Siloni (in progress; as summarized in Reinhart & Siloni 2003). Accusative case has two components: thematic and structural. The thematic component is universal since it is the implementation of the θ-criterion. The presence of the structural component is parameterized: in some languages verbs are associated with both thematic and structural accusative, in others – only with thematic accusative. Split Case considerations also apply to nominative. The facts concerning nominative subject licensing in matrix bare verb clauses follow under the following assumptions. Verbs in Sakha have thematic nominative but no

[38] Both *dien* and *dii* are verbal in origin: *dien* is the anterior gerund and *dii* is the simultaneous gerund of the verb *die* 'to say'. The use of *dii* is much more restricted: it is only possible if the matrix predicate is the verb *sanaa* 'to think'. *Dien* is allowed with *sanaa* and other verbs which allow finite clause complements such as *hear, hope, fear, think, say, tell, sing*, etc.

structural nominative. The latter is a prerogative of Infl. When the verb raises to Infl, it transfers its thematic nominative to Infl which checks it alongside structural nominative (Reinhart & Siloni 2003, note 31). The same transfer of thematic nominative to Infl takes place also when the verb raises to Part and does not raise further to Infl while the subject raises to Spec,IP through Spec,PartP: this is because Part and Infl form the same Tense chain. This is what happens in the unmarked case when the matrix verb carries tense/agreement inflection: the verb raises to Infl/Part, thematic nominative is transmitted to Infl, the subject raises to Spec,IP where it checks thematic nominative together with structural nominative. In the less regular case when the matrix verb is bare, the verb stays in situ and so does the subject which checks the verb's thematic nominative. What happens to structural nominative in this case? Apparently, if Infl had structural nominative in need of checking then the derivation would crash with no DP raising to Spec,IP. Since the derivation converges we are led to assume that structural nominative is a phantom: what is referred to by this term is simply a particular structural configuration when a DP finds itself in Spec,IP and values the Infl's ϕ-features which reflects itself in person/number agreement. Adjectives have no thematic nominative, therefore their subject cannot remain AP-internal: the only way for it to be licensed is by entering into a configuration with Infl triggering agreement. Traditionally, we can continue saying that in APs nominative case is structural[39].

Before moving on to consider the first question posed by matrix bare verb predicates, namely, why the verb does not raise to I and how the event variable is licensed in the absence of V-movement, a couple of questions with respect to subject licensing need to be clarified. It is conceivable that the subject can check thematic nominative on the verb VP-internally and does not raise further to Spec,IP whereas the verb does raise to Infl resulting in a situation when the verb carries tense inflection but no agreement inflection. What rules out such situation is the fact that once the verb's thematic case is checked, there would be no reason for the verb to raise further, assuming that the event variable can be licensed non-syntactically (see below). For the same reason it is impossible for the subject to check thematic nominative on the verb and then for both the subject and the verb to raise, respectively, to Spec,IP and Infl. Although superficially such a derivation would give the same results as the converging derivation based on thematic case transmission to Infl, it must be banned for if it were possible, another derivation would be possible too – with DP checking accusative case on the verb VP-internally and then both DP and V raising to the Infl-domain triggering person/number agreement with the accusative noun phrase.

A third type of derivation which must be ruled out is the following: the DP checks thematic nominative case on the verb which stays in situ but the DP itself raises to Spec,IP triggering agreement resulting on the surface in the nominative

[39] A final note on the lack of thematic nominative with adjectives. Adjectives are underlyingly one-place predicates and have neither thematic nominative, nor thematic accusative. Verbs must have at least two underlying arguments, have thematic nominative and may have thematic accusative. This combination of facts supports the view of Case as a relational category only applicable to predicates with more than one argument.

subject and the matrix verb carrying agreement but no tense inflection[40]. If such a derivation were possible, that would mean that the subject can enter a double licensing relationship: once by checking thematic nominative inside VP and, for the second time, by entering into a relationship with Infl. The impossibility of such derivation suggests that thematic and structural licensing must be integrated (at least within a single clause structure: this latter caveat may be necessary to allow relative clauses where a noun phrase is licensed thematically by the relative clause predicate and structurally by the matrix clause predicate; see below section 4.4). In the unmarked context where there is tense/agreement inflection on the matrix verb, subject licensing is an intergrated one-step process: the verb transfers its thematic nominative component to Infl so when the subject raises to Spec,IP, it can check not only thematic nominative but also "structural nominative", i.e. value Infl's ϕ-features. Accusative Case checking is also well-integrated: when the object noun phrase is a bare NP, it can straightforwardly check thematic accusative on the verb; if it is a DP, a structural checker is required to which the verb transfers its thematic accusative feature so that checking both thematic and structural components of accusative case takes place in one go.

Finally, addressing the first question we would like to argue that the reason the verb does not raise to $I_{[\text{IMMEDIATE PAST}]}$ has to do with surprise-interpretation which would only be possible if the VP's event variable and the tense feature stay separated from each other during the course of syntactic computation so that it comes as a surprise that the event described by the VP already took place in the past. However, if the event variable is not licensed syntactically by raising the verb to a node hosting a tense feature, it must be licensed by some other means. We will assume, à la Avrutin 1999, that discourse-related mechanisms can take care of loose ends left over by syntax as regards temporal licensing of events. Avrutin assumes that the event must be anchored which is achieved by coindexing Tense and the event variable at LF. In adult root infinitives which he considers ("Princess sentences" in Russian and Mad Magazine register and Headlinese in English), T and e have no index, the event cannot be anchored and therefore root infinitives in adult language result in semantically uninterpretable syntactic structures. These structures, Avrutin argues, must be interpreted by a specific discourse-related mechanism which allows the introduction of an event file card in the discourse representation of a root infinitive despite the lack of LF-indexing. Precise details of discourse representations and discourse theory involved need not concern us here: for the present concerns it is only important that discourse can help circumvent syntactic violations. We will assume, confident that a discourse-based analysis is feasible but without going into it, that in matrix bare verb sentences the surprise interpretation allows out-of-the-blue introduction of an event file card containing the relevant event, its participants and the time interval at which the event in question holds, namely, immediate past tense. Discourse licensing also explains why the subjects must be animate: the same constraint is also operative in adult Russian root infinitives and we can adopt Avrutin's tentative explanation (resorting to Ariel's

[40] Recall that the matrix verb would carry agreement inflection not as a result of V-raising to Infl but as a result of the agreement morpheme having cliticized to the VP in Spec,FocusP.

(1990) accessibility theory) that animate participants in events are better accessible individuals.

There is a related construction given in (74) in which a matrix verbal predicate also appears in its bare form, without tense/agreement inflection (therefore the subject's person/number is unrestricted) but here the similarity ends. First of all, the verb is reduplicated with a particle. Such particle-mediated reduplications are also possible with adjectives and nouns and result in an intensive reading as can be seen from (75). With verbs, intensification translates as extended duration of the action (either continuous or habitual), conveyed in (74) with the help of the adverb 'constantly'.

(74) Min/en/kini/bihigi/ehigi/kiniler möq-ülün da möq-ülün.
I/you/he/we/you/they scold-pass particle scold-pass
'I/you/he/we/you/they were/are constantly scolded.'

(75) a. Ulaxan da ulaxan djie!
Big particle big house 'What a big house!'
b. Djie da djie!
House particle house 'What a house!'

Second, there are no animacy restrictions on the subject and no element of surprise. Third and most important, reduplicated bare verbs are not restricted temporally and can refer to both past and present events (but not future). Also, their usage is unlimited: they do not depend in any special way on the surrounding discourse, are frequent and occur freely in both written and spoken language. Fourth, reduplicated verbs, unlike singleton bare verbs, can be marked for voice (causative, passive, reflexive, reciprocal). The properties of the two constructions involving non-reduplicated and reduplicated matrix bare verbs are compared in table 6 in (76).

(76) Table 6: Contrasting the properties of single and reduplicated matrix bare verbs

Properties	**Single verbs**	**Reduplicated verbs**
Tense marking	None	None
Agreement marking	None	None
Verb sentence-final	Yes	Yes
Negative verbs	Banned	Banned
Denominal verbs	Allowed	Allowed
Valency restrictions on verbs	None	None
Temporal meaning	Past	Past; present
Subject	Only animate	Both animate and inanimate
Surprise-reading	Yes	No
Restrictions on usage	Extremely limited; restricted to the context of "exaggerated spoken	Free occurrence in both written and spoken language

	narration" in colloquial speech	
Verbs marked for voice (causative, passive, reflexive, reciprocal)	Banned	Allowed

Under current assumptions these constructions should be analyzed as involving a an empty I on top of VP[41]. However, above we have argued that such constructions are ungrammatical because the event variable introduced by the VP will need licensing by the tense operator which is absent here. Moreover, it has been assumed that the default interpretation assigned to an Infl devoid of temporal content is present tense whereas with reduplicated bare verbs we get both present and past tense readings. For now, these puzzles are probably better left open but let us offer some tentative remarks as to how they may be addressed.

With regard to the first objection, we would like to draw a parallel between coordinated noun phrases and reduplicated bare verbs. In English singular count nouns cannot appear in argument positions unless they are introduced by determiners. However, coordinated NPs such as *friend and foe, bride and groom*, etc. are, in some cases, exempt from this requirement. In connection with this, Longobardi (1994:619n.) notes the following: «... if what is required in order to turn a nominal phrase into an argument is a functional head position saturating the NP in some sense, such a position can be provided not only by D but also by coordinating elements, understood essentially as quasi operators giving rise to a quantificational structure». His proposal stems from the possibility of determinerless coordinated singular count nouns in lexically ungoverned positions with definite specific or generic readings in Italian (77). These nominals contradict Longobardi's generalization that empty determiners are restricted to plural or mass nouns, are subject to lexical government requirement and receive indefinite interpretation. However, no problems arise for Longobardi's account if there is no empty determiner introducing *cane e gato* in (77): rather, the conjunction lexicalizes a functional head which is capable of saturating the NP and turning it into an argument.

(77) Cane e gato sono sempre nemici. (generic)
cat and dog are always enemies

Since the DP-domain is responsible for referentiality, in coordinated argumental NPs lacking the DP-layer the coordinating element is also expected to take over some of the determiner's job in fixing the reference of the noun phrase. Transferring these considerations to the verbal domain can give us the following. The element *da* connecting the verbs in reduplicated bare verb sentences is a multifunctional element serving as a conjunction, cf. (1), and as a question marker in yes-no

[41] This analysis coincides with the one proposed in Hyams 2001 for English bare verbs in child language which allow free temporal reference (past and present) because there is no tense chain (no temporal anchoring).

questions. Assuming that *da* in (78) and (74) is a coordinating element, it can have the potential of fixing the VP-reference and since VP-reference involves fixing the time interval at which the event takes place (i.e. licensing the event variable reflected syntactically as V-to-Infl/Part movement), the coordinating element can have the potential for licensing the event variable without V-movement to Infl taking place. We will assume that such licensing is achieved by imposing habitual interpretation on the event. Habitual interpretation is only possible if the conjunction coordinates identical verbs, as witnessed by the ungrammaticality of (79).

(78) Oloppos aldjan da aldjan.
Chair break DA break
'The chair kept/keeps breaking.'

(79) *Sardaana Erel-i möx da üöx.
Sardaana Erel-acc scold DA call.names

As for the second objection that present tense interpretation is imposed by default on an empty I, it must be mentioned that in the case of compound tenses studied above when empty I combined with a participial node filled with a tense feature the resulting temporal interpretation was not always present. Instead, it was compositionally determined by combining the temporal content of both I and Part. In view of this, it is plausible that a habitual event is temporally unrestricted: a temporally void Infl merged with a habitual VP can acquire free temporal reference, both present and past. For the time being, let's leave this tentative explanation as it is and move to the next section.

4.2.5. A sample derivation for a nominal predicate in the past and future tenses

Given all that has been said above, a nominal small clause, introducing no event/state variable, cannot combine with a temporally contentful Infl/Part for the latter does require such a variable in order to be licensed. Therefore an auxiliary verb is required. (80) gives derivation in the future tense, (81) in the past immediate tense.

(80) Finite nominal predication in the future tense:
Bihigi kolxuos bastyŋ balyksyt-tar-a buol-uox-put.
We kolkhoz best fisherman-pl-3 be-fut-1pl
'We will be the best fishermen of the kolkhoz.'

Buol 'be' is merged with SC; the subject moves to Spec,BeP →

[$_{BeP}$ **bihigi**$_k$ **buol** [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]]]

Part [future] is merged; *buol* moves to Part, the subject to Spec,PartP →

[$_{PartP}$ **bihigi**$_k$ [$_{Part}$ **buol**$_j$-[**future**] [$_{BeP}$ t_k t_j [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]]]]]

SC is fronted into Spec,FP above PartP →

[$_{FP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{PartP}$ **bihigi**$_k$ [$_{Part}$ **buol**$_j$-[**future**] [$_{BeP}$ t_k t_j t_{SC}

Empty I is merged; the subject moves to Spec,IP →

[$_{IP}$ **bihigi**$_k$ [$_{I'}$ [**1pl**] [$_{FP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{PartP}$ t_k [$_{Part}$ **buol**$_j$-[**future**] [$_{BeP}$ t_k t_j t_{SC}]]]]]]

FP is fronted to Spec,FocusP →

[$_{FocusP}$ [$_{FP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{PartP}$ t_k [$_{Part}$ **buol**$_j$-[**future**] [$_{BeP}$ t_k t_j t_{SC}]]]] [$_{IP}$ **bihigi**$_k$ [$_{I'}$ [**1pl**] t_{FP}]]]

the subject moves to Spec,TopP →

[$_{TopP}$ **bihigi**$_k$ [$_{FocusP}$ [$_{FP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{PartP}$ t_k [$_{Part}$ **buol**$_j$-[**future**] [$_{BeP}$ t_k t_j t_{SC}]]]] [$_{IP}$ t_k [$_{I'}$ [**1pl**] t_{FP}]]]]

(81) Finite nominal predication in the immediate/definite past tense:
Bihigi kolxuos bastyŋ balyksyt-tar-a e-ti-bit.
We kolkhoz best fisherman-pl-3 aux-immed.past-1pl
'We were the best fishermen of the kolkhoz.'

The auxiliary *e-* is merged with SC; the subject moves to Spec,AuxP →

[$_{AuxP}$ **bihigi**$_k$ **e-** [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]]]

Infl [immediate past] is merged; auxiliary moves to Infl, subject to Spec,IP →

[$_{IP}$ **bihigi**$_k$ **e-**[**immediate past**]+[**1pl**] [$_{AuxP}$ t_k t_{Aux} [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]]]]

FP is fronted to Spec,FocusP →

[$_{FocusP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{IP}$ **bihigi**$_k$ **e-**[**immediate past**]+[**1pl**] [$_{AuxP}$ t_k t_{Aux} t_{SC}]]]

the subject moves to Spec,TopP →

[$_{TopP}$ **bihigi**$_k$ [$_{FocusP}$ [$_{SC}$ t_k [**kolxuos bastyŋ balyksyt-tar-a**]] [$_{IP}$ t_k **e-**[**immediate past**]+[**1pl**] [$_{AuxP}$ t_k t_{Aux} t_{SC}]]]]

4.2.6. Comparison with Baker 2003

As promised in the introduction, we have followed Baker's general idea that the morphosyntactic properties of the three lexical categories should be traceable to their underlying thematic properties although Baker's own execution is different from ours conditioned by his treatment of adjectives as non-predicative categories. As already mentioned in section 4.1, for Baker only verbs are predicates and can be embedded directly under Tense whereas nouns and adjectives, before merging with Tense, must first be turned into predicates by merging with the functional head Pred. However, the above discussion has provided ample evidence from Sakha that

adjectives are predicative categories capable of being embedded under Tense (=Infl) without intervening functional heads and therefore we get a three-way asymmetry among VPs, APs and nominal small clauses instead of a two-way split between VPs and PredPs (APs and NPs) predicted by Baker. Nevertheless, we can consider Baker's stance on tense inflection.

Baker mostly addresses the morphological aspect of the problem, namely, why tense affixes can attach directly to verbs but not to nouns or adjectives (in the general scenario). When Tense is realized by an affix it needs a morphological host: if the complement of T is a VP, the verb can raise to T resulting in e.g. *John jumped*. When Tense is realized by an independent morpheme such as English future, no raising is required resulting in e.g. *John will jump*. Baker assumes that, as a rule of thumb, Tense, if it is an affix, requires a lexical category. This is a basic morphological requirement of T stated as follows: "(In certain languages, certain) tenses must attach to a lexical category" (Baker 2003:50). This constraint is operative in most languages and prevents derivations such as **John teacher-ed, *John small-ed* instead of *John was a teacher, John was small*. The ungrammatical examples are derived by moving the noun *teacher* and the adjective *small* first to phonologically unrealized Pred and then adjoining N-Pred or A-Pred to Tense which is impossible because Pred is a functional category. It is also impossible for N or A to raise directly to T skipping Pred for such a derivation would violate the Head Movement Constraint. The only converging derivation involves merging a copular verb above PredP which can bear the relevant tense morphology yielding the correct examples *John was a teacher, John was small*.

On the other hand, there are also languages where tense affixes can attach not only to verbs but also to nouns and adjectives. Baker assumes that in these languages tenses may attach to any word-level category. Furthermore, he claims that the two morphological principles relating to tense (that tenses either must attach to a lexical category or may attach to any word-level category) are language-internal: within the same language it is possible that one tense must attach to a lexical category (i.e. it is restricted to verbs) whereas another tense can attach to a functional as well as lexical category. This situation is argued to arise in Turkish where the affixes for present, past, conditional and inferential tenses can attach directly to all three lexical categories whereas the affixes for other tenses (viz., continuative, aorist, future, necessitive and optative) can attach directly only to verbs: when suffixing to nouns and adjectives, the mediation of a verbal copula is a must. In Baker's terms, the former suffixes will be specified as attaching to any word-level category, whereas the latter, strictly verbal suffixes will be specified as attaching to a lexical category only.

(82)

<u>Verbs</u>:		
in-di-m	descend-past-1sg	'I descended'
gel-ecek-sin	come-fut-2sg	'you will come'
<u>Adjectives</u>:		
zengin-di-m	rich-past-1sg	'I was rich'
zengin *(ol)-acak-sın	rich be-fut-2sg	'you will be rich'

Nouns:		
bahçıvan-dı-m	gardener-past-1sg	'I was a gardener'
öğretmen *(ol)-acak	teacher be-fut	's/he will be a teacher'

The specific properties of affixes indeed play a role, however, as we argued above, they are of secondary importance when it comes to explaining the examples in (82). Within the proposal advanced in this work, since APs and NPs do not introduce an event variable, no raising to Infl takes place. As a result, the tense suffix which appears on the adjective (or noun) is analyzed as a clitic which has cliticized to the predicate material in Spec,FocusP. Thus, we will be led to claim that those Turkish affixes which show indiscriminate attachment possibilities are clitics and this is precisely what we have speculatively offered for past –DI and inferential –MIŞ. For lack of knowledge in this area, we leave these questions open.

One problem that Baker glosses over is what happens with adjectival and nominal PredPs when Tense is not realized by an affix but by an independent tense particle as is the case with English future. A sentence such as **He [$_{TP}$ will [$_{PredP}$ ∅ [$_{NP}$ a good teacher]]]* (instead of *He will be a good teacher*) should be grammatical since *will*, being a free morph, does not require any host, either functional or lexical, and the nominal head of the predicate can remain in situ[42]. Baker acknowledges this problem and offers the following tentative solution: "Perhaps *will* in English selects some other functional head which is itself an affix, therefore necessitating the presence of a verb form it can attach to" (ibid. 50n.). The *will*-problem shows the inadequacy of an exclusively morphosyntactic approach to the incompatiblity of tense with nouns and the lack of A-to-T raising. In our terms, **he will a good teacher* is ungrammatical because there is no event/state variable for the tense operator to quantify over → therefore an auxiliary verb must be present.

Finally, there is an important inconsistency in Baker's exposition of his theory which causes some confusion. Let's elaborate on it in a bit more detail. At first, Baker assumes that the theme argument of adjectives and verbs is assigned in different positions: in Spec,PredP with adjectives and in Spec,VP with verbs. This assumption, however, goes against another one which Baker wants to preserve at all costs – UTAH. In order to preserve both assumptions intact, Baker advances a decompositional approach to VPs in which VPs are underlyingly APs plus a functional operator or two. Empirical motivation for decomposition comes from an observation that adjectival arguments (themes, subject matters, goals) are a proper subset of verbal arguments (verbs can take the same range of arguments as adjectives and in addition agents)[43]. The functional operators involved in deriving verbs are CAUSE and BE which project into the syntax as v and V/Pred, respectively. For instance, a transitive verb like *donate* as in *John donated the book*

[42] Note that for Baker English *be* cannot be equated with Pred: *be* is a thematically inert auxiliary verb dominating a null Pred (ibid. 45n.). Thus, in **he will a good teacher* the particle *will* dominates a PredP whereas in *he will be a good teacher* it is *be* which dominates PredP. The lexical auxiliary verb *be* should not be confused with the abstract functional head BE alias PRED (BE=PRED equation is made by Baker in passim).

[43] This motivation is rendered invalid by Baker's own theory that adjectives cannot have any arguments and therefore adjectival PP-complements are adjuncts and not true arguments (ibid. 78n.; see also Baker's appendix).

to the library would decompose into (83) where the arguments of CAUSE are X and VP and the arguments of BE are Y and AP. In turn, AP is internally complex with a goal PP-complement. The surface form *donate* results from conflating the abstract adjective DONATED with BE and CAUSE into a single item.

(83) X_{John} CAUSE [$_{V/PredP}$ $Y_{the\ book}$ BE [$_{AP}$ DONATED to $Z_{the\ library}$]]

If verbs are underlyingly PredP-AP, just like adjectives used predicatively, then the tense asymmetry between adjectives and verbs cannot follow. For Baker, the Pred head is the culprit when it comes to the inability of adjectives to carry tense affixes: Pred intervenes between A and T, therefore A cannot raise to T. However, under a decompositional approach to verbs the same Pred does not prevent A from conflating with it and then raising to Tense. Baker thinks that the resolution of this paradox lies in lexical insertion. For instance, (84a) can give rise to both (84b) and (84c) depending on when lexical insertion takes place. If lexical insertion applies directly to (84a) then the result is (84b): the lexical adjective *hungry* is inserted in the place of the abstract adjective HUNGRY, Pred is realized by a phonologically null element but nevertheless, being structurally present, prevents A from attaching to the affixal tense (past -ed); therefore the copular verb *be* is required above PredP and it can merge with –ed resulting in *was*. If, on the other hand, conflation takes place before lexical insertion, then a single lexical item, the verb *hunger*, will be inserted into the syntactically complex A+Pred node.

(84) a. [$_{TP}$ T-[ed] [$_{PredP}$ Pred [$_{AP}$ HUNGRY]]]
b. Mary was hungry.
c. Mary hungered.

In Baker's theory morphological units such as *hungry* or *hunger* inserted into syntactic nodes have no category: they acquire it only upon insertion depending on the node they are inserted in. A lexical item inserted into a conflated A+Pred node becomes a verb, a lexical item inserted into A (before conflation with Pred) is categorized as an adjective. Decomposing verbs into adjectives and functional operators takes away much of the strength from Baker's claim that adjectives would be able to raise to Tense, were it not for Pred. Now it becomes a matter of when lexical insertion takes place: if the A node is lexicalized, it can no longer conflate with Pred and cannot raise to Tense but if A managed to conflate with Pred prior to lexical insertion, this complex node will be lexicalized by a lexical item (categorized as a verb) which will be able to raise to Tense. Such analysis strongly departs from the original intention in that it no longer attributes differences between adjectives and verbs to their underlying thematic properties but derives these differences by varying the point of lexical insertion.

Finally, assuming that all verbs, universally, have adjectival bases damages Baker's overall theory that there are three lexical categories: as it turns out, there are only two lexical categories (nouns and adjectives) and there are no verbs. For Baker and as generally assumed, the notion of a lexical category exists syntax-internally only: outside of syntax this notion plays no role. If Baker's syntactic structures were consistent with his general claim about the existence of three lexical categories, then

he would postulate three syntactic nodes – N, A and V but in reality Baker only has N and A. There is also a V node but this node is the same as Pred, and V alias Pred is a functional head hosting the operator BE: no lexical item can be inserted directly into V/Pred whereas N and A can serve as immediate targets of lexicalization. To concretize the point, *muffin* can be inserted in N, *tasty* can be inserted in A but *devour* cannot be inserted in V/Pred. *Devour* can only be inserted in V/Pred if prior to that, the abstract (i.e. not yet lexicalized) adjective has conflated with V/Pred. In other words, there is no single syntactic node insertion into which triggers a lexical item to be categorized as a verb. The only such node which induces V-categorization is complex and implicates an A.

4.3. Embedded predication and the obligatoriness of *buol* 'be' with nonfinite nominal predicates

An adjective with its subject can become embedded under a matrix predicate directly, without any functional/lexical support intervening (85). This is not possible for a nominal small clause for which the copular verb *buol* 'be' is required (86). At the start of our inquiry, in section 4.1.2.2, we tentatively remarked that the copula is present in order to license the subject of the NP. As the ensuing discussion made clear, the reason has nothing to do with licensing the subject. As shown in (39), a predication relation between an NP and its subject is established inside a small clause inducing agreement in number between the two. *Buol* 'be' can merge with the small clause optionally as in (40) and therefore has no role in licensing a subject.

(85) En yraas-k-yn bil-e-bit.
You clean-2sg-acc know-aor-1pl
'We know that you are clean.'

(86) En byraas buol-ar-g-yn/??byraas-k-yn bil-e-bit.
You doctor be-aor-2sg-acc/??doctor-2sg-acc know-aor-1pl
'We know that you are a doctor.'

The presence of *buol* also has nothing to do with tense[44]. Under the view advanced here, both (85) and (86) involve an empty Infl hosting no tense feature and hence no tense operator. Therefore the role of *buol* cannot be to introduce the tense operator. There is, however, one difference between (85) and (86) and that is the presence of the state variable introduced by the AP in (85) and the sheer lack of an event/state variable in (86) (since NPs do not introduce any). Hence, *buol* must be required in order to introduce an event variable. Below we will see that the obligatory presence of *buol* in non-finite embedded sentences with a nominal predicate follows from the general nature of embedding, subordinating one clause to another. We will restrict our domain of inquiry to complement clauses and leave adjunct clauses aside. In the following subsections we will consider the occurrence of verbal, adjectival and

[44] As Baker (2003:158) notes, tense is not required for clausehood: there is no "general need to express tense overtly … many languages do allow verbless sentences with no (overt) tense specification when a predicate noun is predicated of a subject".

nominal predicates in both finite and non-finite complement clauses, arriving in the course of discussion at a descriptive generalization which governs subordination in Sakha and its explanation.

4.3.1. Non-finite and finite subordination: Verbal predicates

Various indicative tenses considered in section 4.2.1 only had relevance for matrix predicates. A verbal predicate of a non-finite sentential complement cannot show all of these tense distinctions. Tables 7 and 8 give a schematic overview of tenses which are (dis)allowed with embedded verbs.

(87) Table 7: Verbal indicative tenses allowed in non-finite subordination

	INFL	AUX	F	PART	VP
Present/future	∅	-	-	[aorist]	VP
Past resultative	∅	-	-	[remote past]	VP
Past episodic	∅	-	LAAX	[remote past]	VP
Pluperfect episodic 1	[immediate past]	-	LAAX	[remote past]	VP
Past imperfect 1	[immediate past]	-	-	[aorist]	VP

(88) Table 8: Verbal indicative tenses disallowed in non-finite subordination

	INFL	AUX	F	PART	VP
Immediate past	[immediate past]	-	-	-	VP
Remote past	[remote past]	-	-	-	VP
Future	∅	-	-	[future]	VP
Past imperfect 2	[immediate past]	AUX	-	[aorist]	VP
Pluperfect	[immediate past]	AUX	-	[remote past]	VP
Pluperfect episodic 2	[immediate past]	AUX	LAAX	[remote past]	VP

The examples below illustrate some of the cases. (89) is ambiguous between present/future and past imperfect-1 interpretations. This is because both tenses involve the same structure INFL-Part$_{[AORIST]}$-VP, except that in the present/future the INFL node is empty whereas in the past imperfect-1 it is a host to the [immediate past] feature which, for the lack of a lexical category raised to INFL, is spelled out by a zero morpheme. The starred examples in (90) and (91) show that the verbal predicate of a non-finite sentential complement can be put neither in the past imperfect-2 nor in the immediate past tenses.

(89) En baaŋ-ŋa ülelii-r-iŋ bil-l-er.
You bank-dat work-aor-2sg know-pass-aor
Present/future: 'It is known that you work in the bank.'

Past imperfect 1: 'It is known that you used to work in the bank.'

(90) *En baaŋ-ŋa ülelii-r e-ti-ŋ bil-l-er.
You bank-dat work-aor aux-immed.past-2sg know-pass-aor
Past imperfect 2: 'It is known that you used to work in the bank.'

(91) *En baaŋ-ŋa ülelee-ti-ŋ bil-l-er.
You bank-dat work-immed.past-2sg know-pass-aor
Immediate past: 'It is known that you worked in the bank.'

On the contrary, under finite subordination an embedded verb, being finite, is not restricted temporally and can show the same range of temporal distinctions as a matrix verb. To illustrate, (92) involves the same subordinate clause as (91) but this clause is embedded in the matrix structure through different means: in (91) through nominative Case (which receives zero marking) and in (92) through a complementizer(-like) element *dien*.

(92) En baaŋ-ŋa ülelee-ti-ŋ dien ihit-ti-m.
You bank-dat work-immed.past-2sg Comp hear-immed.past-1sg
Immediate past: 'I heard that you worked in the bank.'

4.3.2. Non-finite and finite subordination: Adjectival predicates

Adjectival predicates show identical temporal distinctions, independent of the type of subordination. The reason for this symmetry lies in the fact that adjectives have limited possibilities with respect to tense anyway, as discussed in section 4.2.2. In particular, compound tenses involving an IP-PartP structure cannot occur with adjectives: in the *IP-PartP-AP configuration the AP introduces a state variable and so does PartP, hence the application of PartP to AP turns out to be vacuous.

The only two options available with adjectival predicates in matrix sentences are represented by simplex tenses built on the IP-AP configuration: present (when INFL is temporally void) and immediate past (when INFL hosts the pertinent feature). The same two tenses are available with adjectives functioning as predicates of both finite and non-finite complement clauses as the following examples demonstrate[45]. Again, non-finite sentences in the present and in the immediate past turn out to have identical spellouts because the [immediate past] feature is expressed by the zero allomorph and not by the –DI suffix (recall from above that adjectives do not raise to Infl, therefore –DI which requires a lexical host in Infl cannot be inserted there).

(93) Finite complement clauses:

En bytaaŋ-ŋyn dien bil-e-bin.	En bytaan-yŋ dien bil-e-bin.
You slow-2sg Comp know-aor-1sg	You slow-2sg Comp know-aor-1sg
'I know that you are slow.'	'I know that you were slow.'

[45] On the different spellout of agreement clitics conditioned by allomorphy rules see section 4.2.3.

(94) Non-finite complement clauses:

En bytaan-yŋ bil-l-er.	En bytaan-yŋ bil-l-er.
You slow-2sg Comp know-aor-1sg	You slow-2sg Comp know-aor-1sg
'I know that you are slow.'	'I know that you were slow.'

4.3.3. Non-finite and finite subordination: Nominal predicates

With respect to tense, nominal predicates of matrix sentences and finite complement clauses do not differ from each other. For both, present tense is possible out of the $I_{[\varnothing]}$-NP configuration without the support of a verbal auxiliary (95a-b); all other tenses require such an auxiliary. In non-finite sentential complements all tenses, including present, cannot do without the mediation of a copular verb (95c).

(95)	a.	Kini xohoonnjut. he poet 'He is a poet.'	(matrix)
	b.	Kini xohoonnjut dien bil-l-er. he poet Comp know-pass-aor 'It is known that he is a poet.'	(finite embedded)
	c.	Kini xohoonnjut buol-ar-a bil-l-er. he poet be-aor-3 know-pass-aor 'It is known that he is a poet.'	(nonfinite embedded)

4.3.4. Argumenthood and referentiality of embedded clauses

The data considered in the previous subsections reveal the following descriptive generalizations. First, finite embedded clauses are not restricted in the sense that any matrix clause can become embedded as an argument of a matrix predicate with the help of the complementizer *dien*. Second, nonfinite embedded clauses built on verbal and nominal predicates are restricted in a number of ways whereas, as we have seen, those involving adjectival predicates are unrestricted. NP-clauses are only possible with a mediating auxiliary. VP-clauses are possible with compound IP-PartP-VP tenses (i.e. without AUX) and impossible with simplex IP-VP tenses, compound IP-AUX-PartP-VP tenses (i.e. with AUX) and the future tense.

Let's consider nonfinite VP-structures first. Future tense is ruled out for reasons mentioned above in section 4.2.1.1 where it was assumed that if Part is realized by the feature [future], it needs licensing by an irrealis operator located in CP. Therefore non-finite, embedded clauses cannot be assigned future interpretation because the latter necessarily implicates the presence of a CP-layer absent from non-finite structures which arise out of the KP-TopP-FocusP-IP-PartP-VP architecture.

Next, what puts simplex IP-VP together with compound IP-AUX-PartP-VP tenses and sets these two types apart from compound IP-PartP-VP tenses is the presence of V-to-I-raising in the former two and the absence thereof in the latter. As argued in section 4.2.1.6, V-to-I-raising is a syntactic reflex of licensing an event variable by a tense operator. If we take a look at the tenses disallowed with verbs in non-finite subordination in table 8 in (88) (except for future which is ruled out for other reasons), the following emerges. In the two simplex tenses (immediate past

and remote past), INFL contains the pertinent tense operator which binds an event variable introduced by VP; in turn, this event variable is licensed as a result of V-movement to INFL. In the remaining three tenses (past imperfect 2, pluperfect and pluperfect episodic 2), VP's event variable is licensed by V-movement to Part and the application of Part to VP yields a state variable which requires no licensing by tense. Further up, upon merging AUX (the deficient auxiliary verb *e*-) or BE (the copular verb *buol* 'be') with PartP, another event variable is introduced by either *e*- or *buol* which is licensed by raising the auxiliary to INFL containing a tense operator which, in turn, is licensed by binding the event variable introduced by *e-/buol*. Thus, the five impossible cases of table 8 (apart from future) involve an event variable licensed by V-to-I movement.

On the contrary, the possible cases of table 7 in (87) have no verb in INFL. They all involve an event variable introduced by VP and licensed by V-movement to Part. PartP is associated with a state variable which does not have to be licensed by tense. In the present/future, past resultative and past episodic, INFL contains no tense feature, hence no tense operator which would need licensing of its own. In the other two cases INFL hosts the [immediate past] tense feature and the tense operator is licensed by binding the state variable associated with PartP.

In nonfinite clauses with nominal predicates the copular verb *buol* 'be' is obligatorily present. Since *buol* is a verb, nonfinite sentences with an NP-predicate become equated with nonfinite VP-structures and the above considerations relating to tables 7 and 8 in (87) and (88) apply to them as well.

Concerning embedded IP-AP structures, they too, just like embedded VP-structures, involve a state variable introduced by AP: in the present tense there is no tense operator because INFL is null; in the immediate past the relevant tense operator is licensed by quantifying over the AP's state variable.

We thus arrive at the final descriptive generalization concerning nonfinite embedded predication in Sakha: there can be no V-to-I movement and there must be a state variable that tense in INFL can quantify over[46]. Lack of V-raising to I can receive the following explanation. We will assume that a tense chain is formed between CP and IP (cf. Guéron 1998) but only in those cases when an event variable is licensed by V-movement to INFL. Thus, whenever V raises to INFL, IP must be merged with CP and not KP (abstracting away from the presently irrelevant TopP and FocusP). For that reason all those tenses where a verbal category must move to INFL (table 8 in (88), with the exception of future) cannot appear on the predicates of nonfinite embedded clauses. On the contrary, in finite subordination embedded clauses are CPs, hence there are no restrictions on embedded INFL. Therefore the predicate of an embedded finite clause enjoys the full range of temporal distinctions, just like the predicate of a matrix clause.

What needs to be answered is why a state variable is required in embedded predication forcing the appearance of an auxiliary verb in nonfinite clauses with nominal predicates. A plausible answer lies in referentiality. As argued in chapter 3, an NP can become an argument if it is assigned a feature cluster (θ-role) associated with a particular verb. θ-role assignment is enabled by the assignment of thematic

[46] In cases where INFL contains no tense feature, it is assigned present tense interpretation by default and it is this present tense which quantifies over the state variable.

case or by the referentiality of the noun phrase, i.e. if it is a DP. In the second case, the verb cannot assign thematic case to a functional category and therefore transmits it to KP which can assign it to DP along with structural accusative. A feature cluster can also be assigned to an embedded nonfinite clause. Since clauses are necessarily associated with functional categories, they cannot receive thematic case directly from the verb. This explains why the KP-layer is always mandatory in embedded participial clauses. Since the sentential KP-argument is not assigned case directly by the verb, it must be referential in order to function as an argument. With noun phrases referentiality is uncontroversial: they must refer to an individual in discourse. Sentences, whether KPs or CPs, refer to propositions. Déchaine 1993 assumes that a verbal extended projection can refer to a proposition by virtue of both Tense and Verb being [+referential] categories: verbs refer to events and Tense locates events in the discourse. We will adopt this assumption and extend it to KP-clauses with any type of predicate: a KP-clause can be embedded as an argument of a matrix predicate only if it refers to an event/state properly located on the temporal axis. Thus, strictly speaking, it is not a state variable per se that is required in embedded predication for INFL to quantify over. It is simply the case that a state variable is the only option available for turning a KP-clause referential since an event variable is independently ruled out[47]. Once again, the assumption that NPs introduce no event/state variable is corroborated. For a KP-IP-NP configuration to become an argument of a matrix verb, it must be referential, i.e. be associated with a state variable which forces the appearance of an auxiliary verb.

When the matrix verb assigns its feature cluster to a CP, the latter becomes an argument of the matrix verb. Since CPs cannot be assigned case by the verb, they can become argumental if they are referential which CPs are (since they refer to propositions), hence no problems arise. We will take up the issue of KP- and CP-embedded clauses and their relation to thematic case on the matrix verb in more detail in chapter 6.

4.4. Extractions out of predicates: the nominal/adjectival/verbal asymmetry

Consider the examples in (96). In (96a) and (96b) we have complex nominal and adjectival predicates, complex in the sense that an optional dative goal argument is present. In (96c) we have a verbal predicate, also with a goal NP.

(96)	a.	Künnej Sargy-ga sirdjit. Künnej Sargy-dat guide 'Künnej is a guide to Sargy.'	Noun
	b.	Künnej Sargy-ga interiehinej. Künnej Sargy-dat interesting 'Künnej is interesting to Sargy.'	Adjective
	c.	Künnej Sargy-ga kömölöh-ör. Künnej Sargy-dat help-aor	Verb

[47] Recall that when INFL quantifies over an event variable, the latter must be licensed by V-movement to INFL and whenever such movement takes place, a tense chain must be formed between Comp and INFL. Therefore, in such cases IP must be merged with Comp and not with KP.

'Künnej helps Sargy.'

In (97) the subjects of the predicates in (96) have been extracted. As can be seen, extraction is possible out of all predicates but in the case of a noun-based predicate the copular verb must be inserted.

(97) a. Sargy-ga sirdjit *(buol-ar) kyys
Sargy-dat guide *(be-aor) girl
'the girl who is a guide to Sargy'
b. Sargy-ga interiehinej kyys
Sargy-dat interesting girl
'the girl who is interesting to Sargy'
c. Sargy-ga kömölöh-ör kyys
Sargy-dat help-aor girl
'the girl who helps Sargy'

(97c) is a subject relative clause whereas (97a) and (97b) are not full relative clauses[48]: for instance, they are only used in the present tense whereas regular (i.e. verb-based) relative clauses display a broad range of tenses; also, as will be shown shortly, only their subjects can be extracted whereas relativization in regular relatives can target a variety of non-subject NP arguments. In order to understand better what happens in the extraction cases in (97) we will first consider the structure of verbal subject and non-subject relative clauses in Sakha adopting a head-raising analysis along the lines in Kayne 1994 (section 4.4.1). Extractions of the subjects of adjectival and nominal predicates will be addressed in sections 4.4.2 and 4.4.3, respectively.

4.4.1. Verb-based relative clauses

Kömölös 'help' in (96-97c) is a denominal verb derived from *kömö* 'help' plus the verbalizer –LA-S and therefore its goal argument is not present in its thematic grid but licensed syntactically in the specifier of ApplP (see chapter 7). The verb is given in the aorist participial form. The target of relativization is the subject *kyys* 'girl' which moves from Spec,VP into Spec,CP after which IP can be fronted. Questions why the subject does not move to Spec,IP and why the verb does not move to I will be addressed shortly.

(98) $[_{DP}$ D $[_{CP}$ C $[_{IP}$ I $[_{ApplP}$ Sargy-ga $[_{PartP}$ kömölöh$_k$-ör $[_{VP}$ kyys t$_k$]]]]]]

1) the subject *kyys* 'girl' (target of relativization) moves into Spec,CP →

$[_{DP}$ D $[_{CP}$ kyys$_i$ C $[_{IP}$ I $[_{ApplP}$ Sargy-ga $[_{PartP}$ kömölöh$_k$-ör $[_{VP}$ t$_i$ t$_k$]]]]]]

2) IP is fronted into Spec,DP →

$[_{DP}$ $[_{IP}$ I $[_{ApplP}$ Sargy-ga $[_{PartP}$ kömölöh$_k$-ör $[_{VP}$ t$_i$ t$_k$]]]] D $[_{CP}$ kyys$_i$ C t$_{IP}$]]

[48] All relative clauses in Sakha, whether full or reduced, are head-final participial. See Keenan 1985 for a typological overview of relative clauses in general.

Now let's consider a non-subject relative version of (1c) in which the goal argument is relativized.

(99) Künnej kömölöh-ör kyyh-a
Künnej help-aor girl-3
'the girl whom Künnej helps'

(100) $[_{DP}$ D $[_{CP}$ C $[_{IP}$ I $[_{ApplP}$ kyys $[_{PartP}$ kömölöh$_k$-ör $[_{VP}$ Künnej t_k]]]]]]

1) the subject *Künnej* moves into Spec,IP and I acquires its phi-features (third person singular) spelled out as /–A/ →

$[_{DP}$ D $[_{CP}$ C $[_{IP}$ Künnej$_i$ I$_{[3]}$ $[_{ApplP}$ kyys $[_{PartP}$ kömölöh$_k$-ör $[_{VP}$ t_i t_k]]]]]]

2) the goal NP *kyys* (target of relativization) moves into Spec,CP →

$[_{DP}$ D $[_{CP}$ kyys$_j$ C $[_{IP}$ Künnej$_i$ I$_{[3]}$ $[_{ApplP}$ t_j $[_{PartP}$ kömölöh$_k$-ör $[_{VP}$ t_i t_k]]]]]]

3) since V does not move to I, it is licensed by incorporation into C →

$[_{DP}$ D $[_{CP}$ kyys$_j$ C+I$_{[3]}$ $[_{IP}$ Künnej$_i$ t_I $[_{ApplP}$ t_j $[_{PartP}$ kömölöh$_k$-ör $[_{VP}$ t_i t_k]]]]]]

4) IP is fronted into Spec,DP →

$[_{DP}$ $[_{IP}$ Künnej$_i$ t_I $[_{ApplP}$ t_j $[_{PartP}$ kömölöh$_k$-ör $[_{VP}$ t_i t_k]]]] D $[_{CP}$ kyys$_j$ C+I$_{[3]}$ t_{IP}]]

The question why the subject doesn't move into Spec,IP in the subject relative in (98) is related to another question – why is the goal argument realized as dative in (98) but as a bare NP in (99). Both questions simply fall under the general question of licensing noun phrases. In relative clause formation NP-targets of relativization may correspond to a wide range of NP-positions inside a relative clause marked by different cases (accusative, dative, ablative, instrumental, comitative)[49]. Under relativization the head NP loses its 'original' case marking and is free to be marked for any other case depending on the position of the [Relative clause – Head NP] inside the matrix clause. This implies, on the one hand, that the particular morphemes realizing various cases in Sakha are inserted post-syntactically[50] reflecting the final landing position of the NP and, on the other, that structural licensing of an NP is separated from its thematic licensing. In (98), the subject is licensed thematically VP-internally (assigned a theta role). If instead of step 1, it moved to Spec,IP, it would also be licensed structurally and having satisfied its requirements, it would not move further. In (98), however, the subject moves to Spec,CP and the whole derivation eventually results in a relative clause, which is a DP with a nominal head and which will be licensed as a DP argument of the matrix predicate. However, in (98) the thematic link between the RC-head 'girl' and the

[49] Assuming, as is done here, a raising/promotion analysis of relative clauses à la Vergnaud (1974) / Kayne (1994).
[50] I.e. at spellout, during vocabulary insertion (within the morphological component).

participial RC-predicate ‘helping’ is still maintained so that one can identify ‘girl’ as the ‘helper’.

In (99) the benefactive (goal) argument will be assigned a theta role by the applicative head which introduces the argument syntactically. As for structural licensing, the benefactive can be licensed either by the same thematic head in which case it will be realized as dative with the appropriate morphological case marker or it can move to Spec,CP becoming the head of a relative clause and as such be licensed as an argument in the main sentence although a thematic link with the RC-predicate (through the gap inside the RC) will not be severed.

4.4.1.1. Lack of V-to-I movement inside a relative clause

Tables 9 and 10 show those indicative tenses which are, respectively, allowed and disallowed with verbal predicates of relative clauses. If we compare (101) and (102) with similar tables in (87) and (88) (namely, verbal indicative tenses (dis)allowed in non-finite subordinate clauses), the facts turn out to be almost identical, except for future which is impossible on the predicate of a nonfinite sentential complement: table 7 ≈ table 9; table 8 ≈ table 10.

(101) Table 9: Verbal indicative tenses allowed in relative clauses

	INFL	**AUX**	**F**	**PART**	**VP**
Present/future	∅	-	-	[aorist]	VP
Past resultative	∅	-	-	[remote past]	VP
Past episodic	∅	-	LAAX	[remote past]	VP
Future	∅	-	-	[future]	VP
Pluperfect episodic 1	[immediate past]	-	LAAX	[remote past]	VP
Past imperfect 1	[immediate past]	-	-	[aorist]	VP

(102) Table 10: Verbal indicative tenses disallowed in relative clauses

	INFL	**AUX**	**F**	**PART**	**VP**
Immediate past	[immediate past]	-	-	-	VP
Remote past	[remote past]	-	-	-	VP
Past imperfect 2	[immediate past]	AUX	-	[aorist]	VP
Pluperfect	[immediate past]	AUX	-	[remote past]	VP
Pluperfect episodic 2	[immediate past]	AUX	LAAX	[remote past]	VP

Given what has been said above in sections 4.2 and 4.3, the reasons for such an arrangement of tenses inside relative clauses are clear. Future is not possible in nonfinite embedding because it requires an irrealis C and nonfinite embedded clauses are KPs and have no CP-layer. On the contrary, relative clauses on the raising/promotion analysis involve a [DP-CP-IP] substructure and therefore may allow future interpretation.

With respect to table 10, it is also evident that these tenses are out in RCs for the same reason they are out in embedded KPs. They all involve an event

variable licensed by raising a verbal category to INFL, in which case a tense chain is formed between Comp and Infl. In embedded KPs there is no Comp while the derivation of relative clauses involves moving the IP-complement of Comp into Spec,DP. Kayne (1994:95) suggests that an IP separated from C cannot be finite if finiteness is licensed in the Comp-area. In a similar vein, we will assume that a tense chain between CP and IP required in order to derive the tenses in table 10 cannot be formed in relative clauses: moving the IP would break the chain.

4.4.1.2. Two differences between Sakha and Turkish RCs[51]

Turkish relative clauses are to a great extent similar to Sakha relative clauses (see Kornfilt 1997, 2000; also Hale 2001). Nevertheless, there are a number of important differences, of which two are particularly interesting with respect to the present discussion. First, Turkish has productive genitive case: the subject of the modifier clause is marked genitive. In Sakha genitive case is extinct: the subject of the modifier clause, e.g. *Künnej* in (99), is marked nominative. Second, the morpheme which marks agreement between the subject of the modifier clause and the head noun is attached to the head noun in Sakha but to the participle in Turkish.

(103)	a.	Uol kör-büt kyyh-a	(Sakha)
		Boy see-past girl-**3**	'the girl whom the boy saw'
	b.	Oğlan-ın gör-müş-ü kız	(Turkish)
		Boy-**gen** see-past-**3** girl	'the girl whom the boy saw'

In (100) it was assumed that I incorporates into C prior to the movement of IP to Spec,DP. If the C+I complex moved further to D, the agreement morpheme would be spelled out after the relative clause predicate as in (104).

(104)	*Künnej kömölöh-ör-ö kyys	(Sakha)
	Künnej help-aor-3 girl	'the girl whom Künnej helps'

*$[_{DP}\ [_{IP}$ Künnej$_i$ t_I $[_{ApplP}$ t_j $[_{PartP}$ kömölöh$_k$-ör $[_{VP}$ t_i t_k $]]]]$ D+C+$I_{[3]}$ $[_{CP}$ kyys$_j$ t_{C+I} t_{IP} $]]$

Although (104) is ungrammatical in Sakha, its equivalent is grammatical in Turkish. We will speculate that the second difference between Turkish and Sakha mentioned above is due to this additional movement of C+I to D: in Sakha Infl incorporates into C and nothing further happens; in Turkish the C+I complex further incorporates into D. What makes such an account plausible is that this difference in I-movement can be pinned down to the first difference: Turkish has genitive on the subject of an agreeing RC, Sakha does not. Suppose we assume the following mechanism of genitive licensing on the subject of RC: the incorporation of I into D (via C) by virtue of which the trace of I can license genitive on the subject in Spec,IP. In Sakha I does not move beyond C, hence no genitive in Spec,IP.

[51] The following are only tentative remarks. Full comparison of relative clauses in the two languages with complete analyses for both is outside the scope of this work.

(105) adam-ın ye-diğ-i balık (Turkish)
man-gen eat-ObjPart-3 fish
'the fish that the man eats/ate'

$[_{DP}\ [_{IP}\ \textbf{adam}_i\textbf{-ın}\ t_I\ [_{PartP}\ \textbf{ye}_k\textbf{-diğ-}\ [_{VP}\ t_i\ t_k\ t_j\ ]]]]\ [_{D+C+I}\ \textbf{–i}\ [_{CP}\ \textbf{balık}_j\ t_{C+I}\ t_{IP}\ ]]$

(106) kihi sie-bit balyg-a (Sakha)
person eat-past fish-3
'the fish that the person ate'

$[_{DP}\ [_{IP}\ \textbf{kihi}_i\ t_I\ [_{PartP}\ \textbf{sie-bit}\ [_{VP}\ t_i\ t_k\ t_j\ ]]]]\ D\ [_{CP}\ \textbf{balık}_j\ [_{C+I}\ \textbf{–a}\ t_{IP}\ ]]$

This tentative analysis predicts that in Turkish the subject of a relative clause can bear genitive case only when an agreement morpheme (the realization of I) appears after the relative clause verb. The prediction seems to be borne out. The Turkish example above (with both agreement and genitive) is formed with the 'object participle' suffix –DIK. It is a characteristic property of DIK-relatives that they are followed by an agreement marker which signals the phi-features of the genitive subject inside the relative clause. There is also another, 'subject participle' suffix –An which is used when the target of relativization is a subject (see Kornfilt (1997:57-66) for a complete description of relative clauses in Turkish). The RC-predicate ending in –An cannot be followed by an agreement suffix. What is interesting to the present concerns is that the –An strategy of forming relatives is also used when the relativized element is not a subject but an object of a clause with a non-specific subject. In this case the subject is not genitive and there is no agreement on the RC predicate. Since in Turkish non-specific subjects must be immediately preverbal[52] (just like non-specific objects), one may reasonably assume that such subjects are not in Spec,IP. For that reason the subject's phi-features are not copied onto I and there is no I movement into D, hence there is neither agreement nor genitive case.

(107) keçi-ler gir-en bahçe (Kornfilt 1997:59)
goat-pl enter-SbjPart garden
'the garden which goats entered'

$[_{DP}\ [_{IP}\ I\ [_{PartP}\ \textbf{keçiler}_i\ [_{Part}\ \textbf{gir}_k\textbf{-en}\ [_{VP}\ t_i\ t_k\ t_j\ ]]]]]\ D\ [_{CP}\ \textbf{bahçe}_j\ C\ t_{IP}\ ]$

4.4.1.3. The argument/adjunct asymmetry in extraction

A thematic constraint is operative in the formation of relative clauses in Sakha: only arguments can be relativized. On the contrary, adjoined NPs which do not receive thematic interpretation inside a relative clause cannot be promoted to Spec,CP. This explains the contrast in (108a-b). The comitative noun phrase in (108a) is not an argument of the verb, therefore cannot serve as target of relativization (108b). In (109a), however, the verb *kel* 'come' is put in the comitative voice – *kelis* 'come

[52] Here we are abstracting away from the many subtleties involved in the mutual ordering of subjects and objects in Turkish clauses: on word order restrictions in Turkish see Erguvanli 1984, Kornfilt 1997.

with someone' in which case *oqonnjorduun* 'old man-comitative' becomes an argument and can be relativized as in (109b).

(108) a. Ookko oqonnjor-duun kel-le.
Ookko old.man-comit come-past.3
'Ookko came with an old man.'
b. *Ookko kel-bit oqonnjor-o
Ookko come-past old.man-3
'an old man with whom Ookko came'

(109) a. Ookko oqonnjor-duun kel-is-te.
Ookko old.man-comit come-comit-past.3
'Ookko came with an old man.'
b. Ookko kel-si-bit oqonnjor-o
Ookko come-comit-past old.man-3
'an old man with whom Ookko came'

The same constraint also rules out relativization of a conjunct as in (110a-b) because the whole conjoined NP and not just one of the conjuncts is an argument of the predicate (inserting a resumptive pronoun in (110b) doesn't help). As expected, the whole conjoined NP can be relativized (110c).

(110) a. Uol uonna kyys kuorak-ka bar-dy-lar.
boy and girl town-dat go-past-pl
'The boy and the girl went to the town.'
b. *Uol uona (kini) kuorak-ka bar-byt kyys
boy and (she) town-dat go-past girl
'the girl that the boy and (she) went to the town'
c. kuorak-ka bar-byt uol uonna kyys
town-dat go-past boy and girl
'the girl and the boy who went to the town'

The argument/adjunct distinction is very important from the current viewpoint because it makes a very clear prediction with respect to lexical categories other than verbs: since adjectives are one-place predicates, it should be possible to extract their subjects. Noun phrases other than subjects, appearing with adjectives, e.g. comparatives, datives, etc. should be ruled out as potential targets of relativization. With noun-based predicates no extractions should be possible. With this in mind, we can move on to consider relative clauses with nonverbal predicates.

4.4.2. Adjective-based relative clauses

Indeed, as predicted, comparative noun phrases cannot be relativized (111b). Resuming the alleged gap with a personal pronoun cannot save the situation.

(111) a. Saaska Baaska-taaqar aax-maax.
Saaska Baaska-compar stupid
'Saaska is stupider than Baaska.'
b. *Saaska (kini-teeqer) aax-maax uol-a
Saaska he-compar stupid boy-3
'the boy that Saaska is stupider (than him)'

Going back to the original example in (96b), the prediction is that only the subject *Künnej* can be relativized. This is indeed borne out as shown by the grammaticality of (97b). In contrast, the dative noun phrase turns out to be an adjunct by the relativization test because it cannot be relativized. Therefore we will assume that dative *Sargyga* is adjoined to the AP (in nominal predicates the dative adjunct will be adjoined to the small clause)[53].

One final note is in order. The situation with the dative NP in Sakha is different than e.g. in German where an optional dative is only licensed in the presence of a degree element. In Sakha the status of a dative noun phrase is invariably felicitous or non-felicitous (depending on the adjectival meaning), independent of whether a degree element is present or not. Meaning-wise, Sakha dative is also different from German dative: in (112) from German a comparison in intelligence is implied between the subject and the dative NP; in Sakha (113) there is no such comparison. Rather, dative *miexe* 'to me' has a high, modal reading such that 'he is clever' is true from the point of view of the dative NP but may be false otherwise, i.e. I think he is clever (on free datives in German and the licensing effect of the degree particle see Brandt 2003)

(112) Otto ist mir *(zu) intelligent. (German)
Otto is me.dat *(too) intelligent
'Otto is *(too) intelligent for me.' (Brandt 2003:6)

(113) ??Kini miexe öjdöök. / ??Kini miexe nahaa öjdöök. (Sakha)
He me.dat intelligent / He me.dat very intelligent
'He is intelligent to me.' / 'He is very intelligent to me.'

4.4.3. Noun-based relative clauses and concluding remarks

Since nouns do not form a predicative category, they have no thematic argument that can be targeted by relativization. This is illustrated by the ungrammaticality of (97a) without the copular verb *buol* 'be'. However, when the copula verb is present, extraction is made possible because the target noun phrase corresponding to the subject *Künnej* in (96c) functions as an argument of the verb *buol*.

Thus, the relativization test sensitive to the argument/adjunct distinction presents us with another piece of evidence for the existence of thematic differences

[53] However, as mentioned shortly, such optional dative noun phrases appearing with APs have a high modal reading in which case it would be more plausible to base-generate them in a higher position rather than adjoined to the AP.

among the three lexical categories. The essence of the test boils down to an empirical observation that only those NPs can be promoted to Spec,CP, i.e. become targets of relativization, which receive thematic interpretation inside a clause from which they are raised; noun phrases without an argument status may not enjoy this kind of mobility. That extraction can target only arguments is, in fact, expected. A noun phrase which raises to Spec,CP does not receive a theta role from the matrix predicate: it is the whole relative DP which does. The matrix predicate also assigns case to the relative DP-clause which gets realized on the NP-head. As such, the NP head is syntactically/structurally licensed. However, it also must be licensed thematically: if such licensing did not take place in its original position, the derivation cannot converge.

In this section we have assumed a unified analysis of both full and reduced head-final relative clauses independent of the type of predicate. An alternative approach would assume two different analyses both advanced in Kayne 1994 – one for regular verb-based relatives as discussed above and another for reduced relatives with adjectival and nominal predicates. According to the first analysis, a verbal argument that undergoes relativization is promoted to Spec,CP, subsequent to which IP is fronted into Spec,DP. According to the second analysis, when the predicate of the relative clause is either AP or NP, its subject moves to Spec,IP where it stays whereas its predicate is fronted into Spec,CP. Although this analysis derives straightforwardly the impossibility of relativizing NPs other than subjects in reduced relatives with adjectival predicates, it makes a wrong prediction with respect to reduced relatives with nominal predicates, namely, that their subject can also be promoted to Spec,IP followed by the movement of the NP-predicate to Spec,CP. Therefore a unified approach which takes into consideration thematic properties of lexical categories is more advantageous than the account based on bifurcation.

4.5. Attributive modification

Adjectival modification is an extremely broad topic and extensive research has been conducted on it which cannot be done justice in this short section (see e.g. the bibliography in Larson 1999). We will gloss over many issues such as adjective ordering, degrees of comparison and others mainly because they have little bearing on the main thesis of this chapter, namely, that adjectives are indeed one-place predicates whose thematic properties determine to a great extent their syntax[54]. In this section we will restrict our attention to four questions: the structure of attributive modification (section 4.5.1); N→A conversion (section 4.5.2); intersective/nonintersective ambiguity of attributive adjectives (section 4.5.3); the position of the adjective with respect to the head noun (section 4.5.4).

4.5.1. The structure of attributive modification

Two structural accounts of attributive modification will be considered: Kayne 1994 and Baker 2003. Both accounts face some problems which are easily resolved under an alternative approach in terms of underlying thematic properties of adjectives.

[54] Many of the issues skipped here have been considered in Vinokurova 1998.

4.5.1.1. Kayne's (1994) account

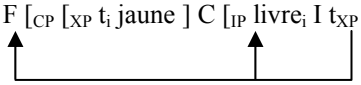
Kayne (1994:97ff) suggests that both prenominal (114) and postnominal (115) adnominal (attributive) adjectives have a single underlying source – reduced relative (briefly discussed above). In particular, for Kayne it is not the case that APs are generated in the specifier positions of functional heads between D and N à la Cinque 1994 (with the difference in adjective placement due to the fact that in Romance but not in Germanic the noun can raise past the AP). Kayne argues that APs in both (114) and (115) originate in predicate position below IP and prepose to their subject (which moves to Spec,IP) by moving to Spec,CP. In French the derivation proceeds in the same way as in English but there is an additional F head between D and C to which the head of the subject NP in Spec,IP raises overtly (through C).

(114) the yellow book

the $[_{CP}$ C $[_{IP}$ I $[_{XP}$ book yellow]]]
book moves to Spec,IP →
the $[_{CP}$ C $[_{IP}$ $book_i$ I $[_{XP}$ t_i yellow]]]
XP (with the trace of the subject) is fronted to Spec,CP →
the $[_{CP}$ $[_{XP}$ t_i yellow] C $[_{IP}$ $book_i$ I t_{XP}]]

(115) le livre jaune (the book yellow)

le $[_{FP}$ F $[_{CP}$ $[_{XP}$ t_i jaune] C $[_{IP}$ $livre_i$ I t_{XP}]]



However, we would like to maintain that attributive modification and predication do not have the same structural source. Deriving adnominal modifiers from a predicative source cannot explain why stacked adjectives are impossible when used predicatively but become possible when used attributively. The example in (116) is from Baker 2003 for whom it is also problematic as the next section will show. Parallelism between predicative and attributive uses of an adjective breaks down in a number of other cases as well (see Bolinger 1967, Baker 2003:205ff): for instance, *main* can be used attributively but not predicatively while the opposite holds for *asleep*. Cases like these will be considered in section 4.5.4.

(116) a. *John is big strong. (Baker 2003:203)
b. John is a big strong man.

4.5.1.2. Baker's (2003) account

For Baker adjectives are defined as having no definition: it suffices that verbs are distinguished from the rest by taking a specifier and nouns – by having criteria of identity → what is left are adjectives. Since adjectives have no essence, they cannot be independently selected in syntactic environments where either nouns or verbs could also appear. Adjectives are restricted to appear only in those syntactic

structures where independent constraints rule out verbs and nouns. One such context is attributive modification which, in structural terms, presents a syntactic combination of an adjectival head with a noun head or a noun projection.

Going back to the example in (116), within Baker's framework adjectives are expected to display parallel syntactic behaviour both as attributive modifiers and as predicates and adjective stacking is predicted to be possible both attributively and predicatively. Therefore asymmetries, whenever they occur, cannot be syntactic in nature and must be semantic. For instance, (116a) for Baker is well-formed syntactically and should be ruled out on semantic grounds. However, Baker cannot adopt the usual semantic formulas because these can assign well-formed semantic representations to $[_A\ A_1\ A_2\ ]$ in (116a) as well as to $[_N\ A\ N\ ]$ in (116b).

Putting complex matters into informal terms, [big strong] in (116a) will traditionally be interpreted as [big(x) & strong(x)] with *big* and *strong* corresponding to predicates of the same variable. Baker objects to this and proposes an adaptation to semantics. In particular, the following principle regulating the syntax-semantics interface is assumed as an axiom of the grammar:

(117) The variables associated with distinct lexical items are distinct

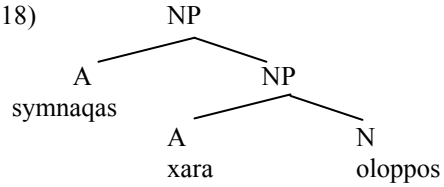
In accordance with this principle the adjectives 'big' and 'strong' in (116a) as well as the three lexical items 'big', 'strong' and 'man' in (116b) all introduce distinct variables and therefore an identity statement needs to be included in semantic formulas in order to link the distinct variables as referring to the same thing. Such an identity statement can only be defined in the presence of a noun which has a criterion of identity. Applying these considerations to the examples in (116), [big strong] in (116a) comes out as (roughly/informally) [big(x) & strong(x) & same(N)(x,y)]. In this case the identity statement "same(N)(x,y)" is undefined (there is no noun) and therefore (116a) is ruled out: what it claims is that there is something big and there is something strong but there is no way to tell that these two things refer to the same thing, here *John*. On the contrary, (116b) yields a well-formed statement of sameness: roughly [big(x) & strong(y) & man(z) & same(Z)(x,y,z)].

The examples below replicate (116) for Sakha, with arboreal representations given in accordance with Baker's conventions. On the one hand, it is easy to see how the principle in (117) is supposed to work for the attributive construction in (118). In accordance with this principle the three lexical heads *symnaqas* 'soft', *xara* 'black' and *oloppos* 'chair' in (118) each introduce a distinct variable at the semantic level. The structure would be ungrammatical if all three were adjectives but since *oloppos* 'chair' is a noun, it can provide a criterion of identity that links all the variables together.

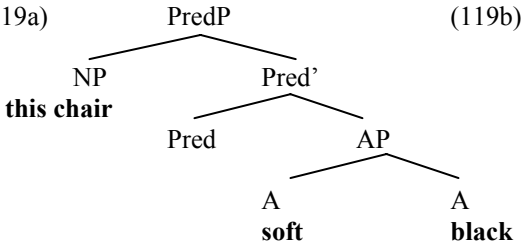
(118) Symnaqas xara oloppos
soft black chair

(119) a. *Bu oloppos symnaqas xara
This chair soft black
b. Bu oloppos xara

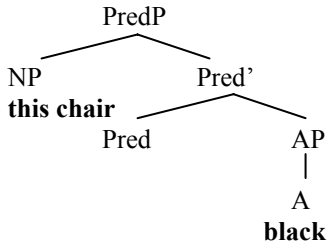
(118)



(119a)



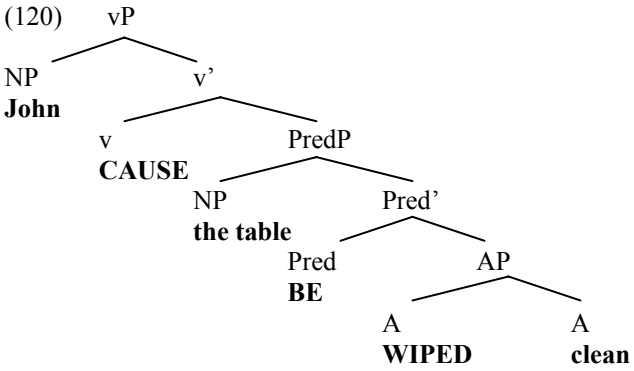
(119b)



On the other hand, if we take a closer look at the syntactic structures underlying ungrammatical (119a) and its grammatical counterpart with only one adjective in (119b), then it is hard to see how semantics which can interpret the latter cannot interpret the former. A strong difference in acceptability between the two is supposed to be due to the fact that although *chair* introduces a criterion of identity in both (119a) and (119b), only in (119b) can this criterion of identity impose sameness on the variables introduced by *chair* and *black*. However, this conclusion is far from obvious. Rather, one would reasonably expect that if the criterion of identity introduced by *chair* can link together the variables introduced by *soft* and *black* in (118), it should be able to do the same thing in (119a).

That nothing in Baker's system can prevent the *chair*'s criterion of identity from linking together the distinct variables introduced by 'chair', 'soft' and 'black' in (119a) is further witnessed by Baker's own analysis of secondary resultative adjectival predication. The underlying structure for 'John wiped the table clean' is as in (120). Here a double A-sequence consists of the abstract adjective WIPED and the secondary predicate *clean* (the final verbal form is derived by conflating WIPED into BE into CAUSE).

(120)



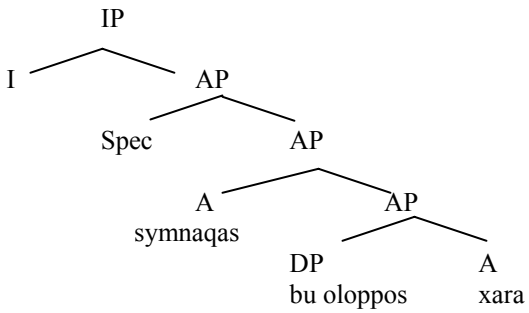
Baker argues that the A+A sequence [WIPED_{A}+clean] also respects the principle in (117) but is nevertheless possible for the following reason. The CAUSE operator introduces a single event, proper subparts of which are the adjectives WIPED and *clean* which denote resulting states. The causing event can only have a single theme which will enter any state that results from the event, in this case WIPED and *clean*. Therefore the variables introduced by these two must necessarily refer to the same thing. Again, this line of reasoning cannot explain why the theme argument located in Spec,PredP in both (119a), primary predication, and (120), secondary predication, can force the variables introduced by the adjectives to refer to the same thing only in (120) but not in (119a).

4.5.1.3. Thematic account

The contrasts in (116), (118), (119) can be straightforwardly derived under current assumptions. Consider the same contrast in Sakha. The structure for (119a) is given in (121). Since adjectives are inherently predicative, the subject *bu oloppos* 'this chair' is assigned a theta role by its predicate, the adjective *xara* 'black' inside the AP. There is another adjective which needs to assign its theta role – *symnaqas* 'soft'. However, this is impossible: the complement of *symnaqas* is an AP and moving the DP *bu oloppos* to Spec,AP (on its way to Spec,IP) does not solve the problem either because *bu oloppos* has already been assigned a theta role in the lower predicative AP. Therefore since *symnaqas* 'soft' cannot assign its theta role in (121), the example in (119a)/(121) is ruled out.

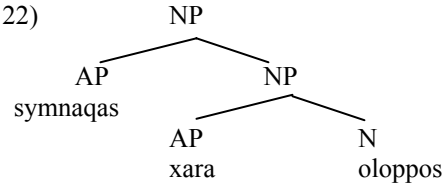
(121) *Bu oloppos symnaqas xara.
This chair soft black

[$_{CP}$ C [$_{IP}$ **bu oloppos**$_i$ I [$_{AP}$ **symnaqas** [$_{AP}$ t$_i$ **xara**]]]]]



Attributive modification, on the contrary, creates a configuration in which all the stacked adjectives can discharge their theta roles: the adjectival complement is either an N or NP. (118) is repeated below in (122), with the structure modified so that N merges with AP and not with A. The phrasal status of adjectives in attributive modification explains e.g. the possibility of negation, degree elements, comparative phrases with prenominal adjectives. In (122) *xara* 'black' assigns its theta role to *oloppos* 'chair' → the NP thus created, *xara oloppos* 'black chair', receives its theta role from the higher adjective *symnaqas* 'soft'.

(122)



Thus, we are adopting a more traditional analysis of attributive modification which involves theta assignment (cf. Reuland 1986:55-56). This approach correctly predicts that a syntactic structure involving predicative stacking is impossible because it violates thematic properties of adjectives.

A few final remarks on the structures in (121) and (122) are in order. Recall that in Theta System adjectives are not associated with a merging index and because of that their argument can merge either externally or internally. External merge happens under predication as in (121) whereas internal merge happens under attribution as in (122). Whether merge is external or internal is partially conditioned by the requirements of a head, in Bare Phrase Structure-theoretic terms. In particular, in predicative constructions the adjective is chosen as the projecting head predicated of a DP argument merged externally. In attributive constructions, on the contrary, the modified noun is chosen as the projecting head merging with an AP.

The difference between the DP-argument of a predicate adjective and the N/NP-argument of an attributive adjective is empirically motivated. The following argument relies on the properties of the adjective *urukku* which has two meanings – 'old style' and 'former'. Whereas *urukku* 'old style' is unproblematic, *urukku* 'former' creates an ambiguity when occurring in possessive noun phrases. In chapter 3, following Larson and Cho 1999, the 'former' ambiguity in (123) was analyzed as structural: the adjective *urukku* 'former' can attach low, modifying the noun directly (123b) or high, modifying the possessive phrase (123c).

(123) Ookko urukku balaqana
Ookko former house-3
a. 'Ookko's old style house'
b. 'something possessed by Ookko that used to be a house (now possibly a ruin)'
c. 'a house that used to be in Ookko's possession'

That the 'former-N' ('ruin') reading in (123b) arises out of the configuration like the one in (122) where AP modifies N(P) explains the contrast in (124) where *bili* 'that' realizes the DP-layer (repeated from section 3.3). In (124a) the adjective has attached to the noun whose discourse reference has not yet been fixed and therefore the N-modifying 'ruin'-reading is available. In (124b) the adjective has attached to the DP which rules out the 'ruin'-reading because the DP's reference has already been fixed as 'that house'. On the contrary, *urukku* 'old style' is not restricted in this way and can modify both N or DP.

(124) a. Bili urukku balaqan-y kör-dü-m.
that former house-acc see-past-1sg
a. 'I saw that old style house.'
b. 'I saw that former house (ruin).'
b. Urukku bili balaqan-y kör-dü-m.
a. 'I saw that old style house.'
b. *'I saw that former house (ruin).'

The same considerations carry over to (125). (125a) is an attributive construction where *urukku* merges with N. (125b), however, is a predicative construction involving a configuration similar to (121) with the adjective predicated of a DP with a fixed discourse referent which rules out the 'ruin'-reading.

(125) a. urukku balaqan
i) 'old style house'
ii) 'ruin'
b. Balaqan urukku.
i) 'A/The house is old style.'
ii) *'A/The house is a ruin.'

4.5.1.3.1. Ruling out verbs as attributive modifiers of nouns

Preceding discussion concentrated on adjectives: their ability to modify nouns and their inability to modify adjectives, both motivated by thematic properties of adjectives. One more question that needs to be addressed is why bare verbs cannot modify nouns[55]. Why can't one-place verbs, e.g. *aldjan* 'break', modify nouns directly? The answer to this question follows directly from our theory that no verbs are inherently one-place, only adjectives are. What can be inserted under A in the attributive construction $[_{NP}$ A … $[_{NP}$ A $[_{NP}$ A N]]] is a one-place predicate associated with a [-c-m] argument. This rules out all verbs which come out of the lexicon as n-place predicates, where n>1, as well as unergatives which involve a complex denominal derivation. We are left with one-place verbs which are derived in the lexicon by the operation of reduction. The outputs of reflexivization are thematically incompatible since their remaining argument is agentive. The outputs of unaccusative reduction, on the other hand, come out of the lexicon as one-place predicates taking a [-c-m] argument; yet, they cannot be used as attributive modifiers. The reason for this has to do with the fact that they, just like unergatives, have a complex lexical history which determines their unaccusative syntactic behaviour, in particular, they usually require morphological marking to signal that a lexicon operation (and accusative case reduction) took place.

4.5.2. The N→A conversion

With respect to what has been said about attributive modification, it is interesting to take a look at the ability of nouns to appear as attributive modifiers of other nouns. Examples such as (126) seem to be problematic because attributive modification involves theta assignment but nouns are not θ-assigners.

(126) bulcut kihi / mas oloppos
hunter person / wood chair

Such examples are also problematic for Baker: the referential indices of *bulcut* 'hunter' and *mas* 'oloppos' are trapped inside the modified noun phrase and can never be licensed which should result in ungrammaticality. That the examples are nevertheless grammatical implies, given Baker's assumptions, one of two things: 1) the referential index has been suppressed/removed/satisfied by some 'lexical manipulations' (p. 187); 2) roots which are ambiguous between Ns or As (e.g. those designating material, profession or nationality) have a referential index optionally (p. 188). The first conjecture is not well-grounded: it is left unclear exactly what is meant by lexical manipulations. The second suggestion is also problematic: optionality of referential index implies optionality of identity criterion and this is a serious shortcoming because the criterion of identity is an inherent, fundamental property of nouns.

[55] Verbs can modify nouns if they are predicates of relative clauses but this is an entirely different story.

On the present approach, the only way to accomodate grammaticality of (126) is to assume that nouns can be turned into properties, presumably by one of the type-shifting operations proposed in Chierchia 1998[56]. Evidence for such a view comes from the following set of data. Recall from above that nouns are negated with *buolbatax*, the negative present tense form of the copula verb *buol* 'be' whereas adjectives can be negated either with *buolbatax* or with *–A suox*.

(127) bulcut/saaxymatcyt buol-ba-tax kihi N-negation
hunter/chess.player be-neg-subj person
'a person who is not a hunter/chess player'

(128) a. myndyr buol-ba-tax kihi A-negation
wise be-neg-subj person
b. myndyr-a suox kihi / wise-3 no person 'an unwise person'

If the first (modifying) noun in [$_{NP}$ N N] is adjectivized (turned into a one-place property), we expect it to be possible with the adjective-specific negation *–A suox*. For profession-designating adjectives this is true[57].

(129) Bulcut-a/saaxymatcyt-a suox kihi
hunter-3/chess.player-3 no person

Now consider non-felicitous (130a) and felicitous (130b). In both the noun *bulcut* 'hunter' has been turned into a property and can modify the noun *kihi* 'person'. In both examples the second, negated *bulcut* appears on top of *bulcut kihi* 'hunter person'. In (130a) the form of negation betrays the adjectival (property) status of the upper *bulcut*. Hence we get a contradiction – 'a person who is A but not A' leading to unacceptability. In (130b), on the other hand, we have the *buolbatax*-negation which is interpreted, by default, as negating a noun[58]. What we get in (130b), then, is perfectly interpretable: 'a person who is A but not N'.

(130) a. *Bulcut$_2$-a suox bulcut$_1$ kihi
*hunter-3 no hunter person
*'a hunting$_1$ person (with hunter-like qualities) without hunting$_2$ (hunter-like) qualities'
b. bulcut$_2$ buol-ba-tax bulcut$_1$ kihi
hunter be-neg-subj hunter person

[56] As discussed in Chierchia 1998b, type shifting operations made available by UG are expected to apply freely in a language like Sakha which has no articles or other overt means to block the covert application of such operations.

[57] With material-denoting adjectives neither negation seems to be acceptable:
(i) *mah-a suox oloppos / *kömüh-e suox ytarqa
*wood-3 no chair / *gold-3 no earring
(ii) *mas buol-ba-tax oloppos / *kömüs buolbatax ytarqa
*wood be-neg-subj chair / *gold be-neg-subj earring

[58] With adjectives *buolbatax* is the marked form of negation. The default is *–A suox*.

'a hunting$_1$ person (with hunter-like qualities) who is not a (professional) hunter$_2$'

It seems that the best way to account for N→A conversion is by means of type shifting operations (<e> → <e,t>) which are well-motivated elsewhere in the grammar (see Chierchia 1998) and not by invoking a criterion of identity, which can be optionally suppressed or optionally assigned.

4.5.3. Intersective/nonintersective ambiguities

The attributive adjective in (131) is ambiguous between the interpretations in (i) (intersective) and (ii) (non-intersective). The latter, non-intersective interpretation is the most natural one. This comes out as a surprise for theories which take nouns and adjectives to be one-place predicates: the intersective reading in (131i) is what is predicted by such theories whereas in order to allow (131ii) some additional mechanisms must be resorted to.

(131) Ajaar küüsteex saaxymatcyt // Ajaar strong chess-player
i) 'Ajaar is physically strong and a chess player (can be a weak player)'
ii) 'Ajaar is strong as a chess player (can be weak physically)'

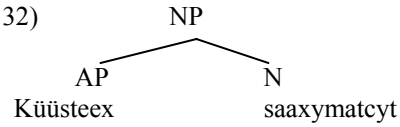
Larson 1999 whose analysis was briefly touched upon in section 4.1.5 proposes to assimilate non-intersective cases to adverbial modification in VPs and extends event semantics to noun phrases by introducing an event/state variable inside NPs. Thus, on Larson's analysis nouns are predicates holding true of individuals and events/states. The presence of an event parameter is conditioned either by the lexical argument structure of the noun itself (*dancer, student, manager, cellist, president, friend*) or by the nominal construction (*a recent letter, a quick cup of coffee*). When an adjective modifies a noun, it can be predicated either of the individual or of the event/state. The former case yields intersection, the latter results in a non-intersective reading.

The goal of this section is not to argue against Larson's or other analyses of non-intersective attributive modification but to offer an alternative compatible with the main thesis of the dissertation that nouns are not predicates, thereby contributing to the ongoing open debate on the ambiguity in question. Future research will show if the alternative proposed here holds water.

An alternative analysis that we would like to propose is syntactic in nature. So far, nothing in the structures presented in (121) and (122) points to a possible clue. However, taking into account thematic properties of adjectives, the following solution emerges. In (131) *Ajaar* is the subject of *küüsteex saaxymatcyt* which is an attributive construction (132) involving the same configuration as (122). In (132) the adjective assigns its theta role to the noun it modifies – *saaxymatcyt* 'chess player'. The interpretation we get here is that 'strong' modifies the noun 'chessplayer' and not the individual the chessplayer refers to → 'strong chessplayer qua chessplayer'. When the resulting NP is predicated of the subject *Ajaar*, the non-intersective reading in (131ii) results. Since this order of derivation (merging 'strong' with

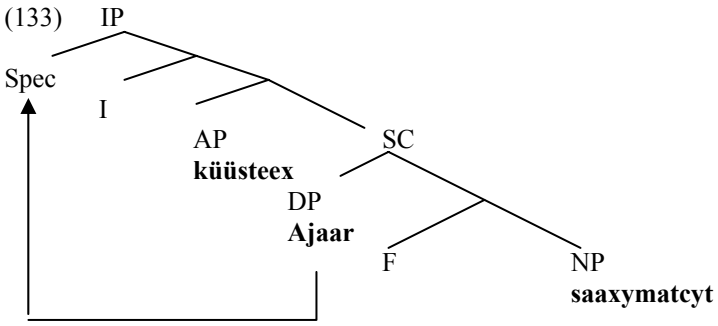
'chessplayer', then merging the NP thus derived with the subject *Ajaar* forming a small clause) is the most natural one, the resulting interpretation is also the most natural one.

(132)



The dispreferred intersective interpretation will be argued to have the following derivation. *Ajaar* and *saaxymatcyt* form a small clause which refers to the individual *Ajaar* who is a chessplayer. When the adjective *küüsteex* 'strong' merges with the small clause, it modifies the individual, whence we get the intersective reading such that the subject *Ajaar* is a chessplayer and physically strong. The derivation is given in (133). The subject *Ajaar* subsequently moves to Spec,IP deriving the surface word order.

(133)



This analysis makes one prediction: given the configuration in (133) it is conceivable that the small clause itself can move to Spec,IP stranding the adjective. This is indeed possible and, as expected, only the 'individual'-related reading ('physically strong') is allowed. Note that it is not the case that the non-intersective reading disappears in predicate position: in (134b) the adjective has both intersective and non-intersective interpretations. Thus, the situation in Sakha is different from the situation in English discussed in detail in Larson 1999: whereas *beautiful dancer* is ambiguous between 'a dancer who dances beautifully' and 'a dancer who is physically beautiful', *that dancer is beautiful* has only the latter reading.

(134) a. Ajaar saaxymatcyt küüsteex.
'Ajaar the chessplayer is strong physically/*qua chessplayer.'
b. Bu saaxymatcyt küüsteex.
'This chessplayer is strong physically/qua chessplayer.'

So, the analysis presented here takes the (non-)intersective ambiguity to be a matter of scope and derives it from the underlying structural ambiguity in the attachment of the adjective. Different attachment possibilities of adjectives were also witnessed above in section 4.5.1.3, examples (123) and (124).

4.5.4. Prenominal/postnominal contrasts

Larson 1999 also makes use of the nominal event/state variable to account for the i-level/s-level distinction among predicates. This distinction, as shown in Bolinger 1967, correlates with a position relative to the head noun as in *the responsible person* (individual-level) versus *the person responsible* (stage-level). Larson shows that the relevant syntactic constraint is not linear order but relative closeness to N, or scope, as shown by (135b).

(135) a. The visible$_{\text{I-LEVEL}}$ stars visible$_{\text{S-LEVEL}}$ include Capella.
b. The visible$_{\text{S-LEVEL}}$ visible$_{\text{I-LEVEL}}$ starts include Capella.

Larson integrates these structural facts into his event semantics of nominals in the following manner. Following Chierchia 1995, he assumes that individual-level predicates are licensed by a local generic operator "Gen" quantifying over events. Extending this analysis to the i/s-level distinction within NPs he postulates a generic operator adjoined to the i-level predicate as in (136) and quantifying over the event/state variable introduced by the noun. Adjectives which are structurally closer to the noun fall under the scope of Gen. Stage-level adjectives denoting temporary properties fall outside the scope of Gen but within the scope of an existential event quantifier ∃, also present inside a DP as argued by Larson 1999.

(136) [$_{\text{DP}}$ ∃e [AP$_{\text{S-LEVEL}}$ [$_{\text{NP}}$ Gen [AP$_{\text{I-LEVEL}}$ N]] AP$_{\text{S-LEVEL}}$]]

We may keep Larson's analysis with one modification: it is not the nominal variable but the adjectival one that the operators quantify over[59],[60]. The reason for that was discussed in section 4.1.5 where we argued that in Sakha *buol* 'be' when used with predicates introduces a generic operator. Crucially, generic interpretation is only possible with predicate VPs and APs but not with predicate NPs. If NPs indeed had an event/state variable, as in Larson's (136), then the generic operator would be able to bind this variable yielding a generic interpretation. However, this is impossible. The relevant examples from section 4.1.5 are repeated below.

(137) a. Kesha sarsyarda et sii-r.
Kesha morning meat eat-aor
'Kesha eats meat in the morning.'

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[59] As it appears from sections 4.5.3 and 4.5.4, placement of adjectives reflects their scope-taking possibilities. Perhaps, adjective placement could be treated like adverb placement which is argued by Nilsen 2003 to be free, apart from polarity-related requirements.

[60] Larson's analysis could also extend to the prenominal/postnominal contrast in Sakha studied in Vinokurova 1999 and exemplified in (i)-(ii). The prenominal adjective would fall under the scope of the generic quantifier, the stage-level one – under the scope of the existential quantifier.

(i) akaary aqabyyt / stupid priest — A N: individual-level
'(generally) stupid priest'

(ii) aqabyyt akaary / priest stupid — N A: stage-level
'stupid priest (at the spur of the moment)'

b. Kesha sarsyarda et sii-r buol-ar.
Kesha morning meat eat-aor be-aor
'Kesha usually eats meat in the morning.'

(138) a. Bu maqahyyn klien-nar-a eder-der.
this shop client-pl-3 young-pl
'This shop's clients are young.'
b. Bu maqahyyn klien-nar-a eder buol-al-lar
this shop client-pl-3 young be-aor-pl
'This shop's clients are young (emphasized).'
'This shop's clients are generally/usually young.'

(139) a. [$_{\text{DP-SUBJ}}$ Bu maqahyyn klien-nar-a] [$_{\text{NP-PRED}}$ oskuola oqo-lor-o].
[this shop client-pl-3] [school child-pl-3]
'This shop's clients are schoolchildren.'
b. [Bu maqahyyn klien-nar-a] [oskuola oqo-lor-o] buol-al-lar
[this shop client-pl-3] [school child-pl-3] be-aor-pl
'This shop's clients are schoolchildren (emphasized).'
*'This shop's clients are generally/usually schoolchildren.'

4.6. Adverbial modification

The issue of attributive modification is closely connected to the issue of adverbial modification. In the preceding section it has been demonstrated that adjectives can modify nouns but cannot modify adjectives (cf. (121)). Adjectives also cannot modify verbs. However, if they are turned into adverbs, it becomes possible for them to modify both verbs and adjectives.

(140) a. Kini kyra-tyk/*kyra syys-ta — A-Adv V / *A V
he small-adv/*small be.mistaken-past.3
'He was slightly mistaken.'
c. Bu xolobur kyra-tyk/*kyra syyha. — A-Adv A / *A A
This example small-adv/*small wrong
'This example is slightly wrong.'

The examples in (140) are part of a general picture instantiated in a variety of languages. English *–ly* and Romance *–mente* adverbs fit the same paradigm. Baker assumes that *–ly* and *–mente* are nouns (historically motivated) which provide the necessary criteria of identity. An alternative consistent with the proposal defended here is to assume that the nouns *–ly* and *–mente* are adjectival arguments satisfying theta-assigning properties of A's. For instance, if *–ly* is the argument, this explains why *ly*-adverbs lack the same complement structure as their corresponding adjectives. Jackendoff 1977 uses this fact to argue against the view that adjectives and adverbs are positional variants of each other. Under present assumptions this is unnecessary because *ly*-adverbs are simply adjectives whose theta-assigning requirements have been satisfied.

(141) a. Tiredly (*of the noise), John left the room.
b. Fearfully (*of a revolt), the king offered a purge.
c. Happily (*that they were leaving), John waved goodbye.
d. Eagerly (*to leave), John chewed his nails.
(cf. Jackendoff 1977:25, 2.47)

Déchaine 1993 wants to maintain the view that adverbs and adjectives are simply positional variants of each other but the strategy she adopts is to show that adverbs can take complements[61]. The following pieces of evidence are used: 1) there is one adverb which takes an of-complement – *independently of*; 2) a number of adverbs taking complements (introduced by prepositions other than *of*), which are no longer current in modern language, still appear in legalese (142); 3) several adverbs take an experiencer *for*-argument just like their corresponding adjectives (143).

(142) agreeably to X, comfortably to X, concurrently with X, conditionally on X, differently from X, inconsistently with X, preferably to X, previously to X, subsequently to X, suitably to X (Déchaine 1993:70)

(143) Unfortunately for our hero, Rome burned.
(=It was unfortunate for our hero that Rome burned)

These examples do not jeopardize current assumptions because *for*-phrases (Déchaine's third piece of evidence) and various prepositional complements in legalese (second piece of evidence) are adjuncts, not arguments and appear adjoined to APs. A similar analysis may be worked out for *independently of*.

As for Sakha, the adverbial suffix –TYk cannot be assumed to be a noun: it is a pure suffix consisting of two simplex suffixes –t and –k. Apart from adverbs, –TYk is a productive suffix deriving nouns from nouns and verbs. In the current framework, suffixes deriving nouns from verbs are the ones which reduce verbal arguments, thereby turning n-place predicates into saturated expressions of the type <e>. If the suffix –TYk were a noun filling in the argument position of an adjective, then it would be expected to appear lower than a degree head. If it is not an argument but rather an argument-reducing morphological marker, then it is less restricted positionally which is indeed the case as can be seen from (144) where the addition of a post-adjectival degree element lifts the position of the suffix.

(144) a. Kini bytaan-nyk xaam-ar.
He slow-adv walk-aor
'He walks slowly.'
b. Kini bytaan baqajy-tyk xaam-ar.
He slow very-adv walk-aor
'He walks very slowly.'

[61] Cf.: "the fact that the expressions in (13)(=142) are possible at all suggests that, in principle, adverbs can take complements. But the question remains: if they can, why don't they in the modern language. On a speculative note, the source of this constraint may be the *–ly* suffix. Over time, it may have acquired intransitive status, now attaching only to the intransitive form of the adjective" (ibid. p. 71).

Furthermore, when two or more adjectives are conjoined, all but the last degree particle with the adverbial suffix can be dropped. (145a) and (145b) have identical interpretations.

(145) a. Kini bytaan baqajytyk uonna naqyl baqajytyk saŋarar.
He slow very-adv and calm very-adv speak-aor
b. Kini [[bytaan uonna naqyl] baqajytyk] saŋarar.
He [[slow and calm] very-adv] speak-aor
'He speaks very slowly and very calmly.'

In fact, a similar situation obtains with *–mente* in Portuguese.

(146) a. Ele guiava lenta e cuidadosamente. (Portuguese)
'He was driving slowly (slow.fem.sg) and carefully.'
b. geografica e topográficamente falando
'geographically and topographically speaking'
c. nobre, franca e sàbiamente
'nobly, frankly, and wisely'

These structures are parallel to 'John is noble, frank and wise' (cf. *'John is noble frank wise'): under coordination, the adjectives jointly assign one theta role which in (146) gets assigned to *–mente* and in (145) is reduced by the suffix –TYk.

Deadjectival adverbs reflecting thematic properties of their bases can be contrasted with temporal adverbs which are not related to adjectives. These adverbs attach very high, hence we expect them to attach to any kind of predicative structure. Indeed, no asymmetries arise.

(147) Bu kihi meldji ülelii-r_V / xolku$_A$ / studen$_N$.
This person always work-aor / calm / student

4.7. The use of adjectives as arguments

We have been arguing that nouns should not be viewed as open expressions of the <e,t> type. Here the analysis converges with Baker 2003 who, as reviewed in chapter 3, shows the inadequacy of the standard view that determiners take NP predicates and turn them into arguments. To recapitulate, the standard view predicts that in a language where the functional head Pred is overt, realized as a copular particle, it will appear between the determiner and its NP complement. Such a prediction is false as shown e.g. by the data from Edo in Baker's work. Second, if determiners selected predicates, they could also select adjectives and verbs which is impossible. Therefore Baker assumes that "determiners take expressions of type <e> as their complements, and all nouns are inherently of this type" (p. 119). However, Baker adopts the same analysis also for adjectives. Taking both nouns and adjectives to be inherently argumental gets Baker into trouble because it leads to a paradox that adjectives, even though they are arguments, cannot be used as arguments. The paradox is resolved with the help of the criterion of identity which is required for

argumenthood and which is possessed by nouns but not by adjectives. For Baker, whenever an adjective is used as an argument, there is an empty noun involved[62]. If the adjective is truly nominalized, that means it has acquired a criterion of identity. As shown above in section 4.5.2, a similar account is held by Baker for nouns turned adjectives: they have somehow got rid of their criterion of identity. We showed in 4.5.2 that such an account is problematic and instead resorted to type shifting. With respect to adjectives turned nouns, let's see if an explanation is available which takes into consideration thematic properties of adjectives.

Under the analysis defended in this work nouns are saturated, argumental expressions and adjectives are unsaturated predicates which have one open place. In the cases considered above adjectives selected an argument, either under predication or attribution, which closed the open position in the adjectival theta grid. Apart from assigning a theta role to the selected argument, there is another way of saturating adjectives, namely, by θ-binding as proposed in Higginbotham 1985. The proposal was originally worked out for nouns treated by Higginbotham as one-place open predicates. Since in the current framework the characteristic of being a one-place open predicate applies to adjectives, we will adopt for them Higginbotham's analysis. The plausibility of analyzing argumental adjectives as involving a DP-layer, with the determiner binding the unassigned theta role is confirmed by a number of facts.

First, when adjectival arguments function as direct objects of accusative-assigning verbs they must realize as KPs with the obligatory accusative morpheme which cannot be dropped. We have assumed that with nouns, NPs can be assigned thematic case directly by the verb in which case no KP is required. However, those NPs which have other syntactic features such as [definite], [specific], etc. licensed in DP require a structural case checker. In Sakha this structural case checker is KP to which the verb transmits its thematic case. Therefore the (im)possibility of accusative drop can be used as a diagnostic to probe into the internal structure of the noun phrase: if accusative KP cannot be dropped, then we are dealing with a DP. Assuming our analysis of the nature of this test is correct, (148) shows that argumental adjectives are indeed DPs.

(148) Min kyhyl-y/*kyhyl-∅ kör-ö-bün.
I red-acc/*red-∅ see-aor-1sg

Next, if adjectives in Sakha are nominalized with the help of determiners, we expect them, when used as arguments, to display the same range of interpretations available with nominal arguments. In Sakha there are no overt determiners but, assuming the existence of covert determiners appearing with noun phrases, a natural expectation is that the same covert determiners responsible for various noun phrase interpretations should be able to nominalize adjectives triggering identical interpretations. This is indeed true. Nominalized adjectives are fully substantivized and behave like ordinary nouns. Whichever interpretation a regular noun phrase can receive

[62] This assumption of Baker's converges somewhat with the findings in Kester 1996 that there is a non-referential N-pro licensed by adjectival inflection in contexts where the adjective appears alone, without the accompanying head noun, e.g. *the rich* or noun ellipsis.

(indefinite/definite, specific/non-specific, singular/plural) can also be constructed for a nominalized adjective.

Thirdly, there is no productive word formation process in Sakha which creates nouns from adjectives. This points to the absence of a need for such a process because grammar gives an opportunity in the syntax to create nouns by binding the adjectival open argument position with determiners. If, for instance, a noun were derived from an adjective using some word formation machinery, then this newly formed noun would still require a determiner. Furthermore, lexically derived nouns would have highly idiosyncratic meanings. Nominalized adjectives, on the contrary, are very flexible meaning-wise and allow a range of contextually determined interpretations.

Some adjectives when used as arguments must appear with an agreement marker: for example, *uhun-a* 'length (long-3)', *ketit-e* 'width (wide-3)', *ciŋ-e* 'density (dense-3)', *kieŋ-e* 'width (wide-3)', *söb-ö* 'correctness (correct-3)'. Usually these are adjectives referring to physical characteristics, such as size, shape, etc. Such nominalized adjectives often come out in English as relational nouns which allow *of*-complements: *length, depth,* etc. Since adjectives are one-place predicates, the presence of an agreement marker is not surprising: it can be taken as referring to the thematic argument of the adjective suppressed by the determiner. Adjectives with agreement markers are also frequent inside idiomatic expressions. For example, any adjective referring to a human quality can appear inside the fixed expression *A-agreement-accusative killer* 'manifest/show/display the A-characteristic'.

(149) a. Uhun-a bil-li-bet.
Long-3 know-pass-neg.aor
'Length is not known.'

b. Sargy symnaqah-yn/kytaanaq-yn/ücügej-in kil-ler-de.
Sargy soft-3.acc/tough-3.acc/good-3.acc enter-caus-past.3
'Sargy displayed softness/toughness/goodness.'

The example in (150) (which represents a very common pattern, with the overt realization of what looks like the suppressed argument) may look problematic: the suppressed argument should not be realizable. However, (150) poses no problem: it is a possessive noun phrase, with *eterbes* 'boot' expressed as the possessor and possessors, as argued in chapter 3, are introduced syntactically.

(150) Eterbes uhun-a bil-li-bet.
Boot long-3 know-pass-neg.aor
'The boot's length is not known.'

4.8. Impersonal subjects

To end this chapter, we will consider one more context in which adjectives behave like predicative categories: impersonal arbitrary subjects can be licensed in embedded clauses both with adjectives and aorist participial VPs but not with NPs. Consider first VPs. *Xajyhardaa* 'to ski' is an intransitive verb which in (151) appears in the aorist participial form. In (151a) the participle is embedded as a

subject complement clause, in (151b) as an object complement clause and in (151c) it forms, by itself, a finite sentence. In all three examples the subject can be dropped but its interpretation varies depending on whether the aorist participle functions as an embedded predicate or as a matrix one. In finite (151c) the subject is interpreted as a third person singular pro and cannot receive an impersonal reading. In embedded (151a-b) it can only be interpreted impersonally because there are no agreement markers on *xajyhardyyr* signalling the features of the subject: in embedded sentences the second agreement paradigm is used where all person/number combinations are spelled out by overt, non-zero morphemes (set II (POSS) in table 1 in (8)). In (151c) the first agreement paradigm (set I (PRED) in table 1) is used in which 3SG gets a zero spellout on the predicate and therefore *xajyhardyyr* is interpreted as agreeing with a third person singular subject.

(151) a. Xajyhardyy-r ücügej.
Ski-aor good
'Skiing (in general, done by anyone, including myself) is good.'
b. Xajyhardyyr-y söbülüü-bün.
Ski-aor-acc like.aor-1sg
'I like skiing (in general, done by anyone, including myself).'
c. Xajyhardyy-r.
'(S)he skies. / *Anyone skies.'

Such impersonal subjects are possible with intransitive (both unergative and unaccusative) as well as transitive verbs when they are suffixed with the aorist participial marker and used as embedded predicates. The impersonal subject receives an arbitrary human interpretation. (152) replicates (151) for adjectives, however, with one difference: the impersonal subject receives an arbitrary interpretation which is not restricted to humans. If *buol* 'be' is merged with AP as in (153), then, being a verb, it will appear as aorist *buolar* and the impersonal subject will be arbitrary human, parallel to (151).

(152) a. Bytaan kuhaqan.
Slow bad
'It is bad when people/things are slow.'[63]
b. Bytaan-y kim da söbülee-bet.
Slow-acc who particle like-neg.aor
'Nobody likes when people/things are slow.'
c. Bytaan.
'(S)he/Something specific is slow.
*'People/things are slow.'

(153) a. Bytaan buol-ar kuhaqan.
Slow be-aorist bad
'It is bad when people are slow.'

[63] We are abstracting from another reading of *bytaan* as a nominalized adjective 'the slow one, a person who is slow'.

b. Bytaan buol-ar-y kim da söbülee-bet.
Slow be-aor-acc who particle like-neg.aor
'Nobody likes when people are slow.'

The data in (152) show that adjectives can license a subject on their own, without supporting functional structure, just like verbs. If one assumes that arbitrarization of the subject in the examples above involves an operation on the external argument of a predicate (we shall not consider this operation here but see Marelj 2004), then such an argument must be present in (152), in the absence of any verb[64]. Under present assumptions adjectives are one-place predicates and therefore can supply an argument for arbitrarization to apply. Adjectives can be contrasted with nouns which cannot have impersonal subjects: (154) without *buolar*. This is as expected since nouns are not predicative categories. It is also expected that (154) with *buolar* is grammatical for here we have a verb in the aorist which can license an arbitrary interpretation of its external argument.

(154) Tylbaascyt *(buol-ar) yaraxan.
Translator *(be-aorist) difficult
'It is difficult for anyone to be a traslator.'

4.9. Concluding remarks

The main goal of this extensive chapter was to find empirical evidence for the thesis that adjectives are one-place predicates. It was claimed that whereas adjectives already have an argument in their theta grid that they can be predicated of, nouns require a functional head expressed as an agreement marker in order to license a subject. Various kinds of evidence were considered to support this thesis. Thus, predicates of different types cannot be conjoined: adjectival predicates can only be conjoined with adjectives and the same applies to VP- and NP-predicates. Being a predicative category, adjectives just like verbs have their own, adjective-specific negation. Nouns must be negated with the help of the copular verb *buol* 'be'. The copula can also induce a generic interpretation with adjectival and verbal predicates alike but not with nominal predicates because only the former two, being inherently predicative, introduce an event variable and a state variable, respectively. The presence of an event/state variable in VPs/APs also explains a number of tense-related asymmetries between VPs/APs and NPs. On the other hand, the fact that APs are associated with a state variable and VPs with an event variable helps derive temporal asymmetries between adjectives and verbs. The chapter has also presented a detailed structural analysis of indicative tenses in Sakha as well as embedded predication. That APs as well as VPs can be directly embedded as non-finite sentential complements of matrix verbs while nominal small clauses cannot derives from the presence of a state variable in APs (and VPs) and its absence in NPs. Also considered was relative clause formation in Sakha. A three-way asymmetry in

[64] It is possible that different interpretations imposed on arbitrary subjects with verbs (restricted to humans) versus adjectives (not restricted to humans) could result from different levels of the application of arbitrarization operation. However, we shall not consider this question here.

argument extractions was witnessed which naturally follows from a difference in thematic properties of APs and VPs and from the non-predicative nature of nouns. Next, we have argued for a thematic account of both attributive and adverbial modification. Intersective/nonintersective ambiguities and prenominal/postnominal contrasts in attributive modification were analyzed in structural terms, as a matter of scope. Two final pieces of evidence in favour of viewing adjectives as one-place predicates came from the peculiar properties of adjectival arguments and the ability of adjectives to license impersonal subjects.

5. CAUSATIVES AND UNACCUSATIVES

After having considered the two non-relational categories, nouns and adjectives, it is now time to turn to verbal relationality. The relevant claim is that a concept must be associated with at least two feature clusters (=arguments) in order to be syntactically categorized as a verb. The purpose of this and the following two chapters is to substantiate this claim. The argument will proceed along two different lines. On the one hand, it needs to be shown that one-place verbs, unaccusatives and unergatives, are not basic: the former will be dealt with in this chapter, discussion of unergatives is postponed until chapter 7. On the other hand, the relational view of verbs has implications for the notion of Case which can only be defined for relational categories. Indeed, as shown in the previous chapter, even though adjectives are also predicative, they do not assign thematic case because they only take one argument. The issue of Case is considered in chapter 6.

Chapter 5 is structured as follows. We start with causative/unaccusative alternations for which a TS-based reduction analysis is defended. In section 5.2 verb-based derivation is considered. Section 5.3 offers an analysis of causativization in Sakha. Section 5.4 argues against the view that the external argument is not present underlyingly but rather introduced syntactically.

5.1. Causative/unaccusative alternations

Take a look at the examples in (1). (1a) is the transitive version and (1b) – unaccusative. A sample list of unaccusative verbs and their transitive alternates is given in appendix 4. Causative/unaccusative pairs pass the diagnostics described in 5.1.1.3.

(1) a. Min oloppoh-u aldjat-ty-m.
I chair-acc break-past-1sg
'I broke the chair.'

b. Oloppos aldjan-na.
Chair break-past.3
'The chair broke.'

Alternations like these have received a considerable amount of attention in the literature resulting in a variety of analyses. In this chapter we only consider two, arguing in favor of the TS-account presented in this section over the DM-account to be considered in 5.4: for a comprehensive overview of pre-TS accounts see Reinhart 2000. In particular, Reinhart argues that unaccusativity cannot be defined in terms of aspect, nor in terms of the notion 'external causation' (Levin & Rappaport Hovav 1995). She also provides arguments against Pesetsky's (1995) treatment of unaccusatives as basic underlying forms from which transitive alternates are derived by causativization. Instead, within the TS-framework transitive alternates are basic and unaccusatives are derived. The class of unaccusatives is characterized by having a transitive alternate selecting a [+c] argument which will realize as Cause, Agent or

Instrument. The unaccusative verb is derived from the transitive alternate by reducing the external [+c] role. Thus, unaccusative *open* as in *The door opened* is derived from transitive *open* as in *The wind opened the door* by reducing the causer role. Similarly for (1) where (1b) should be analyzed as derived from (1a). The reduction in question is expletivization: it eliminates the external argument altogether resulting in a one place verb. Formal representation of the operation is given in (2) (repeated from (80) in chapter 1). Since unaccusative reduction manipulates the θ-grid of a predicate, it must apply uniformly in the lexicon and therefore falls outside the scope of the Lex-Syn parameter (see (83) in chapter 1 and the discussion in 1.4.3).

(2) **Reduction of an external [+c] role (Expletivization)**:

a.	$V_{acc}\ (\theta_{1[+c]}, \theta_2)$	$\rightarrow$	$\underline{R_e(V)}\ (\theta_2)$	
b.	$\underline{R_e(V)}(\theta_2)$	=	$V(\theta_2)$	(Reinhart 2003, (15))

The analysis predicts the existence of an unaccusative alternate for each [+c] transitive verb and of a [+c] transitive alternate for each unaccusative verb. As Reinhart 2003 points out, there are very few exceptions to these correspondences which can be treated as language-specific lexical gaps. On the one hand, some verbs which select a [+c] argument do not have unaccusative entries: e.g. *hit* and *destroy* are only available as transitive verbs in English whereas in Hebrew and French *destroy* does display an unaccusative alternate. In Sakha both *hit* and *destroy* have unaccusative versions as shown in the appendix. On the other hand, in a given language some verbs can be frozen in their unaccusative forms and lack transitive entries. The missing transitive alternate may be available in some other language.

5.1.1. Unaccusativity diagnostics in Sakha: Causative alternation and others

This phenomenon has not been studied under a heading of its own in descriptive grammars of Sakha, probably due to the fact that it does not have its own morphology but rather shares it with reflexives and passives in addition to being zero-marked. Nevertheless, we can identify a separate class of unaccusatives using a number of various tests discussed in this section. Note that these tests are not genuine unaccusativity diagnostics: they are simply compatible with the unaccusative configuration which lacks an agent and where the sole argument is merged in the internal argument position. The configuration follows from the reduction analysis and the lexicon marking procedures. The latter ensure that not all verbs whose [+c] argument has been reduced will have an unaccusative derivation. In particular, subject experiencer verbs, e.g. *xomoj* 'be(come) sad' in (3), are also derived by [+c]-reduction. However, the remaining Experiencer argument is merged externally by (6a): being [-c+m], it cannot be marked with index 2, in accordance with (5a). Experiencing derivations contrast with unaccusatives shown in (4). Transitive 'break' takes both a [+] and a [-c] feature clusters as its arguments which, by (5), carry indices 1 and 2, respectively. Reduction leaves the argument marked '2' which must merge internally, in accordance with (6b).

(3) *Xomot* 'make sad' ([+c]$_1$, [-c+m]) → *xomoj* 'be(come) sad' ([-c+m]):
  a. Micil$_{[+c+m]}$/Kiine$_{[+c-m]}$ Lookut-u$_{[-c+m]}$ xomot-to.
     Micil/Movie Lookut-acc sadden-past.3
  b. Lookut$_{[-c+m]}$ xomoj-do. / Lookut become.sad-past.3

(4) *Aldjat* 'break' ([+c]$_1$, [-c-m]$_2$) → *aldjan* 'break' ([-c-m]$_2$):
  a. Micil$_{[+c+m]}$/Tyal$_{[+c-m]}$/Taas$_{[+c-m]}$ tünnüg-ü$_{[-c-m]}$ aldjat-ta.
     Micil/Wind/Stone window-acc break-past.3
  b. Tünnük$_{[-c+m]}$ aldjan-na. / Window break-past.3

(5) Lexicon marking: Given an n-place verb-entry, n>1,
  a. Mark a [-] cluster with index 2.
  b. Mark a [+] cluster with index 1.

(6) CS merging instructions:
  a. When nothing rules this out, merge externally.
  b. An argument realizing a cluster marked 2 merges internally; an argument with a cluster marked 1 merges externally.

The possibility of causative alternation which follows from the TS-analysis can be taken as a true diagnostic for unaccusativity as is done in Levin & Rappaport Hovav 1995. Indeed, the causative alternates of unaccusative verbs listed in appendix 4 are all associated, in addition to an internal Theme argument, with a [+c] feature cluster which will realize as either Cause, Agent or Instrument as illustrated in (4).

Apart from causative alternation, unaccusatives can be detected using the following tests which all hinge upon the absence of Agent. As expected, they cannot be passivized (7a) while unergatives can (7b). An instrument role (which is only licensed in the presence of an overt or implicit agent) is disallowed with unaccusatives (8a) but may occur with agentive unergatives (8b).

(7) a. *Buh-ulun-na/ir-ilin-ne/süt-ülün-ne.
     boil-pass-past/melt-pass-past/disappear-pass-past
     'It was boiled/melted/disappeared.'
  b. Ülele-n-ne/ystan-ylyn-na/süür-ülün-ne/sötüöle-n-ne.
     work-pass-past/jump-pass-past/run-pass-past/swim-pass-past
     'It was worked/jumped/run/coughed.'

(8) a. *Oloppos ötüje-nen aldjan-na.
     chair hammer-instr break-past
     'The chair broke with a hammer.'
  b. Kyys kuukula-nan oonnjoo-to.
     girl doll-instr play-past
     'The girl played with a doll.'

Another test concerns agentive nominals marked with the suffix –CI (after consonants: -AAccY) which were discussed in detail in 2.4.3. The test yields the

same results as English *–er* nominalizations which are known to apply only to verbs with an external argument, hence they are possible from transitives and unergatives (9a) but not from unaccusatives (9b).

(9)	a.	aaq-aaccy	üören-eecci	oonnjoo-ccu
		read-er	study-er	play-er
	b.	*üün-eecci	*timir-eecci	*tökünüj-eecci
		grow-er	drown-er	roll-er

Unaccusatives do not allow control into purpose clause, unlike unergatives (10a).

(10) a. Micil xarcy ölör-öörü ülel-iir.
Micil money earn-purp work-pres
'Michil works in order to earn money.'
b. *Auditorija lieksije ist-eeri cuumpur-da.
audience lecture listen-purp hush-past.3
'The audience hushed in order to listen to the lecture.'

Only agentive predicates can appear in the comitative voice which requires an agentive predicate. This rules out comitative unaccusatives while allowing comitative unergatives.

(11) a. Erel sajyn ferma-qa ülele-s-te.
Erel summer farm-dat work-comit-past.3
'Erel helped (lit. worked together with others) at the farm during the summer.'
b. *Kihi timir-is-te. / person drown-comit-past.3

5.1.2. Arguments that the transitive alternate is basic

According to the TS-analysis, the causative alternate is the base from which the unaccusative alternate is derived. Various pieces of evidence are available in Sakha to support this point.

5.1.2.1. Irregular causative morphology

The default pattern of causativization consists in the alternation between –t- and –TAr- which is phonologically determined: if a verb ends in a vowel, -t- is chosen, if it ends in a consonant, the suffix is -TAr- as shown in (12).

(12)	**V-vowel**	**V-t**	**V-consonant**	**V-TAr**
	s**ie**	sie**t**	kyry**j**	kyryj**tar**
	eat	*make eat*	*cut*	*make cut*
	saqal**aa**	saqala**t**	bie**r**	bier**der**
	begin	*make begin*	*give*	*make give*

The overwhelming majority of unaccusative verbs listed in appendix 4 do not follow this straightforward pattern of marking their causative alternates. As classified in the appendix, the morphological relationship between causative and unaccusative members comes in several types. The most productive alternation is between the suffixes /–j/ for intransitives and /–t/ for transitives which attach to bound roots and are in complementary distribution. The causative suffix –t- also appears on unaccusatives which end in consonants – in contrast to its regular use only with verbs ending in vowels exemplified in (12). Causative/unaccusative pairs also make use of the suffix –Ar/-YAr which is not a causative suffix but a verbalizer. In addition, there are causative pairs which cannot be organized into any paradigms, e.g. *killer* 'make enter, bring inside' – *kiir* 'enter', *tuur* 'pull out' – *tulun* 'drop, become pulled out'. Furthermore, if we take a look at the causative alternation purely in terms of suffixation as signaling the direction of derivation, no clear results are obtained. This is most clearly seen in cases which involve n-marking. On the one hand, the unaccusative member is marked with –n- attaching to the transitive member which appears as the underived basic form as in e.g. *es* 'destroy; explode' – *eh-in* 'become destroyed; explode'. On the other hand, the transitive member can have considerably more suffixes than the unaccusative one as in *kytaat* 'become hard, tough, sturdy' – *kytaat-yn-nar* 'make hard, tough, sturdy'. The unpredictability of morphological marking in transitive-unaccusative alternations makes it highly unlikely that these are derived syntactically by stacking the relevant roots under v_{unacc} or v_{caus}. The findings, however, are compatible with the TS-reduction analysis which lists both transitive and intransitive members of the alternation in the lexicon. In the next chapter, the question of morphological marking in the unaccusative derivation will be considered in more detail from the viewpoint of the reduction account.

Another causative-related argument comes from t-doubling which is possible with regular t-causatives but impossible with transitive alternates of unaccusatives. Given in (13) is the t-causative derived from the unergative verb *ülelee* 'work'. The causative suffix –t- can be doubled by another causative suffix –TAr- (which attaches to consonants, here –t-), with no ensuing change of meaning[1]. Thus, the second causative suffix is the phonological doublet of the first one and is not associated with an extra causer argument. On the contrary, the –t- morpheme appearing on the unaccusative verb like *baj* 'become rich' cannot have a phonological doublet: the second causative must introduce another causer as shown in (14b). With regular causatives this is also possible (14a), hence *ülelet* is ambiguous between 'make someone work' and 'make someone make someone work'.

(13) a. Aisen Keskil-i ülele-t-te / ülele-t-ter-de.
Aisen Keskil-acc work-caus-past.3 / work-caus-caus-past.3
'Aisen made Keskil work.'

b. Aisen Keskil-i baj-yt-ta / *baj-yt-tar-da.
A. K.-acc become.rich-caus-past.3 / *become.rich-caus-caus-past.3
'Aisen made Keskil rich.'

[1] The doubled verb implies emphasis/intensity.

(14) a. Kesha Aiseŋ-ŋa Keskil-i ülele-t-ter-de.
Kesha Aisen-dat Keskil-acc work-caus-caus-past.3
'Kesha made Aisen make Keskil work.'
b. Kesha Aiseŋ-ŋa Keskil-i baj-yt-tar-da.
Kesha Aisen-dat Keskil-acc become.rich-caus-caus-past.3
'Kesha made Aisen make Keskil rich.'

The doubling data can be accomodated if the –t- suffix is compositional only in regular causatives whereas in transitive alternates of unaccusatives it is part of the verb entry in the lexicon invisible to the phonological component. If unaccusative –t- is treated as part of the verb stem/root, this again betrays the lexical basicness of unaccusative causatives like *baj-yt* 'become.rich-t', as opposed to the derived status of *ülele-t* 'work-caus'.

The following set of data present one more argument that the causative suffix which appears on the transitive variants of unaccusatives is part of the verb root/concept and not added through some morphological process. (15a) shows a basic transitive verb *tal* 'choose' causativized once in (15b) and twice in (15c). As will be discussed in 5.3, two causative suffixes stacked together are the limit, the first one marking the lexical operation of causativization and the second one – syntactic causativization. As expected under the reduction analysis, *sojut* 'make cool', the transitive counterpart of unaccusative *soj* 'become cool', patterns like basic transitive *tal* 'choose' allowing two causative morphemes. Crucially, if *soj* 'become cool' were the basic entry, the presence of three causative suffixes in (16) would be exceptional and remain unexplained.

(15) a. Keskil bu kinige-ni tal-la.
Keskil this book-acc choose-past.3
b. Aisen Keskil-ge bu kinigeni tal-lar-da.
Aisen Keskil-dat this book-acc choose-caus-past.3
'Aisen made Keskil choose this book.'
c. Lena Aisen-ynan Keskil-ge bu kinigeni tal-lar-tar-da.
L. A.-instrum K.-dat this book-acc choose-caus-caus-past.3
'Lena made Aisen make Keskil choose this book.'

(16) a. Keskil miin-i soj-ut-ta.
Keskil soup-acc cool-caus-past.3
b. Aisen Keskil-ge miin-i soj-ut-tar-da.
Aisen Keskil-dat soup-acc cool-caus-caus-past.3
'Aisen made Keskil cool the soup.'
c. Lena Aisen-ynan Keskil-ge miin-i soj-ut-tar-tar-da.
Lena A.-instrum K.-dat soup-acc cool-caus-caus-caus-past.3
'Lena made Aisen make Keskil cool the soup.'

A special status of causative alternates has been noted also in Xaritonov 1963 who argues that the appearance of irregular causative morphology does not mark causative voice but rather verb formation. Thus, a transitive verb like *buhar* 'boil'

(intransitive *bus* 'boil' + irregular -*ar*-) is a verb in the basic (unmarked) voice whereas *aaxtar* 'make read' (*aax* 'read' + regular -*tar*-) is a verb put into the causative voice.

5.1.2.2. Deverbal nouns

In section 2.4.3 we made a distinction between nouns derived from verbs in the lexicon and those derived in the syntax. The latter, in particular, involved external argument saturation and preservation of the remaining argument structure intact. Lexically derived nouns, on the contrary, were not associated with any arguments. It was argued in chapter 2 that lexical nominalization reduces verbal argument structure and effects a meaning change whereas syntactic nominalization preserves the original arguments. As predicted by the reduction analysis under which causative alternates of unaccusative verbs are listed in the lexicon, they should allow not only syntactic nominalizations but also lexical ones. The prediction holds true and will be considered in more detail in section 5.2.1.1 below.

5.1.2.3. Negation scope

Causative alternates of unaccusative verbs contrast with regular causatives in disallowing narrow negation scope. (18) shows a regular causative derived from the verb *ülelee* 'work' with the regular (i.e. used regularly, in a phonologically predictable context) causative morpheme followed by the negation marker –BA[2]. (17) is an example of a transitive alternate of unaccusative *baj* 'become rich': the causative morpheme –t here is used irregularly, i.e. its occurrence is not predicted by any rules. In (18) negation can scope either over the whole causative verb deriving the first reading or only over the verb embedded under the causative marker. In the first case the causal force of Kesha is denied: the sentence is understood as if Kesha did nothing, he did not cause Aisen to work; Aisen may have not worked or may have worked but his working was not caused by Kesha. The second reading represents a situation in which Aisen is trying to work but Kesha puts all his effort to prevent Aisen from working. So, whereas in the first case Kesha does nothing, in the second case he does something. On the contrary, in (17) negation cannot have narrow scope over the unaccusative verb. These facts follow naturally if only regular causatives are derived by the lexicon-internal operation of causativization and hence embed a verb concept (*ülelee* 'work' in (18)) to which the negation can refer. In contrast, causative alternates of unaccusative verbs are underived and therefore cannot be treated by negation as if consisting of two separate components. The operation of causativization will be discussed in section 5.3.

(17) Kesha Aisen-y baj-yp-pa-ta.
Kesha Aisen-acc become.rich-caus-neg-past.3
i. 'Kesha did not make Aisen become rich.'
ii. *'Kesha made Aisen not become rich.'

[2] Causative -t becomes –p under assimilation by –BA.

(18) Kesha Aisen-y ülele-p-pe-te.
Kesha Aisen-acc work-caus-neg-past.3
i. 'Kesha did not make Aisen work (Kesha did nothing).'
ii. 'Kesha makes Aisen not work.'

5.1.2.4. Adverbial scope

The same considerations carry over to examples where the causative predicate is modified by adverbs. Here too, regular causatives behave as if they consisted of two separate components which can be modified by adverbs independently of each other. In (20) 'slowly' refers to the causative component while 'quickly' – to the embedded verb. In (19) there is only one undecomposable verb modified simultaneously by the two antonymous adverbs resulting in a contradiction.

(19) *Kesha bytaannyk Aisen-y türgennik baj-yt-ta.
Kesha slowly Aisen-acc quickly become.rich-caus-past.3
'Kesha slowly made Aisen quickly become rich.'

(20) Kesha bytaannyk Aisen-y türgennik ülele-t-te.
Kesha slowly Aisen-acc quickly work-caus-past.3
'Kesha slowly made Aisen work quickly.'

5.1.2.5. Levin & Rappaport Hovav's (1995) arguments

Levin & Rappaport Hovav 1995 (LRH'95) also argue that the causative alternate is the basic one from which the unaccusative is derived by suppressing the external cause role (through lexical binding). They present three pieces of evidence to support the analysis two of which can be replicated for Sakha as well. The first argument involves selectional restrictions. On the one hand, "the subject of the intransitive use of the verb bears the same semantic relation to the verb as the object of the transitive use. … the set of possible objects of transitive *break* and the set of of possible subjects of intransitive *break* do indeed coincide" (ibid. pp. 85-6). On the other hand, they show that the set of possible subjects for the intransitive use of a verb appears to be a subset of the set of possible subjects for the transitive use of the same verb. Thus, whereas *He broke the window* corresponds to *The window broke*, the transitive *He broke his promise/the contract/the world record* has no unaccusative counterparts. Selectional restrictions also hold in Sakha, in the same way as they do in English. For instance, it is possible to say *itii-te killer* 'warm up by drinking/eating something hot (lit. heat-partitive bring.inside)' or *eqerde tiert* 'send greetings (lit. greeting make.reach)' but it is impossible to use these collocations intransitively: **itii kiir-de* 'heat enter-past.3', **eqerde tiij-de* 'greeting reach-past.3'. One more example is given in (21) representing the pair *saaj* 'hit someone/something' – *saalyn* 'bump into'. Whereas with transitive *saaj* 'hit' both animate Aisen and inanimate *tohoqo* 'nail' are allowed as objects, the unaccusative *saalyn* 'bump into' admits only the former: a nail cannot bump into anything. However, if someone throws a book which unexpectedly hits a pole, (21b) with *kinige* 'book' instead of *tohoqo* would be grammatical. (21c) shows the passive of

saaj. The example is important because both unaccusative *saalyn* 'bump into' and passive *saaj-ylyn* 'be hit' are marked with the passive morpheme –LYn which, in the unaccusative case, attaches to a bound root replacing the suffix –j- and, in the passive case, to an independent verb stem.

(21) a. Kesha Aisen-y/tohoqo-nu baqana-qa saaj-da.
Kesha Aisen-acc/nail-acc wooden.pole-dat hit-past.3
'Kesha hit Aisen/the nail against/into a wooden pole.'
b. Aisen/*tohoqo baqana-qa saalyn-na.
Aisen/*nail wooden.pole-dat bump-past.3
'Aisen/*the nail bumped into a wooden pole.'
c. Tohoqo baqana-qa saaj-ylyn-na.
Nail wooden.pole-dat hit-pass-past.3
'The nail was hit into a wooden pole.'

LRH account for the fact that the set of objects of causative alternates is wider than the set of unaccusative subjects as follows. They assume that it is the basic use of the verb which imposes less stringent restrictions on its arguments. Therefore, since transitive *break* has looser selectional restrictions than intransitive *break*, it is transitive *break* which is basic.

Another argument cited by LRH for the 'causative is basic' view which is also applicable in Sakha involves interpretation. Since unaccusative verbs are analyzed as containing a cause argument at some level of representation, an adverbial modifier can be inserted referring to this cause[3]. The adverbial modifier in question is *by itself* which in English has two readings: 'without outside help' and 'alone' (LRH'95, p. 88). The reading relevant for unaccusative verbs is 'without outside help' which is indeed available in (22a). On the contrary, with unergative verbs as in (22b) the most natural reading of *by itself* is 'alone' rather than 'without outside help'[4].

(22) a. The plate broke by itself.
b. Molly laughed by herself.

Similar considerations apply to Sakha *beje-ϕ* 'self-AGR' which also has the above two readings associated with English *by itself* (in addition to the presently irrelevant emphatic/intensifier reading). However, instead of using the label 'without outside help' which is difficult to distinguish from the 'alone' reading, we will use the label 'spontaneously/for no objective reasons' which seems better suited for *beje-ϕ*. As illustrated in (23a), both readings are possible with an unaccusative but with an unergative in (23b) the spontaneous reading is highly implausible. The facts in (23) can be explained along the lines in LRH and Reinhart 2000. The underlying verb concept includes a cause role not realized in (23a). Inserting *bejete* with the reading

[3] The same point is made in Reinhart (2000:26), cf. "when the concept includes a cause argument, as with *break*, but not *glow*, we can refer to it, even if we selected a lexical representation which does not realize it".
[4] The examples are from LRH'95, pp. 88-89.

'spontaneously, for no objective reason' has the effect of denying the presence of the external cause in the underlying verb concept.

(23) a. Lena beje-te tönün-ne. / Lena self-3 return-past.3
'Lena returned alone/for no objective reason.'
b. Lena beje-te oonnjoo-to. / Lena self-3 play-past.3
'Lena played alone/#for no objective reason.'

5.2. Verb-based derivation

In this section we would like to consider one topic left over from chapter 2: deriving adjectives from verbs (section 2.5.3). In addition, we will consider lexical V→N derivation. This regression is necessary at least for two reasons. First, chapter 2 discussed derivation mainly from a morphological point of view without elaborating on the particular argument structures involved. Here we will discuss derivation from a different angle, namely, in terms of how verbs, two-place predicates with various feature clusters give rise to nouns linked with no feature cluster and to adjectives linked with one feature cluster. Second, both unaccusatives and adjectives are one-place predicates, the former being derived and the latter underlyingly so. Given a triplet like *incet* 'make wet' – *incej* 'become wet' – *inceqej* 'wet', a question arises as to how the three should be related to each other.

5.2.1. Lexical V→N derivation: M-reduction of argument structure

In section 2.4.3 syntactic nominalization which must preserve the original argument structure of the base verb was opposed to lexical nominalization which deletes all argument structure. The resulting noun has no open positions that must be satisfied. As all underived nouns, it can occur with at most one possessor which, as argued in chapter 3, is syntactically introduced. The possessor can have a range of contextually determined interpretations. However, it cannot correspond to the internal argument of the underlying base verb. This is clearly demonstrated by the examples in (24) and (25). *Djahal* 'management' is a noun lexically derived from the transitive verb *djahaj* 'to manage, govern' by replacing the verbal suffix –j- with the nominalizing suffix –l- (see appendix 3, section 2, #26). When it appears with a possessor as in (24a), the latter cannot be interpreted as the thing managed: (24a) can only refer to a particular management policy conducted by the company. In order to get the meaning in which it is the company which is managed (i.e. the meaning which closely corresponds to the underlying verb, with 'company' as the verb's complement), a syntactic action/process –YY/-hYn nominalization must be resorted to as in (24b).

(24) a. terilte djahal-a // company management-3
'company's management (i.e. company = the manager)'
*'management of the company (i.e. company = the managed object)'

b. terilte-ni djahaj-yy // company-acc manage-nom
'management of the company (i.e. company = the managed object)'
*'company's management (i.e. company = the manager)'

Another particularly telling example is given in (25) which shows that the purely grammatical constraint "possessor ≠ internal argument of the base verb" cannot be overridden by pragmatics. Pragmatically, people are usually the ones who get oppressed but this reading is absent in (25b) which presents people as the unfair oppressor.

(25) a. Yraaxtaaqy noruot-u batt-yyr.
Czar people-acc oppress-aor
'The czar oppresses the people.'
b. noruot battal-a // people oppression-3
'people's oppression (people = the oppressor/*oppressed)'

How can we account for the fact that a 2-place verb has its both arguments reduced when it undergoes a lexical nominalization? A comprehensive theory of deverbal noun derivation has been developed in Grimshaw 1990. Grimshaw distinguishes three classes of deverbal nouns: complex event nominals, simple event nominals and result nominals. Of these, only the first have obligatory argument structure inherited from the base verb. Result and simple event nominals do not have a thematic a-structure of the type that complex event nominals possess. However, all nouns have a non-thematic external argument: Ev for complex event nominals and R for the rest. When result or simple event nominals are derived from verbs, one of the arguments of the base verb provides the external R argument for the derived noun. Grimshaw argues that "which argument it is identified with is a function of the affix that is added, so the affix must specify which kind of argument it binds. Roughly, the affix *–ee* binds a patient argument, *-er* binds an external argument … and *–ion* binds something like a theme in cases like *observation*. The affix *–ness* presumably binds a degree argument in the lcs of the head (the same argument that licenses adverbials like *completely* with a degree interpretation)" (66-7)[5]. This can be represented as in (26) (ibid. p. 67).

(26) a. detain(x (y)) detainee(R=x) such that y detains x
b. teach(x (y)) teacher(R=x) such that x teaches y
c. observe(x (y)) observation(R=x) such that y observes x
d. fond (x (y)) fondness(R=x) such that y is fond to degree x

When a noun is used predicatively, the external argument is satisfied by predication as in *John is a teacher*. In non-predicative contexts it is satisfied by reference as in Williams 1981 and di Sciullo and Williams 1987. Alternatively, the R argument can be satisfied by a determiner as in Higginbotham 1985.

[5] Lcs = lexical conceptual structure.

The idea that nouns have a non-thematic R argument stems from the view that they are intransitive predicates (see the discussion in chapter 3). We argued against this view in chapter 3. As for the Ev argument, we provided ample evidence in chapter 4 that nouns are not associated with an event variable. This concerns not only simplex nouns but also nouns derived from verbs, either lexically or syntactically. Since the event variable is associated with a VP and not with a V, lexical nominalizations are unproblematic: at the point of their derivation there is no mention yet of the event variable. With respect to syntactic nominalizations, the issue is more complex. As shown in chapter 2 (section 2.4.3), syntactic nominalizations inherit the VP and the argument structure associated with this VP. Nevertheless, they are not associated with an event variable seen from the fact that they do require the copula, just like simplex nouns and pattern exactly like the latter in all the relevant contexts considered in chapter 4. These findings are contrary to Grimshaw's (1990) and Schoorlemmer's (1995) assumption that the presence of an event argument in complex event nominals is conditioned by the fact that they preserve the original argument structure of the underlying verbal predicate. For Schoorlemmer eventivity can be expressed by nouns only if they contain a VP (p. 308). For Grimshaw eventivity stems the properties of the suffixes. A suffix like –ing is specified as introducing the external argument Ev whereas the suffix –ee introduces the external argument R with R binding the patient argument of the base verb. In addition, there are suffixes which are ambiguous in having two entries: one specified for Ev and the other specified for R. The original argument structure of the verb is only preserved when the verb combines with a suffix introducing Ev: in this case the argument structure of the suffix is combined with the argument structure of the verb. As one can see, in Grimshaw's analysis Ev is a property of the suffix, not a property of the VP. Therefore this analysis does not present a problem for current concerns. Schoorlemmer's account, on the contrary, assumes that an event argument is inherited along with the VP. Since, according to the analysis in chapter 2, syntactic nominalizations inherit a VP, they must also inherit the event variable. Empirical facts contradict this: syntactic nominalizations do not contain an event variable, according to the tests in chapter 4. The problem can be circumvented in the following way. The account in 2.4.3 assumed that the external argument is saturated and this saturation is marked by the morphemes –YY/-hYn or –CI/-AAccY. At this point this account must be modified by forcing the simultaneous saturation/suppression of the event variable along with the external argument. Suppression of the event variable explains the absence of any tense marking (either in Infl or in Part) not only in lower VP-nominalizations derived with –CI/-AAccY but also in higher IP-nominalizations derived with –YY/-hYn. The presence of a tense marker would betray the presence of a tense operator and, as argued in chapter 4, a tense operator must be licensed by binding an event variable. If there is no event variable for the tense operator to bind, the latter cannot be licensed and the structure would be ruled out. Hence, the impossibility of both participial and tense markers in all kinds of syntactic nominalizations is explained.

As for morphological correspondences between suffixes and particular arguments bound by these suffixes, the situation in Sakha with its suffixal ambiguity is unlike the situation in English where, as shown in detail by Grimshaw 1990, there are significant correlations between the meaning of the derived noun and the affix

used. Although ambiguities are also pervasive in English, they are quite systematic reflecting the distinction between two different types of nominals – complex event and simple event/result. On the contrary, suffixal ambiguities in Sakha are highly irregular signalling not only a difference in the two types of derivation (lexical versus syntactic) but also pervading the entire domain of lexical derivation. For instance, the suffix –k cannot be associated with any particular function because the noun derived with –k can correspond either to the external (*süür* 'run' → *süürük* 'current, flow'), internal (*bier* 'give' → *berik* 'bribe') or instrument (*ytyj* 'whip cream' → *ytyk* 'instrument for whipping cream') arguments associated with the base verb. Also as can be seen from the tables in (27)-(32), one and the same semantic relationship between the base verb and the derived noun can be marked by different suffixes. Therefore, since the semantic classification of lexical V→N derivation does not straightforwardly translate into morphological terms, such classification will have a descriptive value only. Nevertheless, we can exemplify some possibilities as to which of the verbal arguments the derived noun refers to. As the tables shows, the noun can refer to the external argument, the internal argument, the instrument, the event/process denoted by the verb or the result thereof. There are also cases where the semantic relationship between the verb and the noun remains unclear (32): is appetite the result of putting a piece of food in your mouth and is a mentor a person who kicks you or who gets kicked by you?

(27) V→N: N = external argument

V	**Gloss**	**V-nom → N**	**Gloss**
Süür	Run	Süüreen	Current, flow
Toŋsuj	Knock	Toŋsoqoj	Woodpecker
Et	Say	Etiŋ	Thunder
Bocuguraa	Onomatopoeic: produce sounds like 'bocu'	Bocuguras	Ruffed grouse
Xon	Stay overnight	Xonoho	Guest staying overnight
Üün	Grow	Üünüges	Shoot, sprout; puppy

(28) V→N: N = internal argument

V	**Gloss**	**V-nom → N**	**Gloss**
Ytyr	Bite	Ytyrym	A bit
Kepsee	Tell, narrate	Kepseen	Story
Yhaar	Fry, grill	Yhaary	Fried food
Tüm	Sum up, conclude; unite	Tümen	Parliament
Anaa	Appoint	Anal	Destiny
Xat	Twist/weave (a rope)	Xatys	Leather rope

(29) V→N: N = instrument

V	Gloss	V-nom → N	Gloss
Taraa	Comb	Taraax	Comb
Xarbaa	Sweep	Xarbyyr	Broom (participle: sweeping)
Syt	Lie down	Syttyk	Pillow
Bys	Cut	Byhyja	Small knife
Üt	Fry, roast on embers/on a spit	Ütehe	Spit
Ya	Milk	Yaqas	Bucket for milking
Tut	Hold	Tutaax	Handle

(30) V→N: N = process

V	Gloss	V-nom → N	Gloss
Bihiree	Admire	Bihirem	Admiration
Xap	Catch	Xabylyk	Game of catching small sticks
Xabys	Wrestle with	Xapsaqaj	Wrestling competition
Öhöö	Bear a grudge against	Öhögöj	Hostility, feud
Tap	Hit one's aim	Tabyl	Luck
Taptaa	Love	Taptal	Love

(31) V→N: N = result

V	Gloss	V-nom → N	Gloss
Üören	Study	Üörüjex	Habit
Öröj	Look up; keep up the spirits, become energetic	Örögöj	Success, triumph
Oŋor	Make	Oŋohuk	Thing made
Bil	Know	Bilge	Prognosis
Uur	Put, decree	Uuraax	Decree
Toŋ	Freeze	Toŋot	Crust of ice over snow

(32) V→N: N = ???

V	Gloss	V-nom → N	Gloss
Tep	Kick	Tebiŋ	Support; mentor
Sit	Catch up with	Sitim	Connection, net(work)
Uop	Take a mouthful	Obot	Appetite
Köm	Bury	Kömüs	Gold or silver
Uor	Steal	Uorba	Suspicion
Sie	Eat	Sieŋ	Carrion

Given the lack of any significant morphological correlations between the type of the argument denoted by the derived noun and the suffix used, an account which

specifies for each affix the relationship between the base verb and the derived noun does not appear plausible. Rather, it is more advantageous to assume the operation of m(orphological)-reduction of a θ-role similar to Schoorlemmer's (1995) m(orphological)-saturation of a θ-role: cf. "apart from saturation of a θ-role in syntax, there is also a mechanism of saturation in morphology. … a θ-role can be saturated either by being assigned to a syntactic argument position or by the addition of some particular piece of morphology" (Schoorlemmer 1995:2). In all of the cases considered above there is always some piece of (largely idiosyncratic) morphology attached to the base verb: it is this morphology which will be taken to reduce the argument structure of the base verb. M-reduction of argument structure will take place independently of whether the underlying verb is two-place as in *bil* 'know' → *bilge* 'prognosis' or one-place (i.e. derived unaccusative) as in *toŋ* 'freeze' → *toŋot* 'crust of ice over snow'. We will assume that argument structure (all of the feature clusters associated with one verb concept) is reduced as one complex. A more important question is what happens to the accusative case when the input of derivation is a transitive verb which assigns accusative. This question is undertaken in the next subsection.

5.2.1.1. Lexical nominalization and accusative reduction

Consider the following two verbs, both causative alternates of unaccusatives: *killer* 'enter, bring inside' and *buhar* 'cook'. According to the TS-lexicon marking rules repeated from (75) in 1.4.3, both qualify to be marked with the ACC feature. As illustrated in (33), both can be input to lexical nominalization which derives nouns with no arguments and no accusative case as well as to [+c]-reduction which reduces accusative case and derives the unaccusative entry. The question is: does lexical nominalization impose accusative case reduction in the same way as unaccusative reduction does?

(33) Unaccusative causative bases for lexical nominalization

Transitive V ([+c], [-c-m])	**Unaccusative V ([-c-m])**	**V_{TRANS}-nom → N**
Killer 'enter, bring inside'	Kiir 'enter'	Killehik 'insertion; patch'
Buhar 'cook'	Bus 'cook'	Buharca 'a type of fish dish'

(34) Lexicon marking: Given an n-place verb-entry, n>1,
- a. Mark a [-] cluster with index 2.
- b. Mark a [+] cluster with index 1.
- c. If the entry includes both a [+] cluster and a fully specified cluster [/α, /-c], mark the verb with the ACC feature.

Whereas argument structure reduction in nominalizations has been argued in the previous section to be the result of m-reduction, the disappearance of accusative case in deverbal nouns has not yet been investigated. We would like to argue here that lexical nominalization does not reduce accusative case: it only m-reduces the

whole feature cluster complex associated with a particular verb. Given a causative verb specified as ([+c], [-c-m]) or an agentive verb specified as ([+c+m], [-c-m]), lexical nominalization will take place before lexicon marking applies, reducing ([+c], [-c-m]) or ([+c+m], [-c-m]). Thus, at the point of turning a verb into a noun, there is no mention yet of accusative feature and, consequently, no need for accusative reduction.

This account explains the possibility of lexical nominalization with unaccusatives and its impossibility with regular causatives. Consider first unaccusative-based derivation some examples of which are given in (35).

(35) Unaccusative intransitive bases for lexical nominalization

Unaccusative V	**Gloss**	**V_{UNACC}–nom → N**	**Gloss**
Tüs	Fall	Tühük	Grammatical case
Tüs	Fall	Tühümex	Chapter; round (in sports)
Tüs	Fall	Tühülge	Arena
Üün	Grow	Üünüges	Shoot, sprout; puppy
Üün	Grow	Üüneeji	Plant
Mun	Lose one's way, get lost	Munnuk	Corner
Toŋ	Freeze	Toŋot	Crust of ice over snow
Sahar	Become yellow	Saharqa	Dawn

Under the present account, unaccusatives are derived from transitive verbs already marked with the accusative feature. Cause reduction, however, takes care of ACC by eliminating it. With no accusative feature left, lexical nominalization can apply reducing the remaining [-c-m] feature cluster of an unaccusative verb.

The behaviour of unaccusatives with respect to lexical nominalization can be contrasted with the behaviour of regular causatives which only allow syntactic nominalizations in –YY/-hYn and –CI/-AAccY: no instances of lexical nominalization taking a regular causative as input have been found. (36a) shows a regular causative derived from *aax* 'read'. *Aaxtar* can be nominalized in the syntax as shown in (36b) with argument structure preserved but it cannot be turned into a noun with argument structure reduced.

(36) a. Lena Sardaana-ny surug-u aax-tar-da.
Lena Sardaana-acc letter-acc read-caus-past.3
'Lena made Sardaana read the letter.'

b. kinige-ni aax-tar-yy / kinige-ni aax-tar-aaccy
book-acc read-caus-nom / book-acc read-caus-nom
'making to read the book / maker to read the book'

In section 2.4.3 we mentioned cases when –YY/-hYn and –CI/-AAccI nominalizations acquire 'lexicalized' (non-transparent) meanings alongside the fully transparent reading of action/process nominalization: cf. *bys* 'to cut' → *byhyy* 'SYNT: cutting; LEX: piece; shape, character', *daqaa* 'to touch lightly' → *daqaahyn* 'SYNT: touching lightly; LEX: adjective', *kerbee* 'gnaw/bite through' →

kerbeecci 'SYNT: biter; LEX: rodent'. The non-transparent cases are characterized not only by meaning change and fixed meaning determination (functions typically associated with lexicon and not syntax) but also by the lack of any argument structure. They therefore represent cases of one and the same suffix used across domains. Crucial for present concerns is the fact that the suffixes –YY/-hYn and –CI/-AAccY do not have this second unproductive, non-transparent use in cases like (36b).

Having shown the impossibility of lexical nominalization with regular causatives, this fact can now be explained as follows. A verb like *aax* 'read', in order to be subjected to the lexicon-internal operation of causativization (see 5.3 below), will first undergo lexicon marking procedures which will assign to it the accusative feature. A second accusative feature (witnessed on Sardaana in (36a)) will be added by the operation of causativization resulting in a verb taking two accusative arguments. Lexical nominalization cannot apply to such a verb because it does not have the ability to reduce even one accusative feature, let alone two. Thus, the behaviour of regular causatives with respect to lexical nominalization is the opposite of what happens in the case of irregular causatives, i.e. causative alternates of unaccusative verbs which can serve as bases for deriving nouns inside the lexicon (see (33) above). As argued above, the reason for that is their basic, underived status which allows lexical nominalization to apply prior accusative marking takes place.

5.2.2. V→A derivation

In this section a number of unanswered questions left over from section 2.5.3 will be considered. To recall, four possible types of V→A derivation were identified in 2.5.3 summarized below. We will not consider the fourth type which has been sufficiently covered in 2.5.3: it is a straightforward syntactic adjectivization which preserves the original argument structure of the base verb, be it transitive or intransitive.

(37) Types of V→A derivation

V	**Gloss**	**V-suffix → A**	**Gloss**
1. V_{TRANS}→A lexical derivation: argument reduction; meaning change			
Bys	Cut	Byha	Short, quick, direct
Ketee	Watch, keep an eye on	Ketex	Private
2. $V_{INTRANS}$→A lexical derivation: no argument reduction; meaning change			
Bar	Go, leave	Barbax	Unimportant, insignificant
Mun	Get lost	Munaax	Doubtful
3. $V_{INTRANS}$→A syntactic derivation: no argument reduction; no meaning change; category change			
Sahar	Become yellow	Saharxaj	Yellow
Kytar	Become red	Kytarxaj	Reddish
4. 'V-able' adjectives			
Kör	See	Körümtüö	Able to see, observe
Bul	Find	Bulumtuo	Able to find

The main question is why causer reduction which results in a one-place concept yields an unaccusative verb and not an adjective. Other questions include the derivation of adjectives in the lexicon and in the syntax and differences between these two types of derivation as well as semantic correspondences between adjectival arguments and the original arguments of base verbs.

5.2.2.1. Deriving adjectives from intransitive verbs in the syntax

As argued in detail in chapter 2, syntactic derivation can only change category and cannot alter input argument structure or induce meaning change. If we take a look at those pairs of intransitive verbs and adjectives which qualify the criteria, it turns out that all verbs which give rise to adjectives in the syntax are unaccusative. This is indeed what is expected: with an unaccusative verb which has only one [-c-m] argument left after causer reduction and is not associated with the accusative feature, adjectivization only needs to manipulate syntactic category. This can be achieved with the help of adjectivizing morphology. Appendix 4 (section III) lists a variety of morphological correspondences existing between transitive verbs, their unaccusative alternates and adjectives derived from the latter. Some of these patterns are fully regular, others less so. What is important is that there are no instances of an adjective derived by attaching a suffix to the transitive alternate. In the majority of cases, the adjective contains an unaccusative verb to which an adjectivizer is attached. In other cases the three types of suffixes (marking transitives, unaccusatives and adjectives) are attached to bound roots. There are also a number of homophonous cases when a lexical item is ambiguous between being an unaccusative verb or an adjective: crucially, there are no cases when a lexical item is ambiguous between being a transitive verb or an adjective.

Apart from unaccusatives, subject experiencer predicates can also be turned into adjectives in the syntax. Again, this is as expected. A subject experiencer is derived in the lexicon from an underlying two-place concept specified as ([+c], [-c+m]): e.g. *kuttaa* ‘frighten’, *sohut* ‘surprise’, *öhürget* ‘offend’. Reducing [+c] leaves us with a one-place verb with an experiencer [-c+m] argument: *kuttan* ‘become frightened’, *sohuj* ‘become surprised’, *öhürgen* ‘become offended’. In the syntactic component, these intransitive verbs can become adjectives resulting in *kuttas* ‘fearful, coward’, *sohuk* ‘unexpected’, *öhürges* ‘touchy’.

To end this section, the following answer emerges to the above question why causer reduction yields an unaccusative/subject experiencer verb and not an adjective: an adjective is not derived from the transitive verb. We are dealing with two different computational modules: first, a transitive verb serves as input for intransitive verb formation inside the lexicon and, second, the resulting intransitive verb serves as input for adjective formation inside the syntax. However, as the next two sections will show, the question has one more answer.

5.2.2.2. Deriving adjectives from intransitive verbs in the lexicon

As mentioned in chapter 2 (section 2.5.3), unaccusative verbs can also give rise to adjectives in the lexicon. Some examples are listed in (38)[6]. This derivational process is characterized by non-transparent meaning change and by the lack of any morphological correlations: as opposed to syntactic derivation, no regular suffixal patterns of adjectivization can be extracted.

(38) Unaccusative inputs for lexical V→A derivation

V	**Gloss**	**V-suffix → A**	**Gloss**
Bar	Go, leave	Barbax	Unimportant, insignificant
Büt	End, finish	Bütün	Whole
Büt	End	Bütehik	Final, last
Köt	Fly	Kötümex	Negligent, slipshod
Mun	Get lost	Munaax	Doubtful
Örköj	Become enthusiastic	Örkön	Victorious, invincible

One and the same unaccusative verb can be subjected either to lexical or syntactic adjectivization. To consider one example, transitive *toŋor* 'freeze ([+c], [-c-m])' gives rise to *toŋ* 'freeze ([-c-m])' which in turn can be adjectivized into *toŋ* 'frozen' or *toŋuj* 'sensitive to cold; reserved, cold, distant'. The former is syntactic, the latter is lexical. What sets the lexical and syntactic adjectives apart from each other is a difference in argument correspondences between the argument of the unaccusative verb and the argument of the adjective. Whereas in the syntactically related pair *toŋ* 'freeze' – *toŋ* 'frozen' both the argument of the verb and the argument of the adjective bear the same semantic relationship to their predicate (whatever can freeze is the same as whatever can be frozen), in the lexically related pair this is not the case: the things that can freeze only partially overlap with the things that are physically sensitive to cold or emotionally reserved.

Lexical adjectivization of unaccusatives raises a question as to the ordering of the operation. Lexical nominalization was argued above to apply 1) prior to lexicon marking to two-place concepts and 2) to marked entries whose accusative feature was reduced independently, i.e. to unaccusatives. Lexical adjectivization, just like lexical nominalization, is incapable of assigning accusative case: no adjective (apart from the fourth type, 'V-able' adjectives derived syntactically with argument structure preservation) can license accusative arguments. We would like to argue that lexical adjectivization, just like lexical nominalization, cannot effect the elimination of accusative and therefore has the same range of application as the latter, i.e. it can apply to pre-marked two-place entries (see the next subsection) as well as to unaccusatives. This means that *toŋuj* 'sensitive to cold; reserved, cold, distant' can be derived either from transitive *toŋor* 'freeze' not yet marked with the

[6] Intransitive verbs which give rise to adjectives in the lexicon are not necessarily unaccusative. Unergative verbs like *xaam* 'walk', *süür* 'run', *syyl* 'crawl' are possible inputs for lexical adjectivization as well. We will consider unergatives for which a denominal derivation is defended in chapter 7.

accusative feature or from unaccusative *toŋ* ‘freeze’. Both options are possible but two pieces of evidence point in favour of the ‘unaccusative → adjective’ derivation against ‘transitive → adjective’. First, it is always the case that an adjective is morphologically decomposable into an unaccusative verb plus some affix but never into a transitive verb plus some affix. Second, some unaccusative verbs lack transitive counterparts but nevertheless have adjectival derivatives, e.g. *bar* ‘go, leave’ → *barbax* ‘unimportant, insignificant’.

5.2.2.3. Deriving adjectives from transitive verbs in the lexicon

Lexical adjectivization does not reduce accusative case. It has two points of application: prior to lexicon marking procedures which assign accusative case feature to appropriate concepts or after lexical operations which eliminate accusative, in particular, unaccusative reduction considered in the previous section. Here we will consider the first case when a basic transitive verb serves as input to lexical adjectivization.

In this type of derivation the base verb is associated with two arguments and can be specified as [+c+m], [-c-m] (*bul* ‘find’, *tal* ‘choose’, *ketee* ‘watch, keep an eye on’); [+c], [-c-m] (*imit* ‘press, wrinkle’, *tes* ‘pierce through’, *aqaa* ‘smear, glue’); [+m], [-c-m] (*bil* ‘know’, *ihit* ‘hear’, *umun* ‘forget’). A natural question is whether the adjectival argument corresponds to any of these or not. The answer seems to be both yes and no. Consider first the cases where there seems to be a correspondence. Interestingly, it can go both ways as with *tal* ‘choose’, an agentive verb taking [+c+m] and [-c-m] arguments. *Tal* can serve as a base for deriving the adjectives *talymas* ‘choosy’ and *talba* ‘chosen, choice’. The semantic relationship *talymas* ‘choosy’ has with its sole argument is the same as that between the verb *tal* and its external argument. With *talba* ‘chosen, choice’, its argument corresponds to the internal argument of the corresponding verb. Some more examples are given below. Note that the correspondences are not always completely direct: someone who knows (*bil* ‘know’) is not always curious and inquisitive (*biliges* ‘curious, inquisitive’) and vice versa. What is important, however, is the fact that both the external argument of *bil* ‘know’ and the unique argument of *biliges* ‘curious, inquisitive’ are specified as [+m] (they can never be inanimate and neither of them is specified as [+c]). In terms of causality then, the correspondence is complete.

(39) Adjectives whose arguments correspond to external arguments of corresponding verbs:
Umun ‘forget’ – *umnugan* ‘forgetful’, *ahyn* ‘feel sorry for’ – *ahynygas* ‘compassionate’, *ihit* ‘listen to, obedient’ – *istigen* ‘obedient’, *saaraa* ‘doubt, not dare’ – *saaraŋy* ‘indecisive, uncertain’, *kömüskee* ‘defend’ – *kömüskes* ‘defensive’, *bil* ‘know’ – *biliges* ‘curious, inquisitive’, *bul* ‘find’ – *bulugas* ‘resourceful’, *tut* ‘hold’ – *tuppax* ‘having the habit of grabbing things’, etc.

(40) Adjectives whose arguments correspond to internal arguments of corresponding verbs:
Tes 'pierce through' – *teheqes* 'pierced through', *as* 'open' – *ahaqas* 'open', *iit* 'bring up, sustain' – *iitiex* 'adopted, domesticated', *imit* 'press, rumple, wrinkle' – *imiges* 'flexible, supple', *kyrbaa* 'cut into pieces' – *kyrbas* 'piecemeal, cut into pieces', etc.

In cases like the ones exemplified by (39) and (40) it is plausible to argue that the function of adjectivizing morphology is to suppress one of the arguments of the base verb making the remaining argument available to the adjective.

On the other hand, in cases like *tap* 'hit one's aim' – *taba* 'correct', *sim* 'stuff in' – *simik* 'shy', *dalaj* 'swing hands, hit' – *dalan* 'reckless, careless', etc. the relationship between the adjectival argument and the arguments of the base verb is much less clear. Nevertheless, any theory which addresses interface issues pertaining to the conceptual system, syntax and morphology needs to investigate this question. For now we will leave these cases out of consideration, pending further research.

5.2.3. A quick summary of N/A-derivation

A distinction is made between lexical and syntactic processes of nominalization and adjectivization. Syntactic processes preserve the original argument structure of the underlying verb, lexical processes do not. Neither lexical nominalization nor lexical adjectivization have the ability to eliminate accusative case feature. In the mapping from the lexicon to syntax, there are several points at which the two operations can apply as outlined below. When a pre-marked concept is nominalized, its both feature clusters are reduced. When it is adjectivized, one of the argument is not reduced and merges as the adjectival argument. Another lexicon-internal point for derivation is after accusative case reduction, on the output of causer reduction. Here, too, the function of nominalizing morphology is to signal argument reduction.

(41)

A pre-marked concept → N; A
↓
Lexicon marking
↓
[+c]-reduction
↓
Unaccusative verb → N; A (lexical)
↓
Syntax → N; A

5.3. Causativization

In this section we will provide an account of causativization in Sakha along the lines of the Theta System: 5.3.1 presents a descriptive overview of causatives, 5.3.2

outlines the TS-account of causativization, 5.3.3 argues for the lexical status of causatives in Sakha and 5.3.4 offers some evidence for the existence of syntactic causatives along with lexical ones. This section is devoted entirely to regular causatives derived by the addition of a causer role as opposed to causative alternates of unaccusative verbs considered above which have a basic underived status.

5.3.1. Introducing Sakha causatives

Causative voice is marked with one of the two suffixes /-t/ or /-TAr/. The choice between them is regulated phonologically: if a verb ends in a vowel, -t- is chosen, if it ends in a consonant, the suffix is -tar-.

(42)

Ahaa 'eat'	*ahat* 'make eat'
Saqalaa 'begin'	*saqalat* 'make begin'
As 'open'	*astar* 'make open'
Kyryj 'cut'	*kyryjtar* 'make cut'

Causativization adds an obligatorily animate causer argument, i.e. an agent, marked nominative. When an intransitive predicate is causativized, its sole nominative argument is accusativized. Other arguments if present (e.g. source, goal, location) retain whatever cases they had.

(43) a. Sargy ytaa-ta.
Sargy cry-past.3
b. En Sargy-ny yta-t-ty-ŋ.
You Sargy-acc cry-caus-past-2sg
'You made Sargy cry.'

When a transitive predicate is causativized, the causee has three options of case realization between dative, accusative and instrumental.

(44) a. Sargy taŋas tal-la.
Sargy clothes choose-past.3
b. Erel Sargy-ga/Sargy-ny/Sargy-nan taŋas tal-lar-da.
Erel Sargy-dat/-acc/-instrum clothes choose-caus-past.3
DAT/ACC/INSTRUM: 'Erel made Sargy choose clothes.'
DAT/*ACC/*INSTRUM: 'Erel let Sargy choose clothes.'

The difference in case-marking entails differences in interpretation and ordering. With a dative/instrumental causee, the mutual ordering of arguments is free (only governed by discourse considerations such as topic/focus) but if both the causee and patient are accusative, the ordering is strictly causee-patient: the first accusative noun phrase is interpreted invariably as causee. With respect to interpretation, both instrumental and accusative imply greater coercion on the causee, with pressure on the accusative being the greatest. Hence, whereas all three causativization patterns

allow a proper causative reading, a permissive causative is only possible with the dative causee[7].

5.3.2. Causativization in the Theta System

Within TS, causativization is one of the available arity operations which can take place either in the lexicon or syntax. Lexical causativization equals agentivization: it adds a [+c+m] agent argument to the verb's θ-grid which explains the ungrammaticality of (46a) with *whip* as the external argument. There are two steps involved in the operation illustrated in (45) repeated from 1.4.3.

(45) **Causativization**:

a.	Decausativize:	Change a /+c feature to a /-c feature.	
	walk([+c+m])	→	walk([-c+m])
b.	Agentivize:	Add an agent role.	
	walk([-c+m])	→	walk([+c+m], [-c+m])

Syntactic causativization adds simply a causer role which may vary in its interpretation from animate/inanimate cause to obligatorily animate agent. The examples in (46) illustrate the contrast between lexical (46a) and syntactic (46b) causatives.

(46) a. The rider/*The whip jumped the horse over the fence.
b. The rider/The whip made the horse jump over the fence.

Syntactic causativization does not follow the same two-step procedure as lexical causativization because in the Theta system the syntax does not read the content of the θ-features. This lack of sensitivity to θ-features explains why the application range of syntactic causativization is much broader than that of lexical causativization. For instance, a subject experiencer verb like 'love' can be causativized with the help of *make* as in (47a) but it cannot form a lexical causative (47b): its external Experiencer argument is specified as [-c+m] lacking the [+c] component necessary for the first step of decausativization in (45a).

(47) a. The aroma of cocoa made me love chocolate.
b. *The chef loved me chocolate.

Another important thing to be noted is the fact that causativization is not subject to the Lex-Syn parameter: one and the same language can display both lexical and syntactic causativization as is the case with English, cf. (46).

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[7] A distinction between two interpretations of causative verbs, viz. causation proper and permission, is drawn in Comrie (1985:332ff.). Under the causative proper reading, the causer has control over the situation and intentionally makes the causee do something whereas in the permissive case the causer lets something happen, whether out of his own will or against it.

5.3.3. Causativization as lexicon-internal operation in Sakha

Various pieces of evidence point to the lexical status of causatives in Sakha. First of all, predicates whose external arguments are not specified as [+c] and which therefore do not qualify according to (45a) cannot be causativized. This explains the ungrammaticality of (48b) with subject experiencer predicates causativized.

(48) a. Lena Aisen-y söbül-üür/abaahy kör-ör.
Lena Aisen-acc like-aor/devil see-aor
'Lena likes/dislikes Aisen.'
b. *Sargy Lena-qa Aisen-y söbüle-t-er/abaahy kör-dör-ör.
Sargy Lena-dat Aisen-acc like-caus-aor/devil see-caus-aor
'Sargy makes Lena like/dislike Aisen.'

That the content of θ-features does play a role in causativization can be seen from the following piece of data. A verb such as *öhös* has two senses: transitive agentive 'oppose' (+c+m) and intransitive stative 'be obstinate' (-c+m). Under causativization only the former meaning is preserved.

(49) a. Micil ösöh-ör.
Micil be.obstinate-aor
'Micil is being obstinate.'
b. Micil iti-ni ösöh-ör.
Micil this-acc oppose-aor
'Micil opposes this.'
c. Sargy Micil-i ösöhün-ner-de.
Sargy Micil-acc oppose-caus-past.3
'Sargy made Micil oppose (her/something).'

Presence of sensitivity to conceptual features argues for the lexical status of causatives in Sakha. Syntactic causatives, on the contrary, should not be sensitive to conceptual features which are not visible to the computational system.

Apart from θ-feature sensitivity, a large body of tests distinguishing between lexical and syntactic causatives have been devised by various researchers, cf. (inter alios) Fodor 1970, Miyagawa 1984, Tsujimura 1996, Alsina 1997, Polinsky and Comrie 1998. A number of these tests were applied to Sakha in Vinokurova 1999a reaching the overall conclusion that causatives in Sakha are lexical. Below we will consider a number of these diagnostics, to corroborate the main point.

The first test involves pronominal orientation and is based on Principle B of the Binding Theory. The pronoun cannot be coindexed with the subject noun phrase in (50a), nor can it be coindexed with the causer or the causee in (50b) suggesting that we are not dealing with a biclausal structure but rather with one predicate and a uniclausal structure.

(50) a. Ookko kini-ni semelee-te.
Ookko he-acc reproach-past.3
'Ookko$_i$ reproached him$_{*i/j}$.'
b. Bajbal Ookko-qo kini-ni semele-t-te.
Bajbal Ookko-dat he-acc reproach-caus-past.3
'Bajbal$_k$ made Ookko$_i$ reproach him$_{*i/*k/j}$.'

The second diagnostic concerns VP-ellipsis. In the context of VP-deletion syntactic causatives are expected to be ambiguous: either the whole causative predicate can be recovered or just the embedded one. A lexical causative is unambiguous: only the entire causative complex can be recovered as in (51a).

(51) Ajaal Sargy-ga oton sie-t-te. Keskil emie onnuk gyn-na.
Ajaal Sargy-dat berry eat-caus-past.3. Keskil too so do-past.3
'Ajaal made Sargy eat berries.'
a. 'Keskil also made Sargy eat berries.'
*b. 'Keskil also ate berries.'

Finally, the availability of idiomatization and lexicalization with causatives can be best accommodated if the latter are assigned to the lexicon. Examples of causative idioms will be given in 5.4.1. As for lexicalization, Sakha features a significant number of causative verbs which cannot be readily construed with a transparent meaning of causation. Some of these verbs possess both an opaque lexicalized and a fully transparent causative meanings.

(52) Lexicalized causatives

V	Gloss	V-caus	Regular causative	Idiosyncratic causative
Sanaa	Think	Sanat	-	Remind, resemble
Süüj	Win	Süüjter	-	Lose
Kepsee	Tell	Kepset	Make tell	Talk to
Ekkiree	Jump up	Ekkiret	Make jump up	Chase
Eren	Hope	Erenner	-	Promise

Before leaving this section, we need to address the issue of negation and adverbial scope considered in 5.1.2.3/4. The contrast in (17)-(18) and (19)-(20) was used to demonstrate the underived status of causative alternates of unaccusatives versus the derived status of regular causatives. To account for (18) and (20), it was suggested that regular causatives behave as if they consisted of two separate components which can be modified by negation/adverbs independently of each other. Usually, the availability of the underlying predicate for modification independently of the causative component is taken to indicate that a causative verb is derived syntactically. However, a different explanation is possible for narrow/wide scope of adverbs and negation. We would like to offer a reasoning similar to the one offered by LRH'95 and Reinhart 2000 for the compatibility of 'by itself' adverbials with unaccusative verbs (see section 5.1.2.5). To recall, if the underlying verb concept includes a cause role, one can still refer to it even if the unaccusative derivation is

selected which does not realize the cause role. In a similar vein, if the reduced cause role of the underlying concept can be referred to, so can the underlying concept itself. The claim is this is what is happening with varying scopal possibilities of adverbs/negation: they can modify the derived causative verb which is straightforward but they can also modify the underlying concept from which the causative verb has been derived.

5.3.4. High syntactic causatives

Since causativization is not subject to the Lex-Syn parameter, it can apply within both lexical and syntactic modules in one and the same language. In Sakha this possibility is reflected morphologically, in the form of two suffixes occurring with the same predicate. We would like to argue that (53b) presents a lexical causative whereas (53c) is a lexical causative which has been syntactically causativized.

(53) a. Keskil bu kinige-ni tal-la.
Keskil this book-acc choose-past.3
b. Aisen Keskil-ge bu kinigeni tal-lar-da.
Aisen Keskil-dat this book-acc choose-caus-past.3
'Aisen made Keskil choose this book.'
c. Lena Aisen-ynan Keskil-ge bu kinigeni tal-lar-tar-da.
Lena A.-instrum K.-dat this book-acc choose-caus-caus-past.3
'Lena made Aisen make Keskil choose this book.'

The following arguments support the syntactic status of double causatives like (54c). Tests involving pronominal orientation, VP-ellipsis, idiomatization, lexicalization, passivization and syntactic nominalization with syntactic causatives yield different results than with lexical causatives. (54a) shows that the pronoun cannot be coindexed with the nominative subject, nor with the dative causee because here we are dealing with co-arguments of the same predicate, namely, the lexical causative *möxtör* 'make scold'. In (54b) syntactic causativization results in a bi-clausal structure making it possible for the pronoun to refer to the uppermost nominative subject.

(54) a. Lena Aana-qa kini-ni möx-tör-dö.
Lena Aana-dat she-acc scold-caus-past.3
'Lena$_j$ made Aana$_k$ scold her$_{*j/*k}$.'
b. Erel Lena-nan Aana-qa kini-ni möx-tör-tör-dö.
Erel Lena-instrum Aana-dat she-acc scold-caus-caus-past.3
'Erel$_i$ made Lena$_j$ make Aana$_k$ scold her$_{i/*j/*k}$.'

(55) demonstrates the VP-ellipsis diagnostic. Since the double causative is syntactic, the elliptical VP can recover either the whole causative as in (55a) or just the underlying agentive causative *tallar* 'make choose'.

(55) Lena Aisen-ynan Keskil-ge bu kinigeni tal-lar-tar-da.
Ookko emie onnuk gynna.
L. A.-instrum K.-dat this book-acc choose-caus-caus-past.3 O. too so did
'Lena made Aisen make Keskil choose this book.'
a. 'Ookko also made Aisen make Keskil choose this book.'
b. 'Ookko also made Keskil choose this book.'

Third and fourth, idioms whose idiomatic meaning requires the presence of two causative morphemes are lacking and syntactic causatives are always semantically transparent. Thus, as far as idiomatization and lexicalization are concerned, motivation for placing double causatives in the lexicon is absent.

With respect to passivization and syntactic nominalization syntactic causatives behave differently from lexical causatives: syntactic causatives cannot be passivized (57b) and syntactically nominalized (57c) whereas lexical causatives can undergo both these processes (56b-c). Syntactic nominalization has been argued to target different levels of structure. Thus, the ungrammaticality of (57c) suggests that syntactic causatives are higher than lexical ones and hence inaccessible to the syntactic operation of nominalization. As for passivization, (56b) and (57b) exemplify what will be studied in more detail in the next chapter under the heading of lexical passives. (57b) indicates that a syntactic causative cannot be passivized in the syntax whereas a lexical causative, being itself derived in the lexicon, can (56b).

(56) a. Sardaana Erel-ge kinige-ni aax-tar-da.
Sardaana Erel-dat book-acc read-caus-past.3
'Sardaana made Erel read the book.'
b. Kinige Erel-ge aax-tar-ylyn-na.
Book Erel-dat read-caus-pass-past.3
'The book was made to be read by Erel.'
c. Erel-ge kinige-ni aax-tar-yy
Erel-dat book-acc read-caus-nom
'making Erel read the book'

(57) a. Aisen Sardaana-nan Erel-ge kinige-ni aax-tar-tar-da.
Aisen Sardaana-instrum Erel-dat book-acc read-caus-caus-past.3
'Aisen made Sardaana make Erel read the book.'
b. *Kinige Sardaana-nan Erel-ge aax-tar-tar-ylyn-na.
Book Sardaana-instrum Erel-dat read-caus-caus-pass-past.3
'The book was made to be read by Erel by Sardaana.'
c. *Sardaana-nan Erel-ge kinige-ni aax-tar-tar-yy
Sardaana-instrum Erel-dat book-acc read-caus-caus-nom
'making Sardaana make Erel read the book'

Finally, anticipating the discussion in the next chapter, we would like to mention that benefactive reflexives (58a) can be causativized (58b). This topic will be investigated in detail in chapter 6. For now suffice it to mention that benefactives will be argued to be formed in the syntax by bundling the agent role with the

possessor of the benefactive argument. Since the kind of bundling involved in (58a) is syntactic, (58b) cannot be the result of lexical causativization. In the present framework, (58b) can be easily accommodated as an instance of syntactic causativization.

(58) a. Lena taŋah-yn ötüükte-n-ne.
Lena clothes-acc iron-refl-past.3
'Lena ironed her clothes (for her own benefit).'
b. Sargy Lena-qa taŋah-yn ötüükte-n-ner-de.
Sargy Lena-dat clothes-acc iron-refl-caus-past.3
'Sargy made Lena iron her clothes (for Lena's benefit).'

5.4. Causativization in Distributed Morphology

In this section we would like to consider the treatment of causatives in the DM-framework. The DM-approach to argument structure was discussed in detail in section 1.4.1. As shown there, a strictly anti-lexicalist approach like that of Marantz 2001 maintains full separation of all arguments, both external and internal, from the root. Whenever a root implies either an external or internal arguments (such implications being detected by root nominalizations), this means that a root is further decomposable into constituent parts one of which is a manner root (in the case of external arguments) or an aspectual head (in the case of internal arguments, cf. McGinnis 2001a). The problem which arises is to know when exactly a root contains manner or aspectual components. The problem with internal arguments will be considered in the next chapter where we will show that internal arguments must be dissociated from aspect. In this section we would like to consider DM's approach to causatives and unaccusatives in light of the proposals that an external argument is severed from the root (Marantz 1984, Kratzer 1996). On the contrary, within Theta System it is maintained that external arguments are true arguments specified in the θ-grids of verbal concepts. We will abstain from reviewing Marantz' (1984) and Kratzer's (1996) arguments for their proposals: in this, we fully endorse the position taken by Horvath and Siloni 2003 and their arguments against severing the external argument from the verb.

The two particular DM-accounts of causativization discussed below are McGinnis 2000 (section 5.4.1) and Pylkkänen 1999 (section 5.4.2).

5.4.1. McGinnis 2000

McGinnis argues for the existence of two types of causative heads – root causatives and external causatives. Root causatives attach to roots and determine the syntactic category of a predicate whereas external causatives are added to a predicate that already has a category. Only root causatives can be spelled out using morphology idiosyncratically specified by the root. External causatives are spelled out by default causative morphology which is *make* in English[8].

[8] The main topic of the paper is to provide a structural account for the Target/Subject Matter (T/SM) restriction: an observation due to Pesetsky 1995 that an object experiencer predicate (b) cannot have both

Note that the analysis that McGinnis puts forth for *make* is compatible with TS where *make*-causatives are also syntactic. What is incompatible with TS is the DM-notion of root-external causation. In DM, unaccusatives and their causative alternates are derived by embedding an argumentless and category-less root under either unaccusative v or causative v. Transposing the analysis to the Sakha data in (59) seems to receive morphological support: both *orguj* 'boil, intr.' and *orgut* 'boil, trans.' contain a bound root (√orgu-) to which either unaccusative –j or causative –t is attached. As for 'spill', in (59a) the root √tox- is embedded under unaccusative v spelled out by the suffix –n and in (59b) under causative v realized by zero morphology. Both unaccusative v and causative v are category-determining heads.

(59) a. Uu orguj-da/toq-un-na.
Water boil-past.3/spill-n-past.3
'Water boiled/spilled.'
b. Lena uu-nu orgut-ta/tox-to.
Lena water-acc boil-past.3/spill-past.3
'Lena boiled/spilled water.'

(59b) can be causativized as in (60a) which is glossed in accordance with the technical details of the previous paragraph. By assumption, the second causative morpheme spells out a syntactic causative head which has attached to a predicate whose category has already been determined by the first, root causative. Subjecting (60a) to another round of causativization yields (60b) which must be analyzed as two category-external causatives above a root causative.

(60) a. Sargy Lena-qa uu-nu orgu-t-tar-da/tox-∅-tor-do.
Lena water-acc √boil-v_{caus}-v_{caus}-past.3/√spill-v_{caus}-v_{caus}-past.3
'Sargy made Lena boil/spill water.'
b. Semen Sargy-nan Lena-qa uu-nu orgu-t-tar-tar-da/
tox-∅-tor-tor-do.
Semen Sargy-instr Lena-dat water-acc √boil-v_{caus}-v_{caus}-v_{caus}-past.3/
√spill-v_{caus}-v_{caus}-v_{caus}-past.3
'Semen made Sargy make Lena boil/spill water.'

One piece of evidence for the distinction between root-external causation and category-external causation comes from idiom formation: although idioms based on a root-external causative are possible, idioms in which both the root causative head and the external causative head are required to derive idiomatic interpretation are ruled out. Thus, *make X eat cake* cannot have an idiomatic reading which disappears

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a causer and a T/SM argument realized simutaneously, witness ungrammaticality of (c). The distinction between root causatives and external causatives is one of the components of the analysis. For an alternative thematic account of the T/SM restriction advanced in Reinhart 2001b see 6.10.4, footnote 15.

a. John worried about the news.
b. The news worried John.
c. *The program worried John about the news.
d. The program made John worry about the news.

with the removal of *make*: if *make X eat cake* has an idiomatic reading, *X eat cake* must also have it.

An investigation of idioms in Sakha refutes this DM-prediction with respect to idioms. Listed in (61) and (62) are idioms whose formation requires the presence of a causative morpheme: if the causative morpheme is removed, the idiomatic meaning is lost. The idioms in (61) are not problematic for DM because they involve root-external causatives. The idioms in (62), however, are problematic: they involve category-external regular causative morphemes, hence it is predicted that the predicate embedded under the external causative head will necessarily possess the same idiomatic reading as its causative but this is not the case. On the contrary, within Theta system both types of causatives are allowed to participate in idiom formation because, on the one hand, causative verbs listed in (61) are basic non-derived entries listed in the lexicon and, on the other, causative verbs listed in (62) are derived lexicon-internally by expansion and hence are also listed in the lexicon. Being listed in the lexicon is a necessary condition for the ability to form idioms.

(61) Idioms based on root causatives (i.e. causative alternates of unaccusative verbs): the corresponding unaccusative lacks the idiomatic meaning

IDIOM	**Gloss**	**Idiomatic meaning**
Belesker tüher	Throat-2sg.dat drop-caus	Give a hostile reception, meet with verbal abuse
Itiite killer	Hot-part enter-caus	Drink/eat something hot when coming from the cold
Aqaŋ tujaqyn xatar	Father-2sg hoof-3.acc dry-caus	Follow your father's footsteps
Ajax ürdün oxtor	Goblet top-3.acc fall-caus	Drink first from a goblet (loving cup); enjoy respect
Ajaxxyn minnjit	Mouth-2sg.acc sweeten-caus	Make false, empty promises Min Mashaqa ajaxpyn minnjitebin
Kutaalaax uokka olort	Bonfire-with fire-dat sit-caus	Strongly scold so
Kyhyl tylgar olort	Red word-2sg.dat sit-caus	Lecture, reprimand, accuse, scold, abuse verbally
Kynakkyn kuurt	Wing-2sg.acc dry-caus	Prepare for departure
Uhalaaqy umsar/oxtor	Uha-with-acc dive-caus/fall-caus (*uhalaax* 'uha-with: no clear meaning for *uha*': euphemism for cattle/horses)	Kill a cow/horse
Iliigin kirtit	Hand-2sg.acc	Soil one's hands,

	make.dirty	become corrupted
Ohoqohun tokurun könnör	Bowel-3.gen crooked-3.acc straighten-caus	Eat a little, without appetite (archaic)

(62) Idioms based on external causatives (causatives of transitives and unergatives): the corresponding transitive or unergative lacks the idiomatic meaning

IDIOM	**Gloss**	**Idiomatic meaning**
Aany keteqinen astar	Door occiput–3.instr push-caus	Oust, expel, drive out
Aakkyn aattat	Name-2sg.acc name-caus	Become famous; have a lot of progeny
Ataxxa biller	Leg-dat know-caus	Run away
Köxsügün kördör	Back-2sg.acc see-caus	Leave angry/dissatisfied; turn one's back on
Munnuga berder	Nose-dat give-caus	Meet with strong resistance
Uoska berder	Lip-dat give-caus	Shut up suddenly
Ykkyn ürder	Dog-2sg.acc bark-caus	Shout
Ekkin süüjter	Meat-2sg.acc win-caus	Grow thin, lose weight
Ala kulunu töröt	Skewbald foal-acc give.birth	Freeze extremely
Oroqun ustun süürt	Path-3.gen along run-caus	Make so a follower of one's ideas
Siik-dabarxaj süürt	Sap-wood.tar run-caus	Derive benefit, make profit

Finally, an approach which takes both –tar suffixes attaching to *orgut* 'boil, trans.' in (60b) as realizing category-external causative heads cannot derive the differences between the two which have been demonstrated in sections 5.3.3 and 5.3.4. Also, the asymmetry mentioned in 5.1.2.5 is unexpected for an analysis which derives unaccusatives and their causative alternates by embedding one and the same root under two different flavours of category-determining v. To recall, the asymmetry concerned selectional restrictions: the set of possible unaccusative subjects forms a subset of the set of possible causative subjects.

5.4.2. Pylkkänen 1999

Another structural account of causatives to be considered is proposed in Pylkkänen 1999 where causation is analyzed as having a universal core consisting of CAUSE, introducing a causing event, θ_{EXT}, introducing an external argument and APPL, introducing an argument affected by the causing event. Crosslinguistic differences between 'lexical' and 'syntactic' causatives are derived from how these semantic features are syntactically realized and not attributed to different components of the grammar.

In UG, CAUSE, θ_{EXT} as well as APPL are separate pieces. It is a language-specific option which pieces to choose and, further, which pieces to bundle together. The interpretability constraint insures that the semantic properties of the meaning components of causation are respected and therefore not all kinds of bundling are permitted. Only three options are possible. One is that all three features remain separate presyntactically and are also realized by separate heads in the syntax. Another is that CAUSE bundles with APPL and is realized by one head in the syntax whereas θ_{EXT} remains separate and is realized separately in the syntax (by Voice). It is impossible to bundle all three together because applying APPL to CAUSE introduces an unsaturated argument and before this argument is saturated, θ_{EXT} cannot be merged with the CAUSE-APPL complex. A third option is to combine CAUSE and θ_{EXT}. If a language chooses this option, it can no longer merge an APPL head introducing the affected argument of a causing event. This is because APPL must apply to CAUSE first, before θ_{EXT} and therefore intervenes between CAUSE and θ_{EXT}.

English presents a language of the third type. It allows causatives of unaccusatives which are derived by merging v above a root as in (63). As depicted, v simultaneously realizes the two features [cause] and [θ_{EXT}] which ensures that it introduces a causing event together with an external argument.

(63) $[_{vP}$ Mary $[_{v'}$ v-[cause, θ_{EXT}] $[_{\sqrt{P}}$ break glass]]]

The reason English does not allow causatives of unergatives (64b) and other agentives has to do with the fact that there is no way to accommodate APPL in the structure. APPL is the head responsible for introducing the affected (causee) argument – the underlying agent Mary of (64a-b). As already mentioned, APPL must necessarily intervene between CAUSE and θ_{EXT} which is ruled out because in English CAUSE and θ_{EXT} are realized on the same head and nothing can intervene between them.

(64) a. Mary laughed.
b. *John laughed Mary.

Sakha is like Japanese and Finnish in allowing causatives of agentives. This means that CAUSE and θ_{EXT} are realized by separate heads. However, languages of this type are predicted to have causative morphology which introduces a causing event

without introducing an external argument. Thus, Pylkkänen makes a wrong prediction for Sakha causatives: they always introduce an external argument which means in Pylkkänen's terms that CAUSE is bundled with θ_{EXT}. This bundling should prevent applying APPL to CAUSE before θ_{EXT}. If APPL cannot apply to CAUSE, the affected argument of the causing event (the underlying agent of an unergative predicate) cannot be introduced, hence unergatives cannot be causativized. However, in Sakha causatives of unergatives are perfectly possible just like in Finnish or Japanese.

5.5. Concluding remarks

In this chapter we have argued for a reduction analysis of unaccusatives and presented various arguments showing the basic, non-derived status of causative alternates of unaccusative verbs. Thus, unaccusative verbs, being derived, do not threaten the main thesis of the dissertation about inherent verbal relationality. In the course of discussion three types of causative verbs were discovered: 1) basic [+c] verbs – causative alternates of unaccusatives; 2) lexical causatives derived in the lexicon by the operation of expansion adding an agent role; 3) syntactic causatives. This three-way distinction has been corroborated by numerous empirical data. Another topic considered involved verb-based derivation leading to the formation of nouns and adjectives. The difference between lexical and syntactic nominalization and adjectivization maintained in chapter 2 was elaborated further, with an eye to argument correspondences between underlying verbs and their derivatives.

6. DECOMPOSING ACCUSATIVE CASE

Case is a relational category reflecting the relation of a predicate's arguments to each other and to their predicate. In the current framework it is expected that only verbs are allowed to be associated with case. Indeed, as shown in chapter 4, another predicative category, adjective, can assign neither thematic nor structural case to its sole argument. In this chapter we will defend the TS-view of accusative case as decomposable into universal thematic and parameterized structural components. It will be argued that Sakha lacks the structural component of accusative case.

The chapter is structured as follows. In 6.1 the TS-approach to accusative case will be described once again. 6.2 considers accusative checking in simple transitive structures, 6.3 – accusative case reduction in unaccusative derivations and its correlation with morphological marking. 6.4 and 6.5 are devoted, respectively, to lexical bundling and syntactic bundling deriving, on the one hand, lexical intransitive reflexive verbs and, on the other, syntactic transitive inalienable possession and benefactive reflexives. Passivization is considered in 6.6 and argued to apply either in the lexicon or syntax. The syntactic operation of reciprocal formation is discussed in 6.7. In 6.8 we return to the issue of causatives from chapter 5, this time with an eye on case alternations and, in particular, the availability of double accusative in causative structures. One more context where double accusative is licensed, namely, possessive DP objects expressing part-whole relationship, is considered in 6.9. In section 6.10 we consider subject-to-object raising constructions in Sakha in which the embedded subject comes to be marked with accusative case. In 6.11 we argue against syntactic approaches to accusative case such as DM or XS models for which accusative Case assignment is contingent on projecting a certain type of light verb or other functional head.

6.1. Accusative case in Theta system

The issue of accusative case has been touched upon several times in the preceding chapters, for instance, in 3.4.2 and 4.2.4 as well as chapter 5. Here we will present a general summary of the TS-approach to accusative case.

In TS, basic verbs associated with feature clusters undergo marking procedures given in (1). The relevant notation is presented in (2). Marking procedures provide verbs with merging instructions for syntax by assigning indices to the feature clusters. Verbs marked in this way are merged syntactically according to the mapping generalizations in (3).

(1) Lexicon marking:
Given an n-place verb-entry, n>1,
a. Mark a [-] cluster with index 2.
b. Mark a [+] cluster with index 1.
c. If the entry includes both a [+] cluster and a fully specified cluster [/α, /-c], mark the verb with the ACC feature.

(2) Notation:

[α]	=	Feature cluster α
/α	=	Feature (and value) α E.g. the feature /+m occurs in the clusters [+c+m], [-c+m] and [+m]
[/α]	=	A cluster one of whose features is /α E.g. [/-c] clusters are [-c+m], [-c-m] and [-c]
[+]	=	A cluster ALL of whose features have the value + E.g. [-] clusters are [-c-m], [-c], [-m]

(3) CS merging instructions:

a. When nothing rules this out, merge externally.
b. An argument realizing a cluster marked 2 merges internally; an argument with a cluster marked 1 merges externally.

As can be gleaned from (1), the presence of the accusative feature on the verb reflects thematic properties of this verb which makes accusative look like inherent case contradicting the traditional treatment of accusative as structural case. The contradiction is resolved by a componential analysis of Case in general as having both structural and thematic ingredients (Reinhart, Reuland and Siloni (in progress); henceforth RRS). Thematic component is universal since it is the implementation of the θ-criterion. Whether structural component is also present or not depends on the language-particular setting for the structural Case parameter. Presence (or absence) of structural accusative correlates with a number of syntactic properties: for instance, exceptional case marking is only possible if a language has a positive setting for the parameter.

The accusative case parameter interacts with arity operations which apply to marked verbs either in the lexicon or syntax regulated by the Lex-Syn parameter in (4). The operations which affect accusative case are saturation and reduction. At the present stage of research there are many questions to be answered as to how precisely this interaction takes place. For instance, if a language has both thematic and structural components of case, does a lexical arity operation like unaccusative reduction eliminate both or just one and, if the latter is true, which one?

(4) **The Lex-Syn Parameter**:
UG allows thematic arity operations to apply in the lexicon or in syntax.

With respect to such questions, current work within TS appears to have reached the following generalizations expounded in Reinhart and Siloni 2003 and RRS. The parameter in (4) governs only those arity operations which can also apply in syntax, i.e. the ones which do not manipulate θ-grids of predicates with the effect of eliminating, adding or modifying a θ-role; such thematic alternations are possible only in the lexicon – the locus of new concept formation. This dichotomy between syntax and lexicon is expressed by (5).

(5) **The Lexicon Interface Guideline**
θ-information cannot be changed by the syntactic component: Elimination, modification or addition of a θ-role are illicit in syntax.

According to (5), reduction and expansion (agentivization) cannot be parameterized and must uniformly take place in the lexicon. What is known as syntactic causativization (*make* in English or upper causative morpheme *–TAr* in Sakha) is a process entirely different from lexical agentivization. The two operations which can be parameterized are saturation and bundling. As for accusative case elimination, all three – reduction, saturation, bundling – are argued to effect it. How elimination proceeds depends on the particular setting a language has for the structural case parameter and on where the operation takes place. If an operation applies in the syntax, e.g. bundling (reflexivization) in Romance, a special Case absorbing morphology like the Romance *se*/*si* clitic takes care of case. Spanish has only thematic case which gets reduced by the clitic. French and Italian are structural case languages: while the clitic absorbs thematic case, structural case residue must still be checked which is achieved, by hypothesis, by using the auxiliary *be*. Thus, the difference between thematic case Spanish and thematic/structural case French and Italian is reflected in the choice of an auxiliary: the former keeps *have* in the contexts of reflexive bundling and unaccusative reduction while the latter two choose *be*.

If the operation applies in the lexicon, it can reduce the case itself. However, as the discussion in Reinhart and Siloni suggests, only thematic case is reduced. Structural case must still be checked syntactically. This can be exemplified with Dutch, a language which is set for structural accusative. When a predicate is reflexivized in the lexicon, thematic accusative is reduced leaving a structural residue which can be checked in the syntax by the insertion of *zich* as in (6).

(6) Max wast zich.
Max washes *zich* 'Max washes.'

The reason thematic case must go first is due to the fact that the original thematic argument of the verb is not realized syntactically, therefore thematic component can never be checked.

The account in RRS seems to leave open the possibility that structural case can also be reduced in the lexicon. In this chapter we would like to argue that structural case cannot be reduced in the lexicon and must be checked in the syntax. Another important finding that will emerge from this chapter is that the rigidity of the Lex-Syn parameter needs to be questioned: neither bundling nor saturation in Sakha seem to have a fixed setting and can equally apply in both modules. The lexicon/syntax dichotomy is nevertheless respected for, as will be shown, bundling and saturation which apply in the lexicon differ in predictable ways from bundling and saturation which apply in the syntax.

6.2. Thematic accusative in Sakha: NP-arguments

One piece of evidence that Sakha lacks structural accusative is the apparent optionality of the accusative case marker *–(n)I*. This issue has been considered in detail in 3.4.2. Here we will summarize the results achieved there.

As shown in (7a), the direct object of an accusative verb can be unmarked in which case it will receive non-specific interpretation. On the contrary, if it is overtly marked with the accusative morpheme as in (7b), it will be interpreted specifically. RRS assume, adopting Danon's (2002) proposal, that if the noun phrase which checks off thematic accusative, also has a syntactic feature such as [animate], [human], [definite], [specific] (depending on the language), then this feature, being syntactic, must be checked by a structural Case checker – in the case at hand the morpheme *–(n)I* spelling out the functional category K(ase). This captures the relationship between accusative and specificity. Nevertheless, in chapter 2 I slightly reformulate RRS's proposal suggesting instead that a syntactic feature like [specific] is licensed in the DP-domain and therefore a specific nominal argument must necessarily project up to the DP-level. Being a DP, it cannot be assigned thematic case directly by the verb and requires a structural case checker KP. I assume that thematic accusative can only be assigned to a lexical category – NP. Therefore, whenever the nominal argument is to receive a specific interpretation, thus projecting to become a DP, the verb must transmit its thematic case to the KP projected on top of DP.

(7) a. Min saharxaj sibekki ürgee-ti-m.
I yellow flower-∅ pick-past-1sg
'I picked a yellow flower/flowers.'

b. Min saharxaj sibekki-ni ürgee-ti-m.
I yellow flower-acc pick-past-1sg
'I picked {a specific/the} yellow flower.'

Thus, in (7a) we are dealing with an NP-argument and in (7b) – with a KP-DP-NP. The interpretive asymmetry between the two follows from the structural deficiency of NP in (7a) (cf. Cardinaletti and Starke 1994). Lacking the DP-layer, NP-arguments cannot be specific and, as a consequence, referential (if specificity is understood as being linked to a previously established discourse referent (Enç 1991)). The non-referentiality of the object is highlighted by the neutrality of the noun phrase with respect to number: *saharxaj sibekki* in (7a) can refer either to a single yellow flower or to several yellow flowers. The number neutrality of (7a) follows again from structural deficiency: I adopt the proposal in Kaan and Vinokurova (2003) who argue (following Zribi-Hertz and Mbolatianavalona 1999) that 'singular' bare NPs in Sakha are not singular but structurally deficient in lacking the Number projection. To conclude, a bare NP which is assigned thematic accusative is doubly deficient: it lacks both DP and NumP functional layers. As a result, it has no fixed number and no fixed discourse reference. That thematic accusative can be assigned in the absence of a structural case checker thus enabling

bare NP-argumenthood supports the claim that Sakha has a negative setting for the structural case parameter.

6.3. Unaccusatives: Accusative case reduction and morphological marking

In the preceding chapter we presented arguments for the TS-based expletivization account of unaccusatives. Detailed attention was paid to irregular morphology which appears on the causative alternates of unaccusative verbs. In this section we will consider morphological marking of unaccusative derivatives and how it bears on the lack of structural accusative component in Sakha.

By hypothesis, lexical arity operations can only affect thematic accusative leaving the structural component intact. If Sakha had a positive setting for the case parameter, unaccusative reduction would leave structural residue in need of checking and checking would need to be marked. In Sakha morphological marking in transitive-unaccusative alternations is highly irregular and unpredictable so one would be hard-pressed to claim that in all these cases structural accusative is checked in the syntax, especially taking into account the availability of a fully regular structural case checker – KaseP.

Since there is no residue in need of checking, there is no need for regular morphological marking. This explains the idiosyncratic nature of unaccusative verb endings which becomes evident from appendix 4. Intransitives can be unmarked basic stems; basic stems marked with –n; bound roots marked with –n; bound roots marked with –j; bound roots marked with –x. Furthermore, the relationship each type of marking bears to its transitive counterpart is one-to-many as exemplified in (8) and (9). In all these cases it would be difficult to claim that what is marked is the syntactic process of checking structural accusative residue: given the syntactic nature of the process, one would expect morphological transparency which is lacking in the entries listed in appendix 4.

(8) Unaccusative verbs: Basic stems
Transitives: Basic stem plus regular causative morpheme
→ *üün* ‘grow’ – *üünner* ‘grow, trans.’
Transitives: Basic stem plus –t
→ *soj* ‘cool down’ – *sojut* ‘cool down, trans.’
Transitives: Basic stem plus –Ar/-YAr
→ *tubus* ‘improve’ – *tupsar* ‘improve, trans.’
Transitives: Basic stem plus –n plus regular causative morpheme
→ *ulaat* ‘grow’ – *ulaatynnar* ‘make grow’

(9) Unaccusative verbs: Bound roots ending in –lyn (alias passive suffix)
Transitives: Bound root plus –t
→ *imilin* ‘become wrinkled’ – *imit* ‘wrinkle’
Transitives: Bound root plus –j
→ *djaptalyn* ‘become compressed’ – *djaptaj* ‘compress’
Transitives: Bound root plus –r
→ *tulun* ‘become pulled out’ – *tuur* ‘pull out’

In addition, two suffixes which occur with unaccusatives, viz. –n and –lyn, are also used in, respectively, syntactic reflexives and syntactic passives. As argued below, both syntactic reflexives and syntactic passives preserve accusative case, hence the suffixes under consideration cannot possibly be checking structural case residue.

6.4. Reflexives: Lexical bundling

Another arity operation which applies in the lexicon is bundling (reflexivization) which involves the unification of external and internal θ-roles resulting in the complex θ-role [Agent-Theme]: $V(\theta_1, \theta_2) \rightarrow V[\theta\text{-}\theta]_1$. Bundling reduces accusative case and the bundled argument is mapped externally. In Sakha reflexive verbs are intransitive and marked with the suffix *–n* which attaches to the transitive base.

(10) Aisen tarba-n-na / möq-ün-ne / tard-yn-na.
Aisen scratch-refl-past.3 / scold-refl-past.3 / pull-refl-past.3
'Aisen scratched/scolded/pulled himself.'

I will assume that *–n* signals that an arity operation, in this case bundling, took place. Crucially, the suffix is not inserted to check residual structural accusative because treating *–n* as a structural checker would leave unexplained its occurrence in syntactic bundling contexts where an independently available noun phrase checks verbal case (to be considered in 6.5). Syntactic bundling differs from lexical bundling in that it cannot eliminate thematic accusative on the verb precisely because it applies in the syntactic module. Other properties which distinguish syntactic bundling from lexical reflexivization also follow from the lexicon/syntax dichotomy: they will be considered in 6.5.1.

There are further pieces of evidence for the lexical status of intransitive reflexives in addition to the arguments presented in 6.5.1. The first one is sensitivity to theta features displayed by reflexivization in Sakha. In particular, neither [+c] nor [+m] verbs can be reflexivized (11a): only agentive [+c+m] verbs can (11b).[1] To get a reflexive interpretation with non-agentive verbs the self-anaphor *beje* 'self, body' agreeing with its antecedent in person and number must be used (12a). As (12b) shows, using the same strategy with an agentive verb is not felicitous.

[1] To recall, the difference between agentive and other verbs in (11) is that for agentives the interpretation of the external argument is fixed whereas for [+c] and [+m] verbs it varies depending on which value the unspecified feature acquires. E.g. the external argument of [+c] verbs ranges between Agent, Cause and Instrument as in (b), in contrast to the inflexible [+c+m] Agent of (a).

a. Suoppar/*Ardax/*Myyla massyyna-ny suuj-da.
Driver/*rain/*soap car-acc wash-past.3
'The driver$_{[AGENT]}$/*The rain$_{[CAUSE]}$/*The soap$_{[INSTRUMENT]}$ washed the car.'

b. Lena/Tyas/Oonnjuur oqo-nu araldjyt-ta.
Lena/noise/toy child-acc distract-past.3
'Lena$_{[AGENT]}$/Noise$_{[CAUSE]}$/A toy$_{[INSTRUMENT]}$ distracted the child.'

(11) a. *Sardaana araldyt-yn-na/tapta-n-ar.
Sardaana distract-refl-past.3/love-refl-aor
'Sardaana distracted herself/loves herself.'
b. Sardaana suu-n-na.
Sardaana wash-refl-past.3 'Sardaana washed.'

(12) a. Sardaana$_i$ beje-tin$_{i/*j}$ araldjyt-ta/tapt-yyr.
Sardaana self-3.acc distract-past.3/love-aor
'Sardaana distracted herself/loves herself.'
b. *Sardaana$_i$ beje-tin$_{i/*j}$ suuj-da.
Sardaana self-3.acc wash-past.3

Inability of reflexivizing [+c] verbs clearly signals that Sakha is a lexicon language as far as reflexivization is concerned. Only in syntax languages can [+c] verbs be reflexivized (see Papangeli 2004 for Greek).

Second, as appendix 5 illustrates, not all agentive verbs can be reflexivized with the suffix –n: lack of full productivity is expected of lexical processes. Third, there are cases when the transitive base from which the reflexive verb is derived has been lost: e.g. *taŋyn* 'get dressed' is derived by n-suffixation from *taŋ* 'sort out, bring into order' which is no longer in use in modern Sakha.

6.4.1. Binding Theory

The standard binding conditions A and B of the Government and Binding Theory as formulated in Chomsky 1981 and summarized in (13) cannot account for the grammaticality contrast between (12a) and (12b): in both examples the anaphor is bound in its governing category but only (12a) is grammatical.

(13) Condition A: An anaphor must be bound in its governing category.
Condition B: A pronoun must be free in its governing category.
i) α binds β iff α c-commands β and α and β are coindexed
ii) the governing category for α is the minimal domain containing α, its governor and an accessible subject/SUBJECT (where subject/SUBJECT corresponds to NP in Spec,XP or finite AGR)

The above contrast is conditioned by the fact that the expression of reflexivity in Sakha, being sensitive to properties of underlying predicates, depends on the interaction between two different types of principles: syntactic and lexical which is not built into (13).

The dependence of reflexivization on predicate types can be captured directly within a theory of binding developed in Reinhart and Reuland 1993 who propose that Conditions A and B govern the well-formedness and interpretation of reflexive predicates and not the distribution of anaphors and pronouns.

(14) Reflexivity (Reinhart and Reuland 1993)
A: A reflexive-marked syntactic predicate is reflexive.
B: A reflexive semantic predicate is reflexive-marked.

The distinction between semantic and syntactic predicates is essential to the system and is stated below. Other crucial definitions include the notion of reflexivity and reflexive-marking.

(15) Definitions:
a. A predicate is reflexive iff two of its arguments are coindexed
b. A predicate formed of P is reflexive-marked iff either P is lexically reflexive or one of P's arguments is a SELF anaphor
c. The syntactic predicate formed of (a head) P is P, all its syntactic arguments, and an external argument of P (subject)
The syntactic arguments of P are the projections assigned a theta role or Case by P
d. The semantic predicate formed of P is P and all its arguments at the relevant semantic level

According to (15), a predicate can be reflexive-marked if it is lexically/intrinsically reflexive (11b) or if it is syntactically/extrinsically reflexive (12a). What is needed is an explanation of what governs the choice of a particular reflexivizing strategy, either lexical or syntactic. Such an explanation is readily made available by the Theta system: the set of verbs which choose for a self-anaphor includes those verbs which cannot undergo lexical bundling, i.e. non-agentive verbs and a subset of agentive verbs which cannot be reflexivized in the lexicon given the lack of full productivity of a lexicon-internal arity operation. This explains the complementarity between the two strategies.

6.4.2. Arity preservation

As shown in Reuland 2001, Conditions A and B are surface generalizations reflecting a complex interplay of deeper principles. They express requirements on the well-formedness and interpretation of reflexive predicates but say nothing about the reasons behind these requirements.

Reuland argues that Condition B which states that reflexive interpretation of a predicate must be licensed results from two conflicting demands: 1) on the one hand, given an n-place predicate, it must be able to be used reflexively: reflexivization turns it into a property expression $\lambda x\ P(x,x)$ which the linguistic system identifies with $\lambda x\ P(x)$; 2) on the other hand, an interpretive condition holding at the conceptual-intentional (C-I) interface demands that in the translation to logical syntax lexical properties of a predicate, such as its arity must be respected. To represent reflexivity without violating arity the system resorts either to the protective strategy or to the arity-reducing strategy. The former strategy consists in selecting an anaphor which allows to preserve arity, the latter – in carrying out a

lexical operation which brings the predicate's arity in line with the outcome of reflexivization. Precisely these two strategies are in work in Sakha: lexical arity-reducing and syntactic protective (arity-preserving).

6.4.3. The self-anaphor *beje* and the disjoint application of Reflexivity conditions

The conditions in (14) can apply independently of each other. If the arity-reducing strategy is used, only condition B is relevant: an arity operation will result in an intransitive reflexive semantic predicate appropriately marked with the suffix –n. If the self-anaphor *beje* is involved, either condition can apply independently of the other.

6.4.3.1. Reflexive semantic predicates which are not syntactic predicates

These are cases when condition A does not apply (or applies vacuously) and only condition B determines the well-formedness of a sentence. An example of a reflexive semantic/non-syntactic predicate in the context of conjunction is given in (16a). The syntactic predicate 'scold' has Sardaana as its subject and the whole conjoined NP 'Lena and herself' as its object. At the semantic level, however, the predicate is distributed over the conjuncts of the internal argument (16b). Since one of the conjoined predicates in (16b) is semantic, it must be reflexive-marked, whence the impossibility to have a pronoun in (16a).

(16) a. Sardaana Lena-ny uonna beje-ti-n/*kini-ni möx-tö.
Sardaana Lena-acc and self-3-acc/she-acc scold-past
'Sardaana scolded Lena and herself/*her.'
b. Sardaana (λx (x scolded Lena & x scolded x))

6.4.3.2. Reflexive-marked syntactic predicates which are not semantic predicates

These cases present the reverse of 6.3.4.1: only condition A applies. Consider the contrast between (17a) and (17b). (17a) with *beje* is ungrammatical by Condition A: the predicate *ynyr* 'invite' is reflexive-marked because its internal agrument is a SELF anaphor but it is not reflexive. In (17b) the anaphor is embedded inside a conjunction and the whole conjoined NP acts as the internal syntactic argument of *invite*: since neither the subject nor the conjoined object are self-anaphors, there is no reflexive-marked syntactic predicate and condition A is not violated. At the semantic level we have a conjunction of two predicates as in (17c): since neither of them is reflexive, condition B does not care.

(17) a. Yraaxtaaqy miigin/*beje-b-in cej-ge ynyr-da.
tsar me.acc/*self-1sg-acc tea-dat invite-past.3
'The tsar invited me/*myself for tea.'

b. Yraaxtaaqy Lena-ny uonna miigin/beje-b-in cej-ge ynyr-da.
tsar Lena-acc and me.acc/self-1sg-acc tea-dat invite-past.3
'The tsar invited Lena and myself for tea.'
c. The tsar (λx (x invited Lena & x invited myself))

(18) with *beje* differs from (17b) in that its predicate is distributive: it carries the distributive aspect marker -*talaa*. Being marked as distributive, the predicate is forced to distribute over the two conjuncts *Lena* and *myself* already at the syntactic level: this triggers a syntactic construal of (18) as 'the tsar invited Lena for tea and the tsar invited me for tea'. Hence, in (18c) we have two syntactic predicates one of which is reflexive-marked by the anaphor *myself* but which is not reflexive. Therefore it is the condition on syntactic predicates (condition A) which rules out (18) and not the condition on semantic predicates since (18) just like (17b) has the semantic representation (17c).

(18) Yraaxtaaqy Lena-ny uonna miigin/*beje-b-in cej-ge ynyr-talaa-ta.
tsar Lena-acc and me.acc/*self-1sg-acc tea-dat invite-distr-past.3
'The tsar invited Lena and me/*myself for tea.'

The contrast above between (17b) and (18) shows that the predicate in (18) marked as distributive must be distributed over the conjoined object NP already in the syntax whereas there is no need to do so for the predicate in (17b) which is not marked as distributive.

6.4.4. Logophoric *beje*

A self-anaphor can be used logophorically if it does not occupy an argument position (Reinhart and Reuland 1993:673ff.). This can be seen from the examples in (17) and (18). In (17a) the anaphor appears in an argument position, hence logophoric use is not licensed. In (17b) the whole conjoined NP is an argument of the predicate and not the anaphor embedded inside this NP. (17b) can be contrasted to (18): the two sentences are identical except for the distributive marking on the predicate in (18) because of which the anaphor finds itself in an argument position and is therefore banned.

When an anaphor is used logophorically, it can be replaced by a pronoun as witnessed by (17b). When both a pronoun and a self-anaphor are allowed, the choice between them is motivated by discourse considerations. Usually, an anaphor is chosen if point of view is involved and such logophors are labeled as perspective.

In addition to perspective logophors, Reinhart and Reuland use the term 'logophor' also for emphatic or focus anaphors which do occur in argument positions. That focus anaphors are exempt from condition A is explained by assuming that at LF, where condition A applies, they have moved out of argument position leaving a trace behind. (19) demonstrates the occurrence of focus anaphors in Sakha which bear emphatic stress (cf. (12a)). In contrast to (12a), *BEJE* does not have to refer to Sardaana and acquires its meaning by coreference which is evidenced by (20). In (20a) we have a non-emphatic argument anaphor which obligatorily refers to Sardaana. This can be achieved either by binding deriving the

sloppy reading of the second conjunct in (20a.i) or through coreference accounting for the strict reading in (20a.ii). In the focus case (20b) the bound variable reading of emphatic *BEJE* disappears and the pronoun can only be interpreted referentially as in (20b.ii-iii).

(19) Sardaana$_i$ BEJE-TIN$_{i/j}$ tapt-yyr.
Sardaana self-3.acc love-aor
'Sardaana loves herself$_i$/her$_j$/him$_j$.'

(20) a. Sardaana$_i$ beje-tin$_{i/*j}$ tapt-yyr, min emie.
Sardaana self-3.acc love-aor, I too
'Sardaana$_i$ loves herself$_{i/*j}$, me too.'
i) I love myself (BV)
ii) I love Sardaana (coreference)
b. Sardaana$_i$ BEJE-TIN$_{i/j}$ tapt-yyr, min emie.
Sardaana self-3.acc love-aor, I too
'Sardaana loves herself$_i$/her$_j$/him$_j$, me too.'
i) *I love myself (BV)
ii) I love Sardaana (coreference)
iii) I love her/him (coreference)

6.5. Inalienable possession reflexives and benefactives

There are two contexts in Sakha when syntactic bundling takes place shown in (21). In (21a) we have an inalienable possession (IP) reading and in (21b) – a benefactive reading.

(21) a. Sardaana tarbaq-yn byh-yn-na / ilii-tin suu-n-na.
Sardaana finger-3.acc cut-refl-past.3 / hand-3.acc wash-refl-past.3
'Sardaana cut her finger/washed her hands.'
b. Sardaana miin asta-n-na / son-un abyraxta-n-na.
Sardaana soup cook-refl-past.3 / coat-3.acc mend-refl-past.3
'Sardaana cooked herself soup/mended her coat (for herself).'

I would like to argue that what is bundled with the external agent role is the possessor of either the inalienable body part or of the benefactive argument. Consider the examples in (22) representing the non-reflexive variants of the sentences in (21). *Bys* 'cut' is a transitive verb assigning a [+c+m] role to *Sardaana* and a [-c-m] role to the possessive DP 'Aisen's finger'. *Astaa* 'cook' in (22b) is also a transitive verb with [+c+m] external (*Sardaana*) and [-c-m] internal (*miin* 'soup') arguments. As for the benefactive argument (the possessive DP *Ookko aqata* 'Ookko's father'), it is not present in the underlying thematic structure of a verbal entry. The account that seems most plausible for it is the one offered by Pylkkänen (2000) which allows the introduction of various applied arguments (among which benefactives) through functional structure, viz. applicative heads. In this case there can be no thematic case involved in benefactive argument licensing – only structural dative.

(22) a. Sardaana Aisen tarbaq-yn bys-ta.
Sardaana Aisen finger-3.acc cut-past.3
'Sardaana cut Aisen's finger.'
b. Sardaana Ookko aqa-tygar miin astaa-ta.
Sardaana Ookko father-3.dat soup cook-past.3
'Sardaana cooked soup for Ookko's father'

Since benefactives are introduced syntactically, benefactive bundling can only be syntactic. Another consideration which is only compatible with the syntactic reflexivization analysis for both IP- and benefactive readings is that possessors, as argued in chapter 3, are also syntactically introduced arguments. Under the syntax view, it is the Possessor role which gets assigned, along with the [+c+m] agent role, to the external argument when the latter is merged in the structure. Since syntactic bundling leaves the [-c-m] role intact, it can still be assigned to the internal argument, in particular, to the possessed head noun in (21a) which also checks thematic accusative. Bundling the Possessor role and not the benefactive one also explains the grammaticality of the example in (23) where the dative possessed noun 'cow' checks structural dative. Structural dative cannot be reduced in the syntax but can be absorbed by the appropriate morphology: since Sakha has no clitics capable of absorbing dative in the syntax, it must be checked by an argumental noun phrase. In cases like (21b) where no dative is visible, I will assume that it is realized on the dative self-anaphor *bejetiger* 'body.3.dat' whose possessor is bundled with the agent. Since Sakha is a pro-drop language, *beje-AGR-DAT* can be optionally dropped as is done in (21b).

(23) Kündül ynaq-ar ot ürge-n-ne.
Kündül cow-3.dat grass pick-refl-past.3
'Kündül picked grass for his cow (for his own benefit).'

The above discussion implies that Sakha has no fixed setting for the Lex-Syn parameter with respect to bundling, thus contradicting the assumptions made in Reinhart and Siloni 2003. However, the data to be considered next do warrant the treatment offered here in terms of lexical versus syntactic bundling. Moreover, as shown in section 6.6, passive saturation also does not fall under the scope of the Lex-Syn parameter.

There is one important difference which may be relevant to the issue at hand. Languages under consideration in Reinhart and Siloni 2003 which have a syntactic setting for the Lex-Syn parameter possess case-reducing clitic morphology. Hence, if numeration includes a clitic, the [-c-m] role cannot be mapped, for the lack of Case, onto its canonical internal argument position and requires bundling which is therefore obligatory. On the contrary, in Sakha no case-reducing clitic morphology is present. As a result, the [-c-m] role will always end up assigned to the internal argument and can never be bundled in the syntax. The Possessor role, on the other hand, can be either assigned, without any problems, to the possessor DP inside the internal (or benefactive) argument or bundled (optionally) with the agent role.

Given optionality of bundling, the parameter can hardly be at play here. For instance, (24) is equally possible along with (23).

(24) Kündül ynaq-ar ot ürgee-te.
Kündül cow-3.dat grass pick-past.3
'Kündül picked grass for his cow.'

Another consideration is that what is bundled is a possessor which is not an argument of the verb. For that reason the Lex-Syn parameter may be inapplicable here since it is a statement about arity operations and arity is not at issue here.

Ending this section, I would like to note that a distinction between IP-reflexives and benefactive reflexives is necessary and the two readings cannot be subsumed under a single heading. First of all, the IP-reading is possible with transitive verbs whose semantics implies malefaction; the benefactive reading is ruled out in this context, as expected. Second, the dative self-anaphor *beje-AGR-DAT* can never be inserted in IP-reflexives and can always be optionally inserted in benefactive reflexives. Third, IP-bundling and benefactive bundling apply at different syntactic levels, the former lower than the latter, deriving the asymmetries discussed in section 6.5.2 below.

6.5.1. The lexical/syntactic opposition in bundling

First of all, lexical reflexives (pure reflexives or reflexives proper) and syntactic reflexives differ in terms of their valency: whereas with syntactic reflexives the underlying arity of the predicate is preserved and the number of arguments is not reduced, lexical reflexives are one-place verbs derived from their transitive counterparts. The intransitive status of lexical reflexives is supported by the intransitive case pattern they take under causativization: when an intransitive verb is causativized, the causee can only be accusative whereas when a transitive verb is causativized, the causee can be accusative, dative or instrumental.

(25) Kesha Aisen-y/*Aiseŋ-ŋa/*Aisen-ynan suu-n-nar-da.
Kesha Aisen-acc/*Aisen-dat/*Aisen-instrum wash-refl-caus-past.3
'Kesha made Aisen$_i$ wash himself$_i$.'

(26) Kesha Aisen-y/Aiseŋ-ŋa/Aisen-ynan ilii-tin suu-n-nar-da.
Kesha Aisen-acc/*Aisen-dat/*Aisen-instrum hand-3.acc wash-refl-caus-past.3
'Kesha made Aisen wash his hands.'

(27) Kesha Aisen-y/Aiseŋ-ŋa/Aisen-ynan miin asta-n-nar-da.
Kesha Aisen-acc/*Aisen-dat/*Aisen-instrum soup cook-refl-caus-past.3
'Kesha made Aisen cook soup for himself.'

Second, lexical bundling is not fully productive: many verbs which are semantically and pragmatically compatible with a reflexive meaning such as 'know', 'love', 'hate', 'believe', 'cut', etc. are nevertheless not allowed to attach the reflexive *–n-*

morpheme. Instead, reflexive interpretation is achieved by inserting the self-anaphor, with no concomitant marking of the predicate. On the contrary, no gaps are encountered in syntactic bundling: as long as semantic or pragmatic reasons do not rule out IP- or benefactive reflexives, these will be possible[2]. This asymmetry is explained by the assumption that only lexical operations are sensitive to the θ-feature composition of predicates whereas syntactic operations apply indiscriminately.

Third, a number of transitive verbs when marked with the suffix *–n-* give rise not to intransitive reflexives but to idiosyncratic meanings, e.g. *bys* 'cut' – *byhyn* 'become broke', *byhaar* 'explain' – *byhaaryn* 'make up one's mind', *bil* 'know' – *bilin* 'admit', *bier* 'give' – *berin* 'give up', *kuot* 'run away; outrun' – *kuotun* 'evade', *as* 'open' – *ahyn* 'clear up (about sky)', etc. In contrast, IP-reflexives and benefactives always result in transparent, predictable meanings.

Fourth, whereas syntactic nominalization can indiscriminately apply to all types of reflexives, only reflexives proper can be turned into nouns in the lexicon: for instance, the noun *sottor* 'towel' derived from the reflexive verb *sotun* 'wipe oneself'.

One more difference between lexical and syntactic reflexives concerns dvandva compound verbs. Verbal dvandva's, just like nominal dvandva's considered in 3.2.3, are divided into lexical and syntactic compounds along a number of criteria such as meaning compositionality, productivity, the occurrence of archaic words, etc. With respect to bundling, they also behave differently. Whereas lexical dvandva's can undergo all three types of bundling, syntactic dvandva's can only be subjected to syntactic bundling. Two particularly telling examples are *tebee-saxsyj* 'shake off - shake up' and *kör-xaraj* 'see – take care' which can be used in the contexts of inalienable possession and benefaction but cannot be used as intransitive reflexives. This is all the more striking considering the fact that when taken separately, the verbs *tebee* 'shake off', *saxsyj* 'shake up', *kör* 'see' and *xaraj* 'take care' can be reflexivized: *teben* 'shake off oneself', *saxsyn* 'shake up oneself', *körün* 'see oneself', *xaran* 'take care of oneself".

Finally, syntactic IP- and benefactive reflexive verbs can only be passivized in the syntax. Lexical and syntactic passives are considered in section 6.6.

6.5.2. The low/high opposition in syntactic bundling

In IP-reflexives what is bundled is the possessor of the VP-internal Theme argument. In benefactive reflexives the bundled possessor belongs to the benefactive argument which is introduced syntactically by an applicative functional head and, consequently, is VP-external. This structural difference between IP-bundling and benefactive bundling should be reflected syntactically. Indeed, four crucial pieces of

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[2] Which situations can be interpreted benefactively seems to be largely culturally determined, cf. (a) with (23) above. In addition, idiolectal differences play an important role: some speakers allow benefactives of verbs like *aax* 'read' and *atyylas* 'buy' which are ungrammatical for others.

a. *Kündül at-ygar ot ürge-n-ne.
Kündül horse-3.dat grass pick-refl-past.3
*'Kündül picked grass for his horse (for his own benefit).'

evidence are available. First, if we are dealing with two different levels of predicates, conjunction between them should be ruled out. As shown in (28), this holds true.

(28) ?*Kündül ilii-tin uonna caakky-tyn suu-n-na.
Kündül hand-3.acc and cup-3.acc wash-refl-past.3

Next, when complex predicates like *xaartyskaqa tüher* 'take a picture of (lit. make something fall on a photograph)' are marked with the suffix *–n-*, the only possible reading is benefactive.

(29) Keskil bylaan-y/*ataq-yn xaartyska-qa tüher-in-ne.
Keskil plan-acc/*leg-3.acc picture-dat make.fall-refl-past.3
'Keskil took a picture of the plan/*his leg for himself.'

Third, syntactic nominalizations can only be derived from IP-reflexives but not from benefactive reflexives as shown in (30).

(30) Ilii-ni suu-n-uu/*miin-i asta-n-yy doruobuja-qa tuhalaax.
Hand-acc wash-refl-nom/*soup-acc cook-refl-nom health-dat beneficial
'Washing one's hands/*cooking soup for oneself is beneficial to one's health.'

Two more pieces of evidence pertain to affix ordering. The first one concerns ordering of the reflexive suffix *–n-* with respect to the affix *–talaa* which marks frequentative/distributive aspect. As (31) shows, the reflexive suffix of inalienable possession is closer to the root than the aspectual morpheme which, in its turn, is closer to the root than the reflexive suffix of benefaction.

(31) a. Sardaana sirej-in suu-n-utalaa-ta/*suuj-tala-n-na.
Sardaana face-3.acc wash-refl-freq-past.3/*wash-freq-refl-past.3
'Sardaana washed her face several times.'
b. Sardaana caaky-tyn suuj-tala-n-na/*suu-n-utalaa-ta.
Sardaana cup-3.acc wash-freq-refl-past.3/*wash-refl-freq-past.3
'Sardaana washed her cup several times.'

Finally, both IP-reflexives and benefactives can cooccur with causative suffixes. However, whereas *–n-* in IP-reflexives can only precede the causative marker, *-n-* in benefactives has two options of realization, either before or after the causative marker.

(32) a. Sardaana Michil-ge ilii-tin suu-n-nar-da.
Sardaana Michil-dat hand-3.acc wash-refl-caus-past.3
'Sardaana made Michil wash his/her hands.'
b. Sardaana Michil-ge son tig-in-ner-de.
Sardaana Michil-dat coat sew-refl-caus-past.3
'Sardaana made Michil sew a coat for his own (Michil's) benefit.'

c. Sardaana Michil-ge son tik-ter-in-ne.
Sardaana Michil-dat coat sew-caus-refl-past.3
'Sardaana made Michil sew a coat for her own (Sardaana's) benefit.'

Benefactive –n takes different scope depending on its attachment: if it's attached below the causative morpheme, it scopes over the causee; if it's attached above the causative morpheme, it scopes over the causer. On the contrary, in the IP-context in (32a) the scope of –n which attaches always below the causative marker is ambiguous. If we consider how lexical causativization interacts with two different types of syntactic bundling, the facts follow. The underlying verb is transitive *suuj* 'wash' assigning [+c+m] and [-c-m]. After causativization we have a complex verbal concept associated with the Agent [+c+m], Causee [-c+m] and Theme [-c-m]. It is this three-place verb which undergoes either IP- or benefactive bundling. Consider first IP-bundling. All three roles are assigned VP-internally (but see discussion in section 6.8). Bundling takes place between the possessor of the theme and either the underlying agent (the causee) or the introduced agent (the causer). When the theme *ilii* 'hand' merges, its Possessor role is left dangling. Next, the causee Michil merges and gets assigned [-c+m]: at this point the Possessor role can be assigned to Michil along with [-c+m] or it can be left dangling further. Finally, Sardaana is merged and assigned [+c+m]: in case the Possessor role is still hanging loose, it will end up being assigned to Sardaana along with the Agent role. In this case we get the reading 'Sardaana made Michil wash her hands' while the previous case yields the reading 'Sardaana made Michil wash his hands'. Thus, the operation of IP-bundling takes place VP-internally and is marked with the suffix –n.

How does the causative morpheme come into play? I would like to argue that what it marks is not the operation of causativization but that it spells out a functional head required for licensing the causee. In the underlying predicate 'wash' ([+c+m], [-c-m]), the argument bearing [-c-m] will be assigned accusative case and the external argument will move to Spec,IP. The same licensing will apply to the causative verb 'make wash' ([+c+m], [-c+m], [-c-m]): [+c+m] agent and [-c-m] theme will be licensed as nominative and accusative. This leaves the causee unlicensed: no mechanism similar to accusative feature marking is available within Theta system to license case on the causee lexicon-internally. The only option is to license the causee in the syntax within a functional projection. Therefore it will be assumed that the causative morpheme spells out the head of this projection. The head in question can be identified as Appl (see e.g. Pylkkänen 2000; McGinnis 2001b) and the causee will move to its specifier position. From this it follows that if IP-bundling takes place VP-internally and Appl is projected VP-externally, the suffixal ordering will be n-caus and not caus-n.

Consider next benefactive bundling. Again, we have a lexical causative verb with three roles: [+c+m] *Sardaana*, [-c+m] *Michil* and [-c-m] *son* 'coat'. All three roles are assigned to arguments inside a VP. ApplP is introduced on top of VP licensing the causee which moves from inside VP to Spec,ApplP. The benefactive argument is introduced by yet another applicative head[3]. To distinguish the Appl

[3] Multiple applicative heads have been proposed e.g. by Pylkkänen 2000a/b and McGinnis 2001b.

head involved in the causee licensing from the Appl head involved in benefactive introduction, we will refer to the latter as Ben. The order of merging will be not ApplP-BenP but BenP-ApplP, i.e. BenP is merged first, below ApplP. Such ordering seems reasonable assuming that all arguments of a predicate must first be introduced, before one proceeds with licensing them in the syntax.

What is bundled is the possessor of the benefactive argument in Spec,BenP. It can be bundled either with the causee (32b) or the agent (32c). Bundling cannot take place VP-internally because the benefactive argument is introduced VP-externally. In (32b-c) there is no overt dative argument: as already mentioned above, what is introduced in such cases is the self-anaphor *beje*-AGR-DAT which is dropped freely. So in (32b-c) it is the possessor of *beje* which does not get assigned to any noun phrase.

(32b) is derived as follows. ApplP is merged above BenP and the causee moves to Spec,ApplP. At this point the Possessor role can be discharged to the noun phrase in Spec,ApplP. The operation is marked with the suffix –n. The head of ApplP is spelled out at PF by an appropriate allomorph of the causative marker deriving the order n-caus.

Consider next (32c). It proceeds the same as (32b) except that at the point of merging the causee the Possessor role is still kept in suspense. It is only discharged when the Agent moves to Spec,IP. The procedure is again marked with the suffix –n but since IP is structurally higher than ApplP, -n will follow Appl, the causative marker deriving the surface order caus-n.

The appearance of the same suffix –n in the outputs of both lexical and syntactic operations is only possible if the suffix marks not the structural case residue but functions as the morphological reflex of the operation itself. Thus, lexical and syntactic n-marking lends support to the claim that Sakha is negatively specified for the structural component of accusative case.

6.6. Lexical and syntactic passives

Another arity operation which affects accusative case is saturation (existential closure) of the external argument which underlies passivization. I will assume that depending on where saturation applies, two types of passives can be distinguished. If saturation applies in the lexicon, it eliminates thematic accusative yielding a lexical passive like in (33a). The [-c-m] argument *sonunnar* 'news' merges as the internal argument but cannot be assigned accusative case and must move to Spec,IP.

If saturation applies in the syntax, accusative case cannot be eliminated and must be checked by the nominal argument. The result is (33b): *sonunnar* 'news' merges as the internal argument and checks accusative. Syntactic saturation applies at the level of Spec,IP. As a consequence, Spec,IP will be existentially quantified and remain unfilled and the default third person agreement will be chosen in (33b). The examples in (33) show that the passive marker *–lyn-* does not mark accusative case reduction but rather signals the fact that an arity operation of saturation applied, just like the reflexive marker *–n-* indicates bundling.

(33) a. Sonun-nar aaq-ylyn-ny-lar.
news-pl read-pass-past-pl

'The news was read.'

b. Sonun-nar-y aaq-ylyn-na.
news-pl-acc read-pass-past.3
'The news were read.'

Although the external argument is not realized syntactically in (3), its presence is implied.. There is, however, one important difference between (33a) and (33b): only in the syntactic passive example (33b) is the external argument available semantically to license intentional adverbs and instrumental phrases as shown by the examples in (34). This difference presumably follows from the fact that in (34a) the external argument has been saturated lexicon-internally and, furthermore, the Spec,IP-position is occupied by the remaining Theme argument whereas in (34b) saturation happened in the syntax and Spec,IP is existentially quantified.

(34) a. *Tünnük-ter sorujan taah-ynan aldjat-yll-yax-tar-a.
Window-pl on.purpose stone-instrum break-pass-fut-pl-3

b. Tünnük-ter-i sorujan taah-ynan aldjat-yll-yaq-a.
Window-pl-acc on.purpose stone-instrum break-pass-fut-3
'Windows will be broken on purpose with stones.'

The domain of application of saturation with concomitant thematic case reduction or lack thereof also explains a cluster of structural asymmetries between lexical and syntactic passives considered in the next section.

6.6.1. The lexical/syntactic opposition in passivization

It follows naturally from the present analysis that even though the same affix *–lyn-* is used throughout, when the affix marks syntactic saturation, its position is further away from the root than when it marks lexical operation. As shown in (35), the position of the suffix relative to the verb stem is betrayed after the frequentative/distributive aspectual morpheme is inserted. Although the sentences in (35) sound clumsy (indicated by %) because they are not used regularly, they nevertheless invoke consistent, reliable intuitions.

(35) a. Oloppos-tor %aldjat-ylyn-ytalaa-ty-lar/*aldjat-ytala-n-ny-lar.[4]
chair-pl break-pass-distr-past-pl/*break-distr-pass-past-pl
'Chairs were broken one after another.'

b. Oloppostoru %aldjat-ytala-n-na/*aldjat-ylyn-ytalaa-ta.
chair-pl-acc break-distr-pass-past.3/*break-pass-distr-past.3
'Chairs were broken one after another.'

Another structural asymmetry pertains to the possibility of nominalizations. Only lexical passives can be nominalized. Nominalizations from high, syntactic passives are impossible.

[4] After verb stems ending in a vowel the passive morpheme is spelled out as *–n-*: the *–l-* formant of *–lyn* must be dropped.

(36) a. Munnjax ah-ylyn-na. / Munnjaq-y ah-ylyn-na.
Meeting open-pass-past.3 / meeting-acc open-pass-past.3
'The meeting was opened.'
b. Munnjax ah-yll-yy-ta / *Munnjaq-y ah-yll-yy(-ta)
meeting open-pass-nom-3 / *meeting-acc open-pass-nom(-3)
'the meeting's opening'

Next, lexical and syntactic passives differ in their choice of a completed/perfective aspect auxiliary. There are two perfective auxiliaries which are derived from lexical verbs whose lexical meanings are lost when they are used as functional elements: intransitive *xaal* 'remain' for intransitives (37a) and transitive *kebis* 'throw, hurl' for transitives (37b). The auxiliaries precede the main verb which appears in the anterior gerund form.

(37) a. Radio aldjan-an xaal-la
Radio break-ger remain-past.3
'The radio broke completely'
b. Kuoska balyg-y sie-n kebis-te
Cat fish-acc eat-ger throw-past.3
'The cat completely finished the fish (ate all of the fish)'

Verbs turned into passives in the lexicon (with thematic accusative reduced) are incompatible with transitive *kebis* and vice versa for syntactic passives which did not have their accusative feature eliminated. The relevant examples are given in (38). Notably, with syntactic passives the passive marker must attach higher than the main verb, to the perfective auxiliary itself. As can be gleaned from (38b), the transitive auxiliary *kebis* is ruled out with the morphologically passive main verb: the main verb must be basic transitive. (38) clearly shows that accusative case in lexical passives has been reduced making them compatible with the intransitive perfective auxiliary *xaal* 'remain' whereas in syntactic passives their accusative case has not been affected which explains why they are only possible with the transitive auxiliary.

(38) a. Kinige/*Kinige-ni tahaar-yll-an xaal-la.
book/*book-acc publish-pass-ger perf.aux$_{INTRANS}$-past.3
b. *Kinige/*Kinige-ni tahaar-yll-an kebis-te.
*book/*book-acc publish-pass-ger perf.aux$_{TRANS}$-past.3
c. Kinige-ni/*Kinige tahaar-an kebih-ilin-ne.
book-acc/*book publish-ger perf.aux$_{TRANS}$-pass-past.3
'The book got published/ended up being published.'

As far as interpretation is concerned, if syntactic passivization applies after ACC has already been checked, then it is natural to expect interpretive correspondences between the accusative object of a regular transitive verb and the sole accusative argument of a syntactically passive verb. Such correspondences are indeed confirmed by the data: the two accusative DP's display the same range of meanings

and both disallow the non-specific reading. On the contrary, the nominative subject of a lexically passive verb admits all possible interpretations, including the non-specific one.

(39) a. Min kinige-ni aax-ty-m.
I book-acc read-past-1sg ‘I read the book/*a book.’
b. Kinige-ni aaq-ylyn-na.
Book-acc read-pass-past.3 ‘The book/*A book was read.’
c. Kinige aaq-ylyn-na.
Book read-pass-past.3 ‘The book/A book was read.’

(40) a. Min biir kinige-ni aax-ty-m.
I one book-acc read-past-1sg
‘I read a (specific/*non-specific) book.’
b. Biir kinige-ni aaq-ylyn-na.
One book-acc read-pass-past.3
‘A (specific/*non-specific) book was read.’
c. Biir kinige aaq-ylyn-na.
One book read-pass-past.3
‘A (specific/non-specific) book was read.’

Finally, as mentioned in 6.5.1, syntactic IP- and benefactive reflexive verbs can only be passivized in the syntax. (41a) shows an IP-reflexive in the active voice. (41b) is the passive counterpart of (41a). The relevant syntactic diagnostic is accusative case preservation: since the internal argument can only appear in the accusative case, saturation must have applied in syntax. Similarly for (42) which shows a benefactive reflexive structure.

(41) a. Erel ilii-tin suu-n-na.
Erel hand-3.acc wash-refl-past.3
b. Ilii-ni/*Ilii suu-n-ulun-na.
hand-acc/*hand wash-refl-pass-past.3

(42) a. Erel suorat-y minnjit-in-ne.
Erel yoghurt-acc sweeten-refl-past.3
b. Suorat-y/*Suorat minnjit-in-ilin-ne.
yoghurt-acc/*yoghurt sweeten-refl-pass-past.3

The data in this section clearly demonstrate that the passive suffix *–lyn* is not inserted to check structural accusative: if this were the case, the difference between lexical nominative passives and syntactic accusative passives would be left unaccounted for. Rather, just as in the case with reflexives, one and the same suffix *–lyn* functions as the morphological reflex of a cross-modular arity operation, viz. saturation.

6.7. Reciprocals

Siloni 2001 discusses two means of reciprocal formation – reciprocal pronouns and reciprocal verbs. The latter are derived by an arity operation which reduces the internal argument and can apply either in the lexicon or syntax (determined by the Lex-Syn parameter). An example of a lexicon language is Hebrew whereas syntactic reciprocals are found in French[5].

(43) a. Hem hitnašku. (Hebrew)
they kissed(*rec*)

b. Ils se sont lavés. (French)
they *se* were washed
i) 'They washed.'
ii) 'They washed each other.'

The lexicon/syntax dichotomy in the formation of reciprocal verbs is reflected in a cluster of syntactic properties. Some of these are: 1) in lexicon languages reciprocal verbs constitute a closed class, in syntax languages the operation is productive; 2) reciprocal ECM predicates are only allowed in syntax languages (44); 3) an accusative reciprocal pronoun can cooccur with a reciprocal verb only in syntax languages (45); 4) syntax languages do not allow discontinuous reciprocals, lexicon languages do: the subject of a reciprocal verb can be split between a singular nominative subject and a with-phrase (46).[6]

(44) a. *Dan ve-ron hitra'u racim.
Dan and Ron saw(*rec*) run

b. Pierre et Jean se sont entendus chanter la Marseillaise.
Pierre and Jean SE are heard sing the Marseillaise
'Pierre and Jean heard each other sing the Marseillaise.'

(45) a. *Hem hitnašku ze et ze.
they kissed(*rec*) each acc other

b. Ils se sont embrassés l'un l'autre.
they *se* were kissed each other
'They kissed each other.'

(46) a. Hu hitnašek im Dina.
he kissed(*rec*) with Dina

b. *Il s'est embrassé avec Dina.
he *se* is kissed with Dina

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[5] Note that (43b) is ambiguous between reciprocal and reflexive readings: in SIloni 2001 this type of ambiguity is taken to be a property of syntax languages.

[6] The examples are from Siloni 2001. The (a)-examples are Hebrew, (b) – French.

As shown by Siloni, pronominal reciprocity and verbal reciprocity are not interpretively identical. With a reciprocal pronoun the subject may have a collective or distributive reading whereas with reciprocal verbs it can only be interpreted as collective.

(47) a. Dan ve-ron xibku ze et ze xameš pe'amim.
Dan and-Ron hugged each other five times.
i. There were five mutual hugging events.
ii There were ten hugging events: five by Dan and five by Ron.
b. Dan ve-ron hitxabku xameš pe'amim.
Dan and-Ron hugged(*rec*) five times.
i. There were five mutual hugging events.

The data in (47) are explained as follows. For reciprocal pronouns Siloni adopts the analysis advanced in Heim, Lasnik & May (1991) that reciprocal pronouns are complex expressions composed of a reciprocator (*other*) and a distributor (*each*). The distributor adjoins to its antecedent at LF. Thus, the ambiguity in (47a) is scopal in nature: in (i) the adverb scopes over the distributor, in (ii) the distributor scopes over the adverb. Lack of ambiguity in (47b) shows that the reciprocal meaning of reciprocal verbs is not syntactically detachable. Furthermore, Siloni shows that reciprocal verbs in syntax languages like French pattern together with reciprocal verbs in lexicon languages and not with reciprocal pronouns. This shows that even though they are derived in the syntax, they do not contain a syntactically autonomous distributor.

The operation is formalized as follows by Siloni 2001. Consider first lexicon-internal application. The input is a transitive verb with an external and internal arguments (48a), the output is an unergative reciprocal predicate (48b): accusative case is reduced. As a result of the operation the numeration includes a reciprocal verb with one external θ-role and one DP to be assigned this θ-role.

(48) Lexical reciprocal reduction (Siloni 2001)
a. $V<\theta_1, \theta_2>$
b. RecipVx
$(Recip(V)(a)) \leftrightarrow (\forall x,y \in a\ (x \neq y \rightarrow Vxy)$
Case reduction
c. Numeration: {…T…Recip(V (θ_1), DP}

Syntactic (LF) mode of reciprocalization is illustrated in (49). Again, the input is a transitive verb. However, the numeration includes the clitic *se* which absorbs accusative case but does not reduce a θ-role. The internal θ-role cannot be assigned to the DP in object position because there is no case. At LF, the reciprocal predicate is formed. There are two views as to how this proceeds. The operation may be entirely parallel to its lexical counterpart (49c.i). Alternatively (49c.ii), *se* may be associated with the internal θ-role when arity is checked at LF. Since *se* lacks Case, it cannot constitute an argument (an A-chain). Therefore it must form a Chain (an

anaphoric chain, Reinhart and Reuland 1993) with the closest c-commanding DP, i.e. the subject, represented by indexing the two.

(49) LF reciprocal reduction (Siloni 2001)
a. V<θ_1, θ_2>
b. Numeration: {…T_{EPP}…SE V (θ_1, θ_2), DP}
c. LF
(i) [DP(θ_1) SE RecipV+T…]
(ii) [DP_k(θ_1) SE_k(θ_2)+V+T...]

6.7.1. Reciprocals in Sakha

On the surface of it, there are two means of marking reciprocity: pronoun and the suffix –s-. The reciprocal pronoun *beje beje* 'self self' is a reduplicated reflexive anaphor. It agrees with its antecedent in person and number. However, only the second *beje* is declined, the first one stays invariant. For the reciprocal pronoun Heim, Lasnik & May's (1991) analysis can be adopted with first *beje* acting as the distributor and the second *beje* as the reciprocator. This explains why only the second *beje* which is responsible for reciprocating back on the subject is declined. This also explains why (50) is not contradictory: even though the collective reading is banned, the reciprocal pronoun can trigger a distributive reading on the subject and this is what we see in (50) which is interpreted as containing ten defeating events (Misha defeats Masha five times and vice versa).

(50) Misha uonna Masha beje beje-ler-in bieste xot-tu-lar.
Misha and Masha self self-pl-3.acc five.times defeat-past-pl
'Misha and Masha each defeated the other five times.'

Likewise, replicating (47a) for Sakha yields the same type of ambiguity which is easily explained if the distributor-reciprocator analysis is adopted for *beje beje*.

(51) Misha uonna Masha beje beje-ler-in bieste kuus-tu-lar.
Misha and Masha self self-pl-3.acc five.times hug-past-pl
'Misha and Masha hugged each other five times.'
i) There were five mutual hugging events
ii) There were ten hugging events : five by Misha and five by Masha

However, when these tests are applied to reciprocal verbs, they do not yield a consistent picture. The contrast in (52) shows that on the one hand, reciprocal verbs behave differently from pronouns patterning with reciprocal verbs in other languages (52a) while on the other hand, their behaviour betrays that they are syntactically decomposable and contain a distributor (52b).

(52) a. Misha uonna Masha bieste annjyala-s-ty-lar.
Misha and Masha five.times push-rec-past-pl
'Misha and Masha pushed each other five times.'

i) there were five mutual pushing events
ii) *there were ten pushing events : five by Misha and five by Masha

b. Misha uonna Masha bieste araldjyt-ys-ty-lar.
Misha and Masha five.times distract-rec-past-pl
'Misha and Masha distracted each other five times.'
i) there were five mutual distracting events
ii) there were ten distracting events: five by Misha and five by Masha

The presence of a syntactically autonomous distributor is also evidence from the non-contradictory status of (53) which is identical to (50) except that the verb *xot* 'defeat' is marked with the reciprocal suffix.

(53) Misha uonna Masha bieste xot-us-tu-lar.
Misha and Masha five.times defeat-rec-past-pl
'Misha and Masha each defeated the other five times.'

One can assume that a covert pronoun is present in (53) and (52b) and it is this pronoun which is responsible for distribution. Indeed, a pronoun can be inserted in both examples as shown below for (53).

(54) Misha uonna Masha beje beje-ler-in bieste xot-us-tu-lar.
Misha and Masha self self-pl-3.acc five.times defeat-rec-past-pl
'Misha and Masha each defeated the other five times.'

However, this assumption cannot be correct because the same distributive reading is available in (55) where no reciprocal pronoun can be inserted, independent of which case marking it bears. (55) shows an accusative pronoun.[7]

(55) Misha uonna Masha töröppüt-ter-in (*beje beje-lerin) bieste xot-us-tu-lar.
M. and M. parent-pl-3.acc (*self self-pl-3.acc) five.times defeat-rec-past-pl
'Misha and Masha each defeated the other's parents five times.'

These facts can only be accounted if reciprocal verb formation can take place in both lexical and syntactic modules in Sakha which means that the two means of marking reciprocity correspond to three types of reciprocal constructions: lexical reciprocal verbs and syntactic reciprocal verbs in addition to reciprocal pronouns. This account predicts a number of asymmetries between lexical and syntactic reciprocal verbs which will be shown in the next section.

[7] This example can be used e.g. to depict a situation in which Misha and Masha are playing a chess game with their parents: Misha is playing against Masha's parents and Masha against Misha's.

6.7.2. Reciprocal verbs in Sakha and the lexicon/syntax dichotomy

Consider first the tests mentioned in Siloni 2001, namely, the ones for accusative pronouns and discontinuous reciprocals.[8] As expected, no accusative reciprocal pronoun can cooccur with a lexical reciprocal verb (56) but is possible with a syntactic predicate as shown in (54).

(56) a. ?*Misha uonna Masha beje beje-ler-in kör-üs-tü-ler.
Misha and Masha self self-pl-3.acc see-rec-past-pl
'Misha and Masha saw each other/met.'
b. *Misha uonna Masha beje beje-ler-in sylla-s-ty-lar.
Misha and Masha self self-pl-3.acc kiss-rec-past-pl
'Misha and Masha kissed each other.'

Syntactic reciprocals cannot be discontinuous, lexical reciprocals can. The with-argument can be expressed in one of two ways : either with the help of a comitative case marker –LYYn or through a postpositional phrase involving *kytta* 'with' which assigns accusative case to its complement.

(57) a. *Misha Masha-lyyn/Masha-ny kytta xot-us-ta/araldjyt-ys-ta.
M. Masha-comit/Masha-acc with defeat-rec-past.3/distract-rec-past.3
b. Misha Masha-lyyn/Masha-ny kytta kör-üs-te/sylla-s-ta/oxs-us-ta.
M. M.-comit/M.-acc with see-rec-past.3/kiss-rec-past.3/hit-rec-past.3
'Misha met/kissed/fought with Masha.'

Some more evidence can be brought to support the lexicon/syntax division in reciprocal verbs. As shown in (58a), syntactic reciprocals cannot appear in the singular with only one argument – the subject. Lexical reciprocals, on the contrary, can. Since the with-phrase is semantically understood, it must have been saturated (existentially bound).

(58) a. *Misha xot-us-ta/araldjyt-ys-ta/yryt-ys-ta/suoxta-s-ta.
Misha defeat-rec-past.3/distract-rec-past.3/analyze-rec-past.3/miss-rec-past.3

[8] The ECM test (reciprocal ECM predicates are only allowed in syntax languages) is independently inapplicable. As mentioned in 6.1, ECM in general is only possible in languages specified positively for structural accusative, e.g. English. This is because the embedded IP which is assigned the internal θ-role checks thematic case leaving structural case residue which is checked by the subject of the embedded clause: I saw [$_{IP}$ him(struct-acc) run](them-acc).

b. Misha annjyala-s-ta/üöq-üs-te/sylla-s-ta/ejele-s-te/oxs-us-ta.
Misha push-rec-past.3/curse-rec-past.3/kiss-rec-past.3/
make.peace-rec-past.3/hit-rec-past.3
'Misha pushed around/used abusive language/kissed around/made peace/fought.'

Under causativization lexical reciprocals follow the intransitive case pattern: the causee can only be in the accusative. Syntactic reciprocals follow the transitive case pattern and allow a dative causee in addition to the accusative one.

(59) a. Min Misha-ny/*-qa uonna Masha-ny/*-qa kör-üh-ün-ner-di-m.[9]
I Misha-acc/*-dat and Masha-acc/*-dat see-rec-n-caus-past-1sg
'I made Misha and Masha see/meet each other.'

b. Min {Misha-ny uonna Masha-ny/Misha-qa uonna Masha-qa}
alaadjy asta-h-yn-nar-da.
I {Misha-acc and Masha-acc/Misha-dat and Masha-dat}
pancake cook-s-n-caus-past
'I made Misha and Masha make pancakes for each other.'

Another asymmetry which has become evident from the examples above has to do with Case reduction. Whereas lexical reciprocals have their accusative case reduced, this is not the case with syntactic reciprocals. This explains why the accusative anaphor is only possible with syntactic reciprocal predicates, see (54). It also explains the appearance of accusative *töröppütterin* 'their parents(ACC)' in (55) and *alaadjy* 'pancake' in the preceding example. (60) shows the availability of overt dative with syntactic predicates, alongside accusative *djie* 'house'.

(60) Misha uonna Masha töröppüt-ter-iger djie-ler-i tut-us-tu-lar.
Misha and Masha parent-pl-3.dat house-pl-acc build-rec-past-pl
'Misha and Masha each built a house for the other's parents.'

These facts follow if lexical derivation reduces the internal argument and accusative case whereas syntactic derivation preserves both. In this case it becomes clear why accusative/dative pronouns and DPs are possible with syntactic reciprocal verbs but not with lexical ones. The case pattern under causativization is also accounted for: lexical reciprocals, being derived unergatives, behave like other intransitives when causativized while syntactic reciprocals behave like transitive verbs.

As for discontinuous reciprocals (57) and reciprocal verbs in the singular (58), Siloni assumes that these realize the default option. Reciprocal verbs are intransitives derived in the lexicon and hence, they can realize in the singular, just like any intransitive verb (61a). This accounts for (58). They can also utilize the same mechanism of augmenting the singular subject with a *with*-phrase available to verbs in general (61b). This derives discontinuous reciprocals (57).

[9] A peculiar property of causativized reciprocals is that the suffix –n (which otherwise marks reflexivity and sometimes unaccusativity) must be inserted between the reciprocal suffix –s and the causative suffix. We will leave this matter which clearly deserves an explanation without further consideration.

(61) a. Misha kel-le.
Misha come-past.3
'Misha came.'
b. Misha Masha-lyyn/Masha-ny kytta kel-le.
Misha Masha-comit/Masha-acc with come-past.3
'Misha came with Masha.'

The reason singular subjects are disallowed with syntactic reciprocal predicates may be due to a ban against split antecedents under the chain view of syntactic reciprocalization (49c.ii). Under this view, an A-chain is formed between the subject (the head of the chain) and *se*: discontinuous reciprocals are not allowed because the head of the chain which must be a Case position and referential cannot have its reference split between two constituents marked with different cases. On the contrary, Dimitriadis 2002 argues that the reciprocal verb in a discontinuous reciprocal construction is a two-place predicate whose arguments are the subject and the comitative noun phrase. Dimitriadis bases his argument on the fact that the semantics of discontinuous reciprocals is more restricted than that of the corresponding simple reciprocal but note that this fact can also be made to follow from the lexical application of the operation. Other facts about discontinuous reciprocals identified by Dimitriadis such as lack of accusative, lack of reflexive/reciprocal ambiguity and event symmetry[10] can be made to follow from the same assumption.

The Sakha data do not support viewing discontinuous reciprocals as transitive. Evidence comes from the following observations. As argued in chapter 4 (section 4.4.1.3), a thematic constraint is operative in the formation of relative clauses in Sakha: only arguments can be relativized. The argument/adjunct asymmetry is responsible for the contrast in (62) and between (62) and (63) (repeated from chapter 4, examples (108) and (109)). The comitative noun phrase in (62a) is not an argument of the verb, therefore cannot serve as target of relativization (62b). In (63a), however, the verb *kel* 'come' is put in the comitative voice – *kelis* 'come with someone' in which case *oqonnjorduun* 'old man-comitative' becomes an argument and can be relativized as in (63b). Comitative voice which is realized with the same suffix as reciprocal but is distinct from the latter will be considered shortly.

(62) a. Ookko oqonnjor-duun kel-le.
Ookko old.man-comit come-past.3
'Ookko came with an old man.'

b. *Ookko kel-bit oqonnjor-o
Ookko come-past old.man-3
'an old man with whom Ookko came'

[10] Lexical reciprocals in Sakha also denote necessarily symmetric events. Thus, (a) can only be interpreted symmetrically: it cannot mean that only Misha pushed Masha.

a. Misha Mashalyyn annjyala-s-ta.
Misha Masha-comit push-rec-past.3 'Misha and Masha pushed each other.'

(63) a. Ookko oqonnjor-duun kel-is-te.
Ookko old.man-comit come-comit-past.3
'Ookko came with an old man.'
b. Ookko kel-si-bit oqonnjor-o
Ookko come-comit-past old.man-3
'an old man with whom Ookko came'

Consider (64b) which illustrates an attempt at relativizing/extracting the comitative DP out of a discontinuous reciprocal (64a). The result, however, is ungrammatical: (64b) can only be interpreted as a possessive structure with Misha acting as the possessor and Masha modified by the participial modifier *üöxsübüt*. If the comitative DP were a true argument of the singular reciprocal verb, this would be unexpected.

(64) a. Misha Masha-lyyn üöq-üs-te.
Misha Masha-comit curse-rec-past.3
'Misha used abusive language with Masha (Misha and Masha used abusive language at each other).'
b. Misha üöxsübüt kyyha
*'the girl with whom Misha used abusive language'
'Misha's girl who used abusive language'

Therefore Siloni's view will be supported that discontinuous reciprocals are lexically derived unergatives.

The view of syntactic reciprocalization as preserving not only argument structure but also case does not seem compatible with Siloni's definition given in (49). According to (49), the argument structure is preserved but case is reduced. The internal θ-role which would otherwise remain unassigned is taken care of by *se* in the manner outlined above. It seems that this is where the difference between syntax languages included in Siloni's cross-linguistic overview and Sakha lies: the former, like French, possess clitic morphology which is capable of absorbing case. No such elements are available in Sakha, hence case cannot be absorbed and must be checked by a noun phrase. Since the internal θ-role has not been reduced, an additional DP (cf. (49b)) can be and, in fact, must be included in the numeration. The same point was made above with respect to bundling in 6.5.

A natural question, then, is what gets reduced under syntactic reciprocalization in Sakha. Examples (55) and (60) repeated below suggest an answer which makes syntactic reciprocals parallel to syntactic reflexives. As argued above in 6.5, in syntactic reflexivization what is bundled with the external agent role is the possessor of either the inalienable body part or of the benefactive argument. Similarly, what reciprocates back on the subject in (65) and (66) is the possessor of *töröppütter* 'parents' which realizes the internal argument in (65) and the benefactive argument in (66).

(65) Misha uonna Masha töröppüt-ter-in bieste xot-us-tu-lar.
M. and M. parent-pl-3.acc five.times defeat-rec-past-pl
'Misha and Masha each defeated the other's parents five times.'

(66) Misha uonna Masha töröppüt-ter-iger djie-ler-i tut-us-tu-lar.
Misha and Masha parent-pl-3.dat house-pl-acc build-rec-past-pl
'Misha and Masha each built a house for the other's parents.'

Syntactic reciprocalization is subject to the same caveat as syntactic reflexivization : it involves a possessor which is not an argument of the verb. For that reason the Lex-Syn parameter may be inapplicable. However, unlike syntactic reflexivization, Syntactic reciprocalization is not optional: if the reciprocal morpheme is removed from (65) and (66), the reciprocal interpretation is lost. There is no other way of getting the readings implicated in (65) and (66) than to use reciprocal verbs: reciprocal pronouns won't do. For now, the question of how precisely syntactic reciprocalization should be formulated will be left unresolved. The availability of distribution with syntactic reciprocals (cf. (52b) and (53)) will also be put on the back burner.

6.7.3. Lexical and syntactic reciprocal sets

One more piece of evidence can be brought as support for Siloni's analysis: productivity. The class of lexical reciprocal verbs is limited and restricted to a subset of agentive predicates as opposed to the class of syntactic reciprocal verbs. Consider the latter first. It is a property of syntactic operations that they are insensitive the feature composition of the arguments that they apply to. As a result, syntactic reciprocals can be derived not only from agentive verbs but also from verbs with [+c] and [+m] external arguments. (67) shows [+c+m] yryt 'analyze', [+c] araldjyt 'distract' and [+m] abaahy kör 'hate'. The examples must be understood as Misha analyzing/distracting/hating Masha's parents and Masha doing the same with respect to Misha's parents.

(67) Misha uonna Masha töröppüt-ter-in yryt-ys-ty-lar/araldjyt-ys-ty-lar/
abaahy kör-s-öl-lör.
Misha and Masha parent-pl-3.acc analyze-rec-past-pl/distract-rec-past-pl/
hate-rec-aor-pl
'Misha and Masha each analyzed/distracted/hate the other's parents.'

In contrast, the lexical reciprocal set consists of agentive verbs only. We can distinguish three subclasses. First, these are verbs which involve s-suffixation to a bound root: *mökküs* 'argue, dispute with', *seles* 'chat with', *syrys* 'race with', *üles* 'make an agreement with', *xoonnjos* 'sleep with'. These verbs have no corresponding agentive bases which makes them into frozen entries: considering their scarcity, they should not pose any learnability problems. The second group includes verbs derived from existing agentives with a concomitant meaning change.

(68) Lexical reciprocal verbs lacking transparency of meaning

Base V	**Gloss**	**V-s**	**Gloss**
Aax	Read	Aaqys	Reckon with
Aal	Rub	Aalys	Socialize, mingle with
Baaj	Tie	Baajys	Find fault with
Erij	Twist, turn	Eris	Wrestle, struggle with
Et	Say	Etis	Quarrel
Tap	Hit (one's aim)	Tabys	Get along with
Xap	Catch	Xabys	Wrestle, skirmish with

The third subclass is also made up of verbs derived from indepedent agentive bases but their meaning is fully compositional.

(69) Semantically transparent lexical reciprocal verbs

Base V	**Gloss**	**V-s**	**Gloss**
Annjyalaa	Push	Annjyalas	Push (around), jostle with
Bil	Know	Bilis	Become acquainted with
Kej	Strike with the head or horns	Kejis	Strike each other with the head or horns
Kör	See	Körüs	Meet with
Kuotalaa	Outrun, leave behind	Kuotalas	Compete, race with
Oqus	Hit	Oxsus	Fight with
Syllaa	Kiss	Syllas	Kiss with
Tart	Pull	Tardys	Pull each other
Üöx	Curse	Üöqüs	Curse each other; use abusive language
Uuraa	Kiss	Uuraa	Kiss with

The following relationship holds between non-transparent and transparent lexical reciprocal predicates and syntactic reciprocals. The former allow syntactic reciprocalization (70), the latter do not (71).

(70) a. Misha Masha-lyyn aaq-ys-ta.
Misha Masha-comit read-rec-past.3
'Misha reckoned with Masha.'

b. Misha uonna Masha kinige-ler-in aaq-ys-ty-lar.
Misha and Masha book-pl-3.acc read-rec-past-pl
'Misha and Masha read each other's books.'

(71) a. Misha Masha-lyyn bil-s-er.
Misha Masha-comit know-rec-aor
'Misha is acquainted with Masha.'

b. *Misha uonna Masha kinige-ler-in bil-s-el-ler.
Misha and Masha book-pl-3.acc know-rec-aor-pl
'Misha and Masha know each other's books.'

One verb from the latter group seems to allow both contradicting the generalization but as the English translations indicate, we are dealing with two different senses or meanings of the same verb: *kör* 'see' which yields a transparent lexical reciprocal 'meet with' and *kör* 'look after' which yields a transparent syntactic reciprocal 'look after each other'. Crucially, the lexical 'meet with' reading is banned from the syntactic configuration and the syntactic 'look after each other' meaning is ruled out in the lexical context.

(72) a. Misha Masha-lyyn kör-üs-te.
Misha Masha-comit see-rec-past.3
'Misha met with Masha.'
*'Misha and Masha looked after each other.'
b. Misha uonna Masha oqo-lor-un kör-üs-tü-ler.
Misha and Masha child-pl-3.acc see-rec-past-pl
'Misha and Masha looked after each other's children.'
*'Misha and Masha met with each other's children.'

6.7.4. s-adjectives

The suffix –s is also used in deriving adjectives from verbs either in the lexicon or syntax. The most productive pattern involves unergative bases illustrated in (73).[11]

(73) Examples of syntactic s-adjectives derived from unergatives

V	Gloss	V-s → A	Gloss
Kuttan	Be afraid	Kuttas	Fearful
Öhürgen	Become offended	Öhürges	Touchy
Sonoo	Grow stout, put on weight	Sonos	Stoutish, plumpish
Baaqynaa	Speak in a low voice	Baaqynas	Low-voiced
Baahyrqaa	Buzz	Baahyrqas	Buzzing
Ballyrqaa	Blabber	Ballyrqas	Blabbering
Kööqünee	Speak hoarsely	Kööqünes	Hoarse
Kurulaa	Gurgle	Kurulas	Gurgling
Kyŋkynaa	Clink	Kyŋkynas	Clinking

Formation of s-adjectives based on unergatives is extremely productive witnessed by the following fact. All verbs in the table above (apart from the first three) are

[11] Only one counterexample was found which involves an unaccusative base: *kylgaa* 'shorten' → *kylgas* 'short'.

onomatopoeic/descriptive: such verbs can be freely coined using any sound-symbolic/onomatopoeic root plus a verbalizer (see chapter 2, section 2.2.3) and all such verbs can be turned into adjectives with –s.

Three more instances of adjectival formation with the suffix –s can be found, all three from transitive agentive verbs: *aŋardaa* 'divide in two' → *aŋardas* 'single, alone', *kömüskee* 'defend' → *kömüskes* 'defensive, protective' and *kyrbaa* 'to cut into pieces' → *kyrbas* 'cut into pieces'. Since argument reduction is involved, these three cases must represent instances of lexicon-internal derivation.

That the suffix –s functions as a very productive adjectivizer attaching to unergative bases makes it somewhat similar to reciprocal –s which derives unergative verbs.

6.7.5. Comitatives

Comitatives are formed with the same suffix as reciprocals from transitive as well as intransitive bases. They do not change the argument structure of the underlying predicate nor do they reduce case. What they seem to do is to introduce semantically an additional argument which can be optionally expressed by a noun phrase in the comitative case or by a postpositional phrase *Lena-ny kytta* 'with Lena (Lena-acc with)'. If the additional argument is not expressed overtly, its presence is obligatorily implied. Note that a comitative DP can also be inserted in non-comitative (74) but it will not have an argument status as evidenced by the above contrast in (62/63).

(74) Michil ytaa-ta / djie tut-ar. (non-comitative)
Michil cry-past.3 / house build-pres
'Michil cried / is building a house.'

(75) Michil (Lena-lyyn) yta-s-ta / djie tut-uh-ar. (comitative)
Michil (Lena-comit) cry-s-past.3 / house build-s-pres
'Michil {cried / is building a house} together with someone else (with Lena).'

Korkina et al. (1982) distinguish two types of comitation - adjacent and joint. The above examples represent the former kind: in adjacent comitation it is understood that the overt nominative subject is not the only person carrying out the relevant action. The presence of two types of agents is implied: the principal agent and the agent adjacent to the principal agent. Curiously, the nominative subject is not understood as the principal agent: its status is that of an adjacent agent. Rather, the optional comitative argument acts as the principal agent responsible for carrying out the action described by the predicate and the nominative argument is interpreted as a mere helper. Thus, in (75) it is Lena who started crying or building a house: Michil joined later for company.

Joint comitation, on the contrary, implies equal participation in the action by everybody and, hence, imposes no ranking on agents. The underlying predicate

must be intransitive (unergative like *ytaa* 'cry', *kül* 'laugh', *yllaa* 'sing') and the subject is always plural. (76) is ambiguous between joint and adjacent readings.

(76) Oqolor yta-s-ty-lar. / children cry-s-past-pl
i) 'The children all cried together one after another.' (joint)
ii) 'The children cried together with someone else.' (adjacent)

The label 'joint' does not seem very suitable for 'joint' comitation: even though the children are seen as one group and no event participants other than the children are involved, what the comitative marker does is to trigger distribution of the predicate over all the members of the plural set. Therefore we will replace 'joint' with 'distributive'.

Under causativization both distributive and adjacent interpretations are preserved. Both transitive and intransitive case patterns are possible depending on the type of verb marked with comitative –s. In distributive comitatives the underlying predicate is always intransitive, whence accusative marking on the causee.

(77) Min oqolor-u yta-h-yn-nar-dy-m.
I childrenacc cry-s-n-caus-past-1sg
i) 'I made the children all cry together one after another.' (distributive)
ii) 'I made the children cry together with someone else.' (adjacent)

To summarize, comitative –s appears to perform two mutually exclusive functions: it can either augment the external argument without distributing over it or it can distribute over the plural external argument. If comitativization is an operation, it must apply in the syntax for it reduces neither argument structure nor Case. In addition, it applies to verbs with external arguments independent of θ-feature specifications: [+c+m], [+c] and [+m] external arguments can be comitativized. (78) shows a comitative verb with a [+m] subject.

(78) Misha Masha-ny sene-h-er.
Misha Masha-acc despise-s-aor
'Misha despises Masha (taking after someone else who is the main experiencer of contempt towards Masha).'

Since the same suffix is involved, reciprocal/comitative ambiguity is not uncommon. However, since comitatives preserve the underlying argument structure of a predicate and its case-assigning possibilities, the ambiguity only pertains to syntactic reciprocals which also preserve original arity. (79) is a lexical reciprocal. Comitative reading would only be possible for (79) if the internal argument were allowed to remain unexpressed. This is, however, impossible since Sakha is not an object pro-drop language, hence (79) under comitative interpertation would necessarily violate arity. (80) shows that once the accusative object is expressed overtly, the sentence becomes felicitous. (81) with preserved arity/Case is, as expected, ambiguous between a syntactic reciprocal and a comitative.

(79) Misha Masha-lyyn annjyala-s-ta.
Misha Masha-comit push-s-past.3
'Misha pushed with Masha.' (lexical reciprocal)
*'Misha pushed someone together with Masha (helped Masha push someone).' (adjacent comitative)

(80) Misha Masha-lyyn Lusha-ny annjyala-s-ta. (adjacent comitative)
Misha Masha-comit Lusha-acc push-s-past.3
'Misha pushed Lusha together with Masha (helped Masha push Lusha).'

(81) Misha uonna Masha djie tut-us-tu-lar.
Misha and Masha house build-s-past-pl
'Misha and Masha built a house for each other.' (syntactic reciprocal)
'Misha and Masha helped someone else build a house/Misha and Masha built a house together with someone else.' (adjacent comitative)

The bottom line is there is a suffix which does one of the five things: 1) marks a lexical arity operation of reciprocal formation; 2) derives reciprocal verbs in the syntax by reciprocating the possessor of the internal or dative arguments back on the subject; distributes over the plural external argument of transitive verbs; 3) augments the external argument with a comitative argument (in the syntax); 4) distributes over the plural external argument of intransitive verbs (in the syntax); 5) derives adjectives from unergative verbs (in the syntax). Although it is clear that one and the same suffix is involved in all these cases, it is less clear whether a single solution unifying the five uses can be found. We will leave this issue without further exploration. What is important for our purposes is that two different modes of reciprocal formation – lexical and syntactic – can be clearly identified in Sakha each associated with their own cluster of properties. In particular, a lexical operation reduces a θ-role and Case, syntactic operation must preserve both.

6.8. Double accusative in causatives

Causatives were considered in detail in 5.3. In this section I would like to consider the appearance of different cases on the causee. To recall, when an unergative verb is causativized, the underlying agent can only be expressed as accusative (82). When a transitive verb is causativized, the causee has three options of realizations which correlate with the meanings of causation proper and permission – as dative, accusative and instrumental.

(82) Kesha Lusha-ny yta-t-ta.
Kesha Lusha-acc cry-caus-past.3
'Kesha made Lusha cry.'

(83) a. Aisen Sardaana-qa Lena-ny semele-t-te.
Aisen Sardaana-dat Lena-acc reprimand-caus-past.3
'Aisen made/let Sardaana reprimand Lena.'

b. Aisen Sardaana-ny Lena-ny semele-t-te.
Aisen Sardaana-acc Lena-acc reprimand-caus-past.3
'Aisen made/*let Sardaana reprimand Lena.'

c. Aisen Sardaana-nan Lena-ny semele-t-te.
Aisen Sardaana-instrum Lena-acc reprimand-caus-past.3
'Aisen made/*let Sardaana reprimand Lena.'

In chapter 5 I argued in accordance with TS that causativization has both a lexical and syntactic modes of application. Lexical causativization applies to /+c verbs, changes /+c to /-c and adds an agent role. Syntactic causativization applies to verbs with external arguments but is insensitive to the θ-feature composition of these arguments. Another difference is that it adds a Cause role, not Agent and that its causee is realized in the instrumental only. If lexical causative (83) is causativized once again deriving a syntactic causative, the only possible output is (84) where the underlying agent Aisen is marked instrumental and the underlying causee Sardaana – dative. Thus, (84) corresponds to (83a) and not (83b) or (83c). This points out that only the structure in (83a) with the dative causee can be subjected to syntactic causativization. Another thing to be noted is the disappearance of the permissive reading of (83a) under causativization in (84).

(84) Keskil Aisen-ynan Sardaana-qa Lena-ny semele-t-ter-de.
Keskil Aisen-instrum Sardaana-dat Lena-acc reprimand-caus-caus-past.3
'Keskil made Aisen make Sardaana reprimand Lena.'

Case marking in causatives raises a number of interesting questions some of which will be considered below.

6.8.1. The intransitive case pattern: Accusative only

Take a look at intransitives first: why do their causatives allow only accusative on the causee? The reason seems to lie in the way agentivization is carried out in the lexicon. Given an unergative verb like *xaam* 'walk'([+c+m]), *xaamtar* 'make walk' ([+c+m], [-c+m]) will be derived. Since the operation took place in the lexicon, *xaamtar* 'make walk' is a lexical entry and assigned, by lexicon marking conventions (1c), the ACC feature. The internal argument represents a fully specified cluster [-c+m] and therefore can check ACC.

6.8.2. The transitive case pattern: Upper accusative is not thematic

Consider next how a transitive verb is causativized, e.g. *suuj* 'wash' ($[+c+m]_1$, $[-c-m]_{2\text{-ACC}}$)[12]. After causativization we have a three-place verbal concept associated with the Agent [+c+m], Causee [-c+m] and Theme [-c-m]. Since the operation is lexical, this complex predicate will be listed as a lexical entry. The original accusative case feature of 'wash' is preserved and is still checked by a DP which

[12] For convenience we will mark the accusative feature of the verb directly on the argument which checks it.

gets assigned the [-c-m] role. The underlying agent is decausativized which apparently causes the loss of index 1 for now it is the introduced agent which is marked with index 1. What remains unclear is the source of accusative/dative/instrumental cases on the causee.

Suppose the source of accusative is verbal determined by the verb's thematic properties. This would mean that when lexicon marking applies to the newly formed entry 'make wash' ([+c+m], [-c+m], $[\text{-c-m}]_{2\text{-ACC}}$) not only it assigns index 1 to [+c+m] but that it also assigns accusative case feature. Indeed, the requirements of (1c) seem to be satisfied: there is both a [+] cluster and a fully specified [/α, /-c] cluster. However, if this were possible, one would fail to account for the appearance of instrumental and dative causees: once the ACC feature is marked on the verb, it will require checking and only accusative causees would be allowed. Dative or instrumental on the causee would imply accusative reduction – an assumption which does not seem plausible.

The untenability of doubly marking the verb with the ACC feature in the lexicon is also supported by the causativization of [+c] verbs. For instance, if *orgut* 'make boil' ($[\text{+c}]_1$, $[\text{-c-m}]_{2\text{-ACC}}$) is causativized, the result is *orguttar* 'make make boil' ($[\text{+c+m}]_1$, [-c], $[\text{-c-m}]_{2\text{-ACC}}$). If verbs were doubly marked with ACC, such double marking would be impossible in the case of *orguttar* and in general all verbs taking a [+c] external argument: the decausativized causee [-c] is not a fully specified cluster and therefore (1c) is inapplicable. The prediction is clearly false: causatives of [+c] transitives behave just like causatives of agentives and both allow their causees to be marked with accusative case.

(85) Keskil Aiseŋ-ŋa/Aisen-ynan/Aisen-y uu orgut-tar-da.
Keskil Aisen-dat/Aisen-instrum/Aisen-acc water boil-caus-past.3
'Keskil made Aisen boil water.'

Another piece of evidence that in (85) and similar examples we are not dealing with thematically determined accusative case comes from the contrast between causative intransitives and causative transitives with respect to passivization. As shown in (86), an unergative-based causative verb can be passivized, both lexically and syntactically. This supports the view advocated above that accusative case in (86a) is the result of a lexicon-marking procedure assigning ACC to *xaamtar* 'make walk' ([+c+m], [-c+m]). On the contrary, (87) – the passive counterpart of (85) with accusative Aisen is ungrammatical.

(86) a. Keskil at-y xaam-tar-da.
Keskil horse-acc walk-caus-past.3
'Keskil made the horse walk.'
b. At/At-y xaam-tar-ylyn-na.
Horse/horse-acc walk-caus-pass-past.3
'The horse was made to walk.'

(87) *Aisen/*Aisen-y uu orgut-tar-ylyn-na.
Aisen/Aisen-acc water boil-caus-pass-past.3
(intended: 'Aisen was made to boil water.')

6.8.3. Licensing the causee by functional heads: Appl and Acc

If the source of accusative on the causee in causative transitive structures is not thematic, it must be structural. In 6.5.2 we argued that the causative morpheme spells out a functional head required for licensing the causee, namely, Appl: the causee which is merged VP-internally moves to the specifier of Appl. An Appl analysis, however, can only be maintained for datives and instrumentals. Unlike accusative causees, they are not subject to word order restrictions. As shown in (88), if both the underlying agent and patient arguments are marked accusative, the ordering is strictly causee-patient: the first accusative noun phrase is interpreted invariably as causee.

(88) Misha Masha-ny Lusha-ny möx-tör-dö.
Misha Masha-acc Lusha-acc scold-caus-past.3
'Misha made Masha scold Lusha.'
*'Misha made Lusha scold Masha.'

Second, nothing can intervene between the two accusative DPs. Manner and time adverbs as well as various kinds of adverbial adjuncts (locatives, reason clauses, etc.) can be inserted between the second accusative argument and the verb but not between Masha and Lusha.

(89) Misha Masha-ny (*küüske/*beqehee) Lusha-ny (küüske/beqehee) möx-tör-dö.
Misha Masha-acc (*strongly/*yesterday) Lusha-acc scold-caus-past.3

Therefore the Appl analysis will be maintained for datives and instrumentals. As for accusative causees, the only possibility is to license them VP-externally in some kind of structural position. The existence of such position has been argued for by Moore 1998 (see 6.10). Moore leaves the precise nature of this position unresolved but it is suggested that we may be dealing either with one of non-thematic object positions which may arise by S-structure to accommodate Case requirements in Authier's (1991) sense or with Spec,AgrOP (Chomsky 1995). Although such a position may be warranted for subject-to-object raising (6.10), we will not assume it for it brings about a host of problems which we will not consider here for reasons of space. The solution adopted here will be discussed in 6.8.7.

6.8.4. Syntactic causatives and instrumental case

The next question is the appearance of instrumental case on the causee: are instrumental causees licensed by the same applicative head as dative ones? I will assume that the answer is no and that a causative verb which appears with an instrumental causee is not a lexical but a syntactic causative. Thus, instrumental-

causee causatives are structurally higher than dative-causee causatives.[13] This account explains why syntactic causatives allow only instrumental on the causee (84). It also implies that (83c) is a syntactic causative. As such, it must behave like syntactic causatives with respect to the tests mentioned in 5.3.4. As far as nominalization and passivization are concerned, this is indeed so as witnessed by the examples in (90). However, with respect to θ-feature sensitivity, VP-ellipsis and pronominal orientation instrumental causatives behave like lexical causatives. We will leave this issue for future research.

(90) a. Sardaana Erel-inen kinige-ni aax-tar-da.
Sardaana Erel-instrum book-acc read-caus-past.3
'Sardaana made Erel read the book.'
b. *Kinige Erel-inen aax-tar-ylyn-na.
Book Erel-instrum read-caus-pass-past.3
'The book was made to be read by Erel.'
c. *Erel-inen kinige-ni aax-tar-yy
Erel-instrum book-acc read-caus-nom
'making Erel read the book'

Treating instrumental causatives as syntactic also finds motivation in the Theta system where an Instrument role is specified as [+c+m] in the presence of another [+c+m] cluster assigned to the external argument. If Instruments have the same feature composition as Agents, they could not have been subjected to the decausativizing step of lexical expansion. This means that the operation involved is syntactic expansion which does not modify argument structure.

6.8.5. Merging the causee

Next, we would like to consider the question of merging the causee. In 6.5.2 we assumed that all three arguments of a lexical causative – $[+c+m]_1$, [-c+m] and $[-c-m]_2$ are merged VP-internally. Whereas this is uncontroversial for $[+c+m]_1$ and [-c-m] assigned to DPs merged, respectively, as specifier and complement of the verb, it is not clear how [-c+m] should fit into a structure so formed:

(91) $[_{VP}\ DP_{[+c+m]}\ [_{V'}\ V\ DP_{[-c-m]}\ ]]$

One possibility is to assume multiple specifiers whenever a verb has multiple θ-roles making θ-role assignment look like feature checking as in Ura's (1994, 1996) claim that multiple specifiers are possible if a head has multiple sets of formal features.

Another possibility that we will adopt here is to merge the DP realizing the causee argument not VP-internally but directly in the specifier of an applicative head. Thus, only those arguments which have specific merging instructions (indices) will merge inside the VP. The [-c+m] role lacking a merging index will be kept on the verb until the latter raises and adjoins to Appl. At this point it may be discharged

[13] Cf. Marantz 1993 on the different behaviour of applied arguments with different thematic roles: e.g. applied instrumental NPs may be either high or low.

to the noun phrase in Spec,ApplP. This account should not pose a problem for a thematic approach to argument structure because it is still the verb which assigns a θ-role specified in its θ-grid.

6.8.6. Causation proper and permission

What is the correlation between case marking and permissive/proper causative readings of causative verbs? It has been proposed that the distinction between causation proper and permission should be captured structurally. This is the approach assumed by Harley 1995 for Japanese causatives. In Japanese, when an intransitive verb is causativized, its causee can be either dative resulting in a let-causative or accusative resulting in a make-causative. When a transitive verb is causativized, the causee can only be dative and the resulting causative verb is ambiguous between let- and make-interpretations. Harley adopts a syntactic approach to causativization as representing a bi-clausal structure. The difference between let- and make-causatives lies in the status of the causee – the embedded subject. In make-causatives it has status of an object of the matrix clause and therefore receives accusative, in let-causatives it has no matrix object status.

In Sakha, apart from dative and accusative alternation, also instrumental case is involved. As shown in (83) it patterns like accusative in not allowing permission. The reason, however, does not seem to be structural. I will assume that the impossibility of permissive readings with instrumental causees follows from construing the DP as instrument. Instruments cannot have permissive readings in general: a person who hits a nail with a hammer does not give permission to the hammer for hitting. This also explains why syntactic causatives do not allow permissive readings (84).

This leaves us with dative which allows both causation proper and permission and accusative which allows only causation. Since the make-reading is available in all cases of causativization, it must be the default one entailed by the lexicon-internal addition of an Agent argument. As for the let-reading, one can either assume that it is not structural but rather circumstantial conditioned by pragmatic factors. Or one can assume that a dative causee in the let-causative and a dative causee in the make-causative are located in different positions – the former higher than the latter. Let's first explore the second possibility. Partial structures for the make- and let-readings of (92) are given in (93) and (94). The ordering between the two applicative heads is …I…Appl_{let}…$\text{Appl}_{\text{make}}$.

(92) Misha Masha-qa xoh-u xomuj-tar-da.
Misha Masha-dat room-acc clean.up-caus-past.3
'Misha made/let Masha clean up the room.'

(93) Structure for the make-reading:
$[_{\text{IP}}$ DP-$1_{[+c+m]}$ $[_{\text{I'}}$ I $[_{\text{ApplP}}$ $\text{DP}_{[-c+m]}$ $[_{\text{Appl'}}$ V+$\text{Appl}_{\text{make}}$ $[_{\text{VP}}$ $t_{\text{DP-1}}$ $[_{\text{V'}}$ t_{V} DP-$2_{[-c-m]}$]]]]]]
Misha Masha-dat clean.up-caus room-acc

(94) Structure for the let-reading:
$[_{IP}$ DP-$1_{[+c+m]}$ $[_{I'}$ I $[_{ApplP}$ $DP_{[-c+m]}$ $[_{Appl'}$ V+$Appl_{let}$ $[_{VP}$ t_{DP-1} $[_{V'}$ t_V DP-$2_{[-c-m]}$]]]]]]
Misha Masha-dat clean.up-caus room-acc

The difference between (93) and (94) can derive the facts about causativization. Recall that a syntactic causative in (84) above is derived from (83a): whereas both readings are present in (83a), the permissive reading is lost in (84). The loss of the permissive reading can now be accounted for by assuming that syntactic causativization applies at the level of $Appl_{make}P$ and not higher.

Such account based on the dubious $Appl_{make}$/$Appl_{let}$-distinction seems to be purely descriptive. Instead, we will argue that a permissive reading can in general be assigned to a causative verb unless ruled out independent factors. The first factor is pragmatic plausibility. The second one has to do with the inability of instruments to be interpreted permissively. The third one is structural: a permissive reading can only be assigned to a causee which is licensed VP-externally, i.e. to a dative. The next section provides an account of accusative causees as VP-internal objects from which it follows that a permissive reading must be ruled out with them.

6.8.7. Double accusative as double object

Above we have maintained that after a transitive verb is causativized, the resulting entry is specified as ($[+c+m]_1$, [-c+m], $[-c-m]_{2\text{-}ACC}$). The causative morpheme –t or –TAr is not present in the numeration: it only comes into play at PF when it is inserted in the structure spelling out Appl. Thus, what the numeration for (92) includes is (among other things) the verb *xomuj* 'make clean up' specified as above, Appl and three DPs. The [-c-m] role is assigned to the internal argument, [+c+m] to the external one. Appl is merged on top of VP with subsequent raising of V to Appl. Once in Appl, the verb discharges the unassigned θ-role to the DP which is merged in Spec,ApplP. The V+Appl complex is spelled out as *xomuj-tar*.

(95) … I … $[_{ApplP}$ $DP_{[-c+m]}$ $[_{Appl'}$ V+Appl $[_{VP}$ t_{DP-1} $[_{V'}$ t_V DP-$2_{[-c-m]}$]]]]

Consider now a different possibility. Suppose the numeration includes *xomuj* 'make clean up', three DPs and the causative morpheme itself, i.e. –TAr instead of Appl. Above, the reason for including Appl in the numeration for (92) was linked to the fact that a lexically causativized verb 'make clean up' ($[+c+m]_1$, [-c+m], $[-c-m]_{2\text{-}ACC}$) would otherwise have no possibility to assign a [-c+m] theta role. In addition, Appl was also responsible for the syntactic licensing of the causee assigning dative case.

The actual morpheme –TAr may have the same function as the functional head Appl. Let's adopt this view and see how it derives (96). As shown in (97), the internal and external arguments merge in the usual manner inside the VP. The suffix takes VP as complement resulting in a V-shell-like structure and licenses the causee in its specifier assigning accusative case. The verb raises to –TAr and discharges its [-c+m] onto the DP in Spec,TAR. Raising of the verb creates equidistance between Spec,IP, on the one hand, and Spec,TAR and Spec,VP, on the other. This allows the

agent DP to raise out of VP to Spec,IP. The two accusative DPs left behind are frozen in situ: the DP in Spec,TAR is already licensed and there is no need for it to move so it does not move whereas the DP in the complement position of V cannot move over the first accusative DP. This explains why the two DPs must always be adjacent and nothing can intervene between them.

(96) Misha Masha-ny xoh-u xomuj-tar-da.
Misha Masha-acc room-acc clean.up-caus-past.3
'Misha made/*let Masha clean up the room.'

(97) … I … [$_{VP\text{-}2}$ DP$_{[-c+m]}$ [$_{V'\text{-}2}$ V-TAR [$_{VP\text{-}1}$ DP-1$_{[+c+m]}$ [$_{V'\text{-}1}$ t_v DP-2$_{[-c-m]}$]]]

Thus, when a lexically causativized verb 'make V' is chosen, the numeration must also include some means for enabling the verb to discharge its θ-role. This can be a functional head Appl or lexical morphology, namely, the causative suffix.

6.9. Double accusative and the part-whole relationship

One more double accusative context has been introduced in 3.1.2.3. It involves an inalienable possessive DP in the object position marked with accusative case (98a). Case marking is reflected on the head of the DP – the possessed noun. However, the possessor can also be marked accusative as (98b) indicates. (99a) shows that what is involved is not inalienability per se but rather the part-whole relationship as can also be witnessed from (99b) and (99c).

(98) a. Min Keskil ataq-yn tep-ti-m.
I Keskil leg-3.acc kick-past-1sg
'I kicked Keskil's leg.'
b. Min Keskil-i ataq-yn tep-ti-m.
I Keskil-acc leg-3.acc kick-past-1sg
'I kicked Keskil on the leg.'

(99) a. Min Keskil/*Keskil-i ubaj-yn tep-ti-m.
I Keskil/Keskil-acc brother-3.acc kick-past-1sg
b. Min Keskil/*Keskil-i oloppoh-un tep-ti-m.
I Keskil/Keskil-acc chair-3.acc kick-past-1sg
c. Min aan/aan-y tutaaq-yn tep-ti-m.
I door/door-acc handle-3.acc kick-past-1sg

The following semantic difference can be detected between (98a) and (98b). (98a), in addition to the inalienable reading, can also be interpreted alienably such that I kicked some plaster cast made in the form of a leg or part of a sculpture that has been broken off. In (98b) any possibility of alienable construal between Keskil and leg is precluded. The same applies to (99c). However, even if both nominative (98a) and accusative (98b) were interpreted inalienably, one more difference remains. In a situation when Keskil is hiding behind a curtain but his leg is sticking out and I know that it is his leg and I kick it, only (98a) can be used. In order for (98b) to be

used, Keskil must be visible. Thus, in accusative possessor constructions like (98b) the existence of an individual denoted by the possessor DP is asserted and emphasized.

One account of possessor raising has been offered in Landau 1999 who is concerned with the possessive dative construction in Hebrew and Romance. Landau argues that the possessor raises to Spec,VP and therefore the construction is available with verbs whose Spec,VP is unfilled, i.e. with agentives which license their external argument in Spec,vP. A similar account for Sakha accusative possessors such that the inalienable whole-denoting possessor would raise to some position inside VP cannot be maintained under current terms: given the lack of little v (Horvath and Siloni 2003), the external argument will be merged VP-internally leaving no empty position inside the VP.

I would like to put forth the following analysis of the construction. To recall, in 3.1 I proposed an analysis of possessive constructions in Sakha and of inalienability in particular (3.1.2.3). It was argued that inalienability of (98) and (99c) was licensed by raising the possessor to Spec,DP. Thus, in (98a) (under the inalienable reading) and (98b) and in both nominative and accusative (99c) the possessor finds itself in Spec,DP. Whereas in (98a) it stays there, in (98b) it raises further to Spec,KP. How does KP come into play? As argued in chapter 3, thematic case can only be checked by NPs. The possessive objects in (98) are necessarily DPs because the possessor generated in Spec,PossP must move to Spec,DP to license the inalienable reading on the noun as partially represented in (100). In order to enable thematic case assignment, a structural case checker is required and KP is projected.

(100) $[_{KP}\ [_{K'}$ K-[acc] $[_{DP}$ Keskil $[_{D'}$ D $[_{PossP}\ t_i\ [_{Poss'}$ Poss $[_{NP}$ atax]]]]]]

How does moving the possessor from Spec,DP to Spec,KP trigger the difference between (98a) and (98b)? First, case marking can be explained assuming that the DP in Spec,KP will be marked for the same case as the head. Second, moving the possessor DP out of possessive DP ensures that the possessor will get its own reference. The same point was made in 3.1.2.5 where it was suggested that discourse referents can onnly be established for independent DPs and DPs embedded inside other DPs are dependent. This seems to explain why (98b) differs from (98a) precisely in this respect: only the former asserts and stresses the existence of an individual denoted by the possessor DP. The analysis also explains why the two accusative noun phrases must be adjacent and no DP-external material may intervene.

The ungrammaticality of (99b) follows from the nature of the possessive DP involved: since the relationship is alienable, the possessor does not move to Spec,DP and therefore cannot raise to Spec,KP. In (99a) the relationship is inalienable and the possessor has raised to Spec,DP. Yet raising it one step further is impossible. The reason seems to lie in the fact that when you kick somebody's leg, you also kick the actual person but when you kick somebody's brother, you only kick the brother. If this is correct, then (99a) is ruled out for thematic reasons: in order to be able to raise to Spec,KP the possessor must be capable of sharing the same θ-role as the possessee. Under thematic approach to Case this should follow.

When a DP checks thematic Case, it also receives a θ-role. As mentioned above, the possessor in Spec,KP shares Case with the head of KP so it is expected that it will also share a θ-role associated with this Case. The only type of possessor-possessee relationship which can tolerate such sharing seems to be the part-whole relationship.[14]

6.10. Accusative subjects in Sakha

Subjects of both finite (101) and non-finite (102) clausal complements can be marked either nominative or accusative. The two types of embedded sentences will be referred to as dien-clauses and KP-clauses, respectively.

(101) Min ehigi/ehigi-ni bügün kyaj-yax-xyt dien erem-mit-im.
I you/you-acc today win-fut-2pl COMP hope-past-1sg
'I hoped you would win today.'

(102) Min ehigi/ehigi-ni bügün kyaj-byk-kyt-yn ihit-ti-m.
I you/you-acc today win-past-2pl-acc hear-past-1sg
'I heard that you won today.'

In KP-clauses the embedded predicate must agree with its subject (both nominative and accusative) in person and number. In dien-clauses there are two patterns of agreement. First, as in (101), the embedded predicate shows full agreement. Second, agreement may be deficient as in (103): only in number expressed as ∅ for singular and –LAr for plural plus the default unspecified person marker –A (glossed as '3'). If agreement is deficient, the embedded subject must be accusative.

(103) Min ehigi-ni/*ehigi bügün kyaj-yax-tar-a dien erem-mit-im.
I you-acc/*you today win-fut-pl-3 COMP hope-past-1sg
'I hoped you would win today.'

6.10.1. Extending Moore's (1998) analysis: Copy raising into the matrix clause

A phenomenon similar to Sakha dien-clauses has been investigated in related Turkish by Moore 1998 who argues that agreeing sentential complements are CPs (105) and non-agreeing ones are IPs (104). In taking Agr as the determining element for finiteness in Turkish he follows George and Kornfilt 1981. In both (104) and (105) the embedded subject raises to the matrix clause object position and a chain is formed: in (104) the chain terminates in an empty category, the trace of the embedded subject whereas in (105) the tail of the chain is a silent pronominal. Whether languages/dialects allow A-chains ending in a silent pronominal is, according to Moore, parameterized: for those speakers who allow (105) the parameter has a positive setting.

[14] One fact about double accusative possessive constructions has been left out of consideration, namely, that only verbs of bodily contact, e.g. grooming verbs, touching verbs, etc. can participate in this construction.

(104) Sen_i-i [$_{IP}$ t_i öl-dü] san-iyor-du-m.
You-acc die-past believe-prog-past-1sg
'I believed you to have died.'

(105) Sen_i-i [$_{CP}$ pro_i öl-dü-n] san-iyor-du-m.
You-acc die-past-2sg believe-prog-past-1sg
'I believed you to have died.'

Moore's analysis translated into Sakha would assume that (101) involves an embedded CP whereas (103) – an embedded IP. This assumption is not justified for Sakha because presence/lack of agreement does not lead to presence/lack of finiteness. Moreover, in non-finite KP-clauses agreement is obligatory. Rather, as argued in chapter 4, I will assume that dien-clauses are CPs whereas KP-clauses are IPs with the KP-layer on top enabling them to receive case. Deficiency of agreement in (103) is best understood as IP-splitting into Person and Number along the lines proposed in Taraldsen 1995 who splits AgrS into AgrP for person and AgrN for number (also cf. Taraldsen 1994 and Sigurðsson 1996 who take AgrS as hosting person features and AgrO as hosting number features). Split IP is only possible with the third person because only in the third person is the spellout of person and number independent of each other, through separate morphemes which is not the case in other person/number combinations. Another possible reason why split IP is only possible with third person subjects may be rooted in Taraldsen's (1994:18n.) suggestion that a specified person feature requires the support of a specified number feature. This suggestion explains the facts in Sakha where [3] is the least specified person (recall section 4.1.3, footnote 6). On the contrary, [1] and [2] are specified person features and therefore do not allow Infl to be split into I_{person} and I_{number}: both person and number must be represented in an integrated manner.

Split IP is only possible in dien-clauses. As mentioned in 4.2.4, the complementizer *dien* is irrealis and dien-clauses appear embedded as complements of such matrix verbs as 'hope', 'fear', 'think' and the like. I will assume that split IP is only possible if licensed by irrealis *dien*, for reasons that yet remain to be spelled out in exact terms. This also explains why agreement cannot be deficient in the absence of *dien*, i.e. in KP-clausal complements.

With single (non-split) IP the subject is optionally nominative or accusative (101). The same applies to KP-clauses which do not allow split IP due to the lack of irrealis *dien* (102). When IP is split and agreement is deficient, the subject must be accusative (103). In order to explain these facts, I would like to extend Moore's analysis of the analogous cases in Turkish to Sakha. The embedded subject is thematically interpreted in the lower clause. It can also be licensed structurally as nominative in the embedded clause provided agreement is not deficient. In case of deficient agreement, split IP cannot license the embedded subject which must raise into the matrix clause where it is assigned accusative. Subject-to-object raising is also available with full agreement (101) but only optionally. That the subject indeed raises into the higher clause is shown by word order, in particular, adverb placement. In (106), an agreeing dien-clause, the accusative subject precedes the adverbial modifier *beqehee* 'yesterday' of the matrix predicate *ihitte* 'heard'. Crucially, the

occurrence of accusative *Aiseny* between the embedded clause adverb *bügün* 'today' and the embedded predicate is ungrammatical. The same word order facts obtain for non-agreeing dien-clauses and for KP-clauses.

(106) Sardaana {Aisen-y} beqehee [$_{CP}$ bügün {*Aisen-y} kel-er dien] ihit-te.
Sardaana {Aisen-acc} yesterday [$_{CP}$ today {*Aisen-acc} come-aor COMP] hear-past.3
'Sardaana heard yesterday that Aisen is coming today.'

The reverse order is demonstrated by the nominative subject in (107). From these facts we can conclude that the accusative subject which must precede the matrix adverb and cannot follow the embedded clause adverb has raised into the matrix clause whereas the nominative subject is located in the embedded Spec,IP.

(107) Sardaana {*Aisen} beqehee [$_{CP}$ bügün {Aisen} kel-er dien] ihit-te.
Sardaana {*Aisen} yesterday [$_{CP}$ today {Aisen} come-aor COMP] hear-past.3
'Sardaana heard yesterday that Aisen is coming today.'

Moore argues that the subject which raises out of CP leaves a pronominal copy trace. Two pieces of evidence can be cited to support the presence of a pro-trace in Sakha as well. First, a nominative pronoun can be inserted in the embedded clause resuming the trace of the raised subject as in (108).

(108) Sardaana Aisen-y [$_{CP}$ kini bügün kel-er dien] ihit-te.
Sardaana Aisen-acc [$_{CP}$ he today come-aor COMP] hear-past.3
'Sardaana heard that Aisen is coming today.'

A second argument for pronominal traces comes from possessor extraction considered in chapter 3. When the possessor is extracted, it loses all irrelevant meanings other than that of a genuine possessor. However, when it is extracted into the matrix clause from inside the possessive DP embedded subject, it preserves all of them. This supports the copy-raising analysis à la Moore: if the possessor leaves a pronominal copy, it is this pro in the context of the head noun which will be interpreted, and not the raised possessor the interpretation of which can no longer be influenced by the possessum.

(109) Min ejiigin [$_{CP}$ {pro/en} kinige-ŋ bob-ullu-but dien] ihit-ti-m.
I you.acc [$_{CP}$ {pro/you} book-2sg forbid-pass-past COMP] hear-past-1sg
'I heard that your book was forbidden.'
(you: possessor/author; possessor/*author; author/*possessor)

Facts concerning NPI licensing also support the view that accusative embedded subjects are licensed in a position within the matrix clause. In (110) and (111) the NPI *kim daqany* 'nobody' must be licensed by the negative inflection on the verb. As the examples show, the nominative NPI must be licensed by the matrix subject whereas the accusative NPI must be licensed by the matrix verb.

(110) a. Min kim daqany kyaj-ba-ta dien ihit-ti-m.
I who particle win-neg-past.3 hear-past-1sg
'I heard that nobody won.'
b. *Min kim daqany kyaj-da dien isti-be-ti-m.
I who particle win-past.3 hear-past-neg-1sg
'I heard that nobody won.'

(111) a. Min kim-i daqany kyaj-da dien isti-be-ti-m.
I who-acc particle win-past.3 hear-past-neg-1sg
'I heard that nobody won.'
b. *Min kim-i daqany kyaj-ba-ta dien ihit-ti-m.
I who-acc particle win-neg-past.3 hear-past-1sg
'I heard that nobody won.'

The above tests with respect to adverb placement, pronominal resumption, possessor extraction and NPI licensing can be reiterated for KP-clauses with the same results. Therefore it is safe to conclude that accusative subjects of KP-clauses have raised into the matrix clause leaving a pronominal copy behind.

6.10.2. Interpretive differences between nominative and accusative subjects

In describing the difference between nominative (112a) and accusative (112b-c) the notion of speaker's viewpoint becomes useful as it is implicated only in sentences where the embedded subject is marked accusative. If the matrix subject is first person, the speaker's viewpoint coincides with the subject's viewpoint. In (112) this is not the case, therefore the point of view involved in (112b) and (112c) is not that of the matrix subject *kini* 'he' but of an external entity not expressed overtly.

(112) a. Kini ehigi kyajtar-dy-gyt dien isti-bit.
He you become.defeated-past-2pl COMP hear-past
b. Kini ehigi-ni kyajtar-dy-gyt dien isti-bit.
He you-acc become.defeated-past-2pl COMP hear-past
c. Kini ehigi-ni kyajtar-dy-lar dien isti-bit.
He you-acc become.defeated-past-pl COMP hear-past
'He heard that you lost.'

As for the difference between agreeing (112b) and non-agreeing (112c), it has to do with empathy. Where there is full agreement between the embedded accusative subject and the embedded predicate, there is empathy on the part of the speaker towards the embedded subject. Where agreement is deficient (only in number) using the default, least specified third person marker (inserted or not inserted depending on allomorphy), empathy is lacking and the speaker is indifferent towards the embedded subject. Thus, absence of empathy correlates with treating the embedded subject as lacking full person specifications.

6.10.3. The landing site of the embedded subject

As mentioned above, Moore argues for the existence of a non-thematic position within the matrix clause where the raised embedded subject receives accusative case. The precise nature of this position is left unresolved but it is suggested that we may be dealing either with one of non-thematic object positions which may arise by S-structure to accommodate Case requirements in Authier's (1991) sense or with Spec,AgrOP (Chomsky 1995). That this matrix position has to do with licensing case on the embedded subject explains why the matrix predicate cannot be an adjective or a noun: these lexical categories, being non-relational, cannot be Case assigners. The same restriction has been noted by Ross (1972:320-322), namely, that in English raising to the object position is only available with verbs and not with nouns and adjectives.

(113) a. Kini taŋara/taŋara-ny baar dien iteqej-er.
He god/god-acc exist.copula DIEN believe-aor
'He believes God exists.'

b. Kini taŋara/*taŋara-ny baar dien iteqel-e küühür-de.
He god/god-acc exist.copula DIEN belief strengthen-past.3
'His belief that God exists strengthened.'

In order to better understand the nature of this accusative matrix object position types of predicates which allow this construction must be investigated.

6.10.4. Types of predicates

DIEN-clauses can be either argumental or adverbial. In both cases the embedded subject can raise into the matrix clause (provided other conditions are met) and receive accusative marking. KP-clauses can also be either argumental or adverbial but subject-to-object raising is only applicable to clausal KP-arguments whose predicate (always in the sentence-final position) is marked with accusative case as in (102). KP-clauses used as adverbial adjuncts are always marked with cases other than accusative and their embedded subject never raises and is invariably marked nominative.

6.10.4.1. Clausal arguments

Argumental DIEN-clauses are licensed with [+c] verbs taking, in addition, experiencer and T/SM arguments: a DIEN-clause is licensed as the bearer of the T/SM role as in (114a). The experiencer (Keskil) is assigned accusative case. The embedded subject can only be nominative, i.e. it cannot raise. However, when these verbs undergo [+c] reduction, the reduced entry allows accusative marking on the embedded subject (114b).[15]

[15] One question of interest which will not be considered here is an apparent violation of the T/SM restriction in (114). According to Reinhart 2001b, verbs like *xomot* 'make sad', *dolgut* 'worry', *kuttaa*

(114) a. Sargy Keskil-i [Aisen/*Aisen-y kel-be-t dien] xomot-to.[16]
Sargy K.-acc [Aisen/*Aisen-acc come-neg-aor DIEN] make.sad-past.3
'Sargy made Keskil sad (by telling him) that Aisen is not coming.'

b. Keskil [Aisen/Aisen-y kel-be-t dien] xomoj-do.
Keskil [Aisen/Aisen-acc come-neg-aor DIEN] become.sad-past.3
'Keskil became sad that Aisen is not coming.'

An argumental DIEN-CP is also possible with verbs whose external argument is specified as [+m] such as *bil* 'know', *ihit* 'hear', *kör* 'see', *söbülee* 'like', *küüt* 'wait', *söx* 'admire', *taptaa* 'love', *abaahy kör* 'hate, dislike', *iteqej* 'believe', *astyn* 'enjoy', *eren* 'rely upon; hope'. These are two-place verbs whose internal [-c-m]

'frighten', etc. are specified as $[+c]_1$, $[-c+m]$, $[-m]_2$. All three roles cannot be realized simultaneously for this would violate the cluster distinctness principle in (1). This explains the ungrammaticality of (2a). After reduction has applied, the derived entry ($[-c+m]$, $[-m]_2$) will realize as in (2b) with $[-c+m]$ merging externally and $[-m]$ merging internally.

(1) Cluster distinctness (Reinhart 2001b):
a) Two indistinct θ-clusters cannot be both realized on the same predicate.
b) Distinctness: Two feature-clusters α, β, are distinct iff a. they share at least one feature, and b. there is at least one feature or value which they do not share.

(2) a. *Sargy Keskil-i [Aisen kel-be-t dien] sonun-tan xomot-to.
S. Keskil-acc [Aisen come-neg-aor DIEN] news-abl make.sad-past.3
'Sargy made Keskil sad by (telling him) the news that Aisen is not coming.'
b. Keskil [Aisen/Aisen-y kel-be-t dien] sonun-tan xomoj-do.
Keskil [Aisen/Aisen-acc come-neg-aor DIEN] become.sad-past.3
'Keskil became sad that Aisen is not coming.'

However, apart from (2a), the basic ($[+c]_1$, $[-c+m]$, $[-m]_2$) entry allows another derivation based on movement. This is possible when [+c] is not reduced but simply unrealized: that no reduction took place can be seen from the fact that the basic causative verb *xomot* 'make sad' is used and not reduced unaccusative *xomoj* 'become sad'. Since accusative case has not been eliminated, it must be checked which can only be done by [-c+m], the only fully specified cluster (see (1c) above). Therefore [-c+m] cannot merge externally and must merge internally (see (3) above). EPP can be checked by [-m] argument raising to Spec,IP. Since [+c] has not been reduced, it also must be checked which can be done by [-m]: being not specified for /c, [-m] can assume the value [+c-m] thereby checking [+c].

(3) [Aisen kel-be-t dien] sonun Keskil-i xomot-to.
[Aisen come-neg-aor DIEN] news Keskil-acc make.sad-past.3
'The news that Aisen is not coming made Keskil sad.'

In light of these alternations, it is interesting that (114a) where a DIEN-clause realizes the [-m] role is grammatical unlike (1a) where the same role is realized by a noun phrase. However, it may be the case that a clause has a different feature specification which may be responsible for its inability to become a sentential subject. We will leave this issue without further consideration.

(4) *[Aisen kel-be-t dien] Keskil-i xomot-to.
[Aisen come-neg-aor DIEN] Keskil-acc make.sad-past.3
'The Aisen is not coming made Keskil sad.'

[16] For convenience of exposition we have enclosed the accusative embedded subject inside the square brackets which indicate CP-boundaries. Strictly speaking, only the nominative subject can be taken inside the brackets because it is CP-internal. The accusative subject, by hypothesis, has raised out of embedded CP into the matrix clause and must occur outside the CP-brackets.

argument can be realized, in addition to a DIEN-CP, by a noun phrase or a KP-clause. As (115a-b) illustrate, they allow subject-to-object raising out of their clausal complements:

(115) a. CP-IP-complement: 'Keskil knows that Aisen is not coming.'
Keskil [$_{CP}$ Aisen/Aisen-y kel-be-t dien] bil-er.
Keskil [Aisen/Aisen-acc come-neg-aor DIEN] know-aor
b. KP-IP-complement: 'Keskil knows that Aisen is not coming.'
Keskil [$_{KP}$ Aisen/Aisen-y kel-be-t-in] bil-er.
Keskil [Aisen/Aisen-acc come-neg-aor-3.acc] know-aor
c. KP-DP-complement: 'Keskil knows Aisen.'
Keskil Aisen-y bil-er.
Keskil Aisen-acc know-aor

One verb which displays two alternating case patterns is three-place *erenner* 'promise'. Two of its arguments are [+c+m] Agent and [-m] Subject Matter realized by a CP/KP-clause. A third argument is realized by a noun phrase which can be either accusative or dative: *Keskil* in the examples below. Since only a fully specified cluster can check accusative case, Keskil in (116a) and (117a) must realize such a cluster: the type of role that seems most suited in these cases is [-c-m]. On the contrary, the dative noun phrase must correspond to a unary cluster. Indeed, the interpretation which fits Keskil best in (116b) and (117b) is that of a goal or benefactor corresponding to [-c] in the Theta system.

(116) a. Sargy Keskil-i [$_{CP}$ Aisen/*Aisen-y kel-ie dien] erenner-de.
S. K.-acc [$_{CP}$ Aisen/*Aisen-acc come-fut DIEN] promise-past.3
'Sargy promised to Keskil that Aisen will come.'
b. Sargy Keskil-ge [$_{CP}$ Aisen/Aisen-y kel-ie dien] erenner-de.
S. K.-dat [$_{CP}$ Aisen/A.-acc come-fut DIEN] promise-past.3
'Sargy promised to Keskil that Aisen will come.'

(117) a. Sargy Keskil-i [$_{KP}$ Aisen/*Aisen-y kel-er-in] erenner-de.
S. K.-acc [$_{KP}$ Aisen/*A.-acc come-aor-3.acc] promise-past.3
'Sargy promised to Keskil that Aisen will come.'
b. Sargy Keskil-ge [$_{KP}$ Aisen/Aisen-y kel-er-in] erenner-de.
Sargy K.-dat [$_{KP}$ Aisen/A.-acc come-aor-3.acc] promise-past.3
'Sargy promised to Keskil that Aisen will come.'

6.10.4.2. Clausal adjuncts

Clausal DIEN-adjuncts are used as adverbials expressing reason. In all of the cases considered below the embedded subject can either stay in its own clause or undergo subject-to-object raising receiving accusative case. (118) shows a reason adverbial CP with a two-place agentive verb.

(118) Masha [Misha/Misha-ny kel-ie dien] djie-ni xomuj-da.
Masha [Misha/Misha-acc come-fut DIEN] house-acc tidy-past.3
'Masha tidied up the house (thinking) that Misha would come.'

Three-place verbs as well as two-place verbs with added benefactive arguments also allow reason CPs.

(119) Masha Kesha-qa [Misha/Misha-ny aaq-ya dien] kinige-ni bier-de.
Masha Kesha-dat [Misha/Misha-acc read-fut DIEN] book-acc give-past.3
'Masha gave Kesha the book so that Misha would read it.'

Basic causative verbs and their unaccusative alternates can also appear with reason DIEN-clauses as (120a-b) illustrate. (120c) shows an unergative verb.

(120) a. Kesha Masha-ny [Misha/Misha-ny yaldj-ya dien] tönnör-dö.
K. M.-acc [Misha/M.-acc fall.sick-fut DIEN] make.return-past.3
'Kesha made Masha return (for fear) that Misha would fall sick.'
b. Masha [Misha/Misha-ny yaldj-ya dien] tönün-ne.
Masha [Misha/Misha-acc fall.sick-fut DIEN] return-past.3
'Masha returned (for fear) that Misha would fall sick.'
c. Masha [Misha/Misha-ny kör-üö dien] türgennik xaam-ta.
Masha [Misha/Misha-acc see-fut DIEN] quickly walk-past.3
'Masha walked fast so that Misha wouldn't see.'

6.10.5. Summary: Discourse accusative versus thematic accusative

As mentioned in 6.10.2, whether the embedded subject undergoes subject-to-object raising and whether it agrees with the embedded predicate in both person/number or only number correlates with two discourse-analytic notions, namely, speaker's point of view and empathy. This is summarized in (121)-(123) below. The subject may (as with *min* 'I') or may not (as with *Masha*) coincide with the speaker. If it is not coextensive with the speaker, what is involved is a point of view of a discourse entity external to the sentence itself. All three sentences are translated into English identically ("I/Masha returned (for fear) that you would fall sick") because of the difficulty of giving a straightforward rendition for the differences in viewpoint and empathy.

(121) No raising: discourse neutral
Min [$_{CP}$ en yaldj-ya-ŋ dien] tönün-nü-m.
I [$_{CP}$ you fall.sick-fut-2sg DIEN] return-past-1sg
Masha [$_{CP}$ en yaldj-ya-ŋ dien] tönün-ne.
Masha [$_{CP}$ you fall.sick-fut-2sg DIEN] return-past.3
'I/Masha returned (for fear) that you would fall sick.'

(122) Raising under full agreement: [+speaker's point of view], [+empathy]
Min ejiigin$_i$ [$_{CP}$ t$_i$ yaldj-ya-ŋ dien] tönün-nü-m.
I you.acc [$_{CP}$ t$_{you}$ fall.sick-fut-2sg DIEN] return-past-1sg
Masha ejiigin$_i$ [$_{CP}$ t$_i$ yaldj-ya-ŋ dien] tönün-ne.
Masha you.acc [$_{CP}$ t$_{you}$ fall.sick-fut-2sg DIEN] return-past.3

(123) Raising under deficient agreement: [+speaker's point of view], [-empathy]
Min ejiigin$_i$ [$_{CP}$ t$_i$ yaldj-ya dien] tönün-nü-m.
I you.acc [$_{CP}$ t$_{you}$ fall.sick-fut DIEN] return-past-1sg
Masha ejiigin$_i$ [$_{CP}$ t$_i$ yaldj-ya dien] tönün-ne.
Masha you.acc [$_{CP}$ t$_{you}$ fall.sick-fut DIEN] return-past.3

In 6.10.1 it was argued that the embedded subject in (122) and (123) raises into the matrix clause. Thus, discourse considerations determine whether an extra, non-thematic accusative position will be projected in the matrix clause or not. As shown in the previous two subsections, projecting this 'discourse' accusative interacts with the properties of the matrix verb (viz. its accusative case-assigning features) only if the DIEN-clause is an argument. If it is an adverbial adjunct of reason/cause, there are no restrictions on the type of predicate which allows raising.

Consider (114) where the experiencer argument Keskil checks accusative case: this prevents the projection of a matrix object position to which the embedded subject Aisen could raise and where it could receive discourse accusative. However, when [+c]-reduction takes place accompanied by accusative case reduction, discourse accusative can be licensed.

A similar situation arises with *erenner* 'promise' whose DP-internal argument can realize either a unary cluster [-c] (goal/benefactor) or [-c-m] (theme/patient). In the latter case we have the entry ([+c+m]$_1$, [-c-m]$_{2\text{-ACC}}$, CP$_{[-m]\text{-}2}$) and discourse accusative is prevented by the presence of the [-c-m] argument checking the verb's accusative feature (examples (116a) and (117a)). In the first case we have the entry ([+c+m]$_1$, [-c]$_2$, CP$_{[-m]\text{-}2}$) with no thematic accusative to be checked, hence a matrix object position for discourse accusative can be licensed (examples (116b) and (117b)).

Finally, consider ([+m]$_1$, [-c-m]$_{2\text{-ACC}}$) verbs like *bil* 'know', *taptaa* 'love', etc. These verbs have thematic accusative which can be checked by a noun phrase (115c) or a KP sentential complement (115b). A question that arises is how thematic accusative is checked when a CP realizes the [-c-m] cluster as in (115a). One option is to say that thematic accusative is checked by the embedded subject when it raises into the matrix clause. This option, however, must be dispensed with immediately because raising is optional and depends on discourse characteristics of the whole sentence: dependence on Case and thematic properties of the matrix predicate is only indirect, insofar as these do not preclude discourse accusative.

Rather, an option worth pursuing is to follow Eric Reuland's (p.c.) suggestion that thematic accusative is weak which makes it possible that structural nominative can be superimposed on it (with thematic accusative remaining unchecked). Similarly, in the case of CP-clauses realizing [-c-m] with verbs like *bil* 'know' ([+m]$_1$, [-c-m]$_{2\text{-ACC}}$), it can be maintained that thematic accusative is not

checked but rather suppressed by the CP-layer (leaving the precise mechanism behind such suppression unspecified for now). In this connection, it can be noted the element *dien* used as a complementizer is a gerund and what sets gerunds apart from participles is that they can never appear with case markers.

Finally note that the cases just considered cannot be equaled with ECM-structures in languages which have them, e.g. English or French. ECM is only possible in languages specified positively for structural accusative. Consider *I saw [$_{IP}$ him run]*. The accusative case feature of *see* has both thematic and structural components. While the embedded IP which realizes the internal θ-role checks thematic case, the remaining structural case residue must be checked by the subject of the embedded clause. The obligatoriness of structural residue checking explains the ungrammaticality of **I saw he run*. If the embedded clausal structures of Sakha considered in this section were ECM-structures, their optionality and discourse dependence would be left unaccounted for. Instead, they were given an alternative explanation. The fact that Sakha lacks ECM supports our claim that it is a thematic accusative language specified negatively for the structural accusative case parameter.

6.11. Syntactic approaches to Case

Syntactic approaches to accusative case adopted by Distributed Morphology or Borer maintain that accusative Case assignment is contingent on projecting a certain type of light verb or other functional head. For instance, Marantz 2001b suggests that little v which turns a root into a verb may be involved with objective Case. Another candidate is Voice. Kratzer 1996 makes a distinction between two kinds of Voice heads – active and non-active: it is active Voice heads which add external arguments and assign (check) accusative Case; non-active Voice heads do neither. A third candidate is aspectual: as argued in e.g. Borer 2003a, ASP_Q is a quantity node inducing telicity and checks accusative case for the DP in its specifier.

Although there is clearly interaction between aspect and Case as witnessed by Finnish (Kiparsky 1996, 1998), aspect cannot be the whole story behind accusative case assignment. One piece of evidence that accusative case must be dissociated from aspect (pointed out by Eric Reuland (p.c.)) is presented by the example in (124). First, (124a) shows that the object can be marked accusative independent of whether the verb appears with a perfective aspect auxiliary *kebis* or not. The second example strengthens the point by showing that accusative case is preserved under nominalization whereas perfective aspect and nominalization are incompatible.

(124) a. Kesha meecig-i byrax-ta/byraq-an kebis-te.
Kesha ball-acc throw-past.3/throw-ger perf.aux-past.3
'Kesha threw the ball.'

b. Meecig-i byraq-yy/*byraq-an kebih-ii
Ball-acc throw-nom/*throw-ger perf.aux-nom
'throwing the ball/*having thrown the ball'

As demonstrated in this chapter, accusative case has more components than just structural, or syntactic. On the one hand, how Case will be realized in the syntax clearly depends on thematic properties of a predicate determined in the lexicon. On the other hand, some realizations of accusative case in the syntactic component are dictated by discourse considerations. Therefore it is an advantage of Theta system that it is able to capture both thematic and structural aspects of accusative case, in contrast to DM- or XS-models which are only capable of accounting for the structural facet of accusative.

Another advantage of Theta system lies in the fact that it captures the interaction between Case realization and argument structure alternations as we hope to have demonstrated in this chapter. In DM, argument structure alternations are stated in the form of mere descriptive generalizations such as whether a given root can be inserted under v_{unacc} or not and similar stipulations. For instance, the asymmetric distribution of the reflexive clitic *si* in Italian, according to McGinnis 2000, follows from the fact that *si* can only be generated in the specifier of v_{ag} and v_{perc} underlying, respectively, *Gianni si guarda* 'Gianni watches himself' and *Gianni si teme* 'Gianni fears himself'. *Si* cannot be generated in the specifier of v_{caus} which would derive ungrammatical **Gianni si preoccupa* 'Gianni worries himself'. *Si* is also precluded from appearing with unaccusative and passive light verbs. In contrast, the treatment offered in Reinhart and Siloni 2003 for the Italian clitic *si* and its counterparts in other languages does not stipulate the appearance of clitic morphology but connects it to other language-internal facts such as how accusative case decomposes in a given language and where a particular arity operation applies.

7. DENOMINAL VERBS

Apart from unaccusatives, unergative verbs also pose a problem for the relational view of verbhood. Being intransitive, they should be coded syntactically as adjectives, yet they end up being categorized as verbs. Our approach forces us to adopt Hale & Keyser.s (1993, 1998, 2000) theory of unergative verbs as denominal, transitive structures involving a verbalizer and a nominal complement. The implementation I will pursue in this chapter effectively denies their status as lexical verbs. I will show that this position has a number of interesting consequences.

In the introduction it was argued that there are two ways of arriving at verbhood. One is inherent relationality when a concept is associated with two feature clusters. The other is the introduction of thematic structure in order to turn a non-relational concept into a relational one. As we have seen in the previous chapters, with verbs, extra arguments can be added both in the lexicon and syntax. The same should apply to adjectives which constitute a predicative category and possess a θ-grid. In compliance with Theta system, a θ-grid can be manipulated in the lexicon by introducing new arguments but such manipulations are only possible if there is a θ-grid to start with. With adjectives this is indeed the case but not with nouns. Since the latter are non-predicative, operations involving argument structure are inapplicable. Therefore the only way to turn a noun into a verb is in the syntax.

Going back to what has been said in the previous chapters, syntactic derivation is characterized by different attachment levels and unfixed interpretation (no final meaning determination). In this chapter we would like to test the extent to which denominal verb formation complies with these directives. Since adjectives as one-place predicates can be manipulated lexically as well as syntactically, one is offered more flexibility when analyzing deadjectival verbs. Therefore we will restrict attention to denominal verbs only assuming that deadjectival verbs can be derived with more ease.

In terms of morphological composition there are two types of unergative verbs. One is clearly denominal like *ülelee* 'work' or *utuj* 'sleep' consisting of a lexical noun plus a verbalizer. The other is represented by verbs like *xaam* 'walk', *süür* 'run', *ihiir* 'whistle', *ytyrt* 'sneeze', *ytaa* 'cry', *kül* 'laugh' which do not contain a lexical noun. Some of the verbs in the second group consist of a stem only, i.e. are pure verbal roots. Others can be decomposed into a bound root plus a verbalizer. Thus, the second type of unergatives (especially pure verbal roots) presents a real challenge for the current theory.

We will start our discussion with the first, transparently denominal type of unergative verbs. Before this topic is handled in 7.2ff, basic assumptions behind Hale & Keyser's (henceforth H&K) proposal will be recapitulated in 7.1 and adapted to current concerns in 7.1.1. Several type of denominal verbs will be discussed. The first one is LAA-verbs, i.e. verbs derived from nouns with the suffix –LAA. These form the topic of 7.2. In 7.3 argument structure alternations with LAA-verbs will be considered: it will be shown that, as predicted, lexical arity operations are banned with LAA-denominals. 7.4 is devoted to denominal verbs derived with suffixes

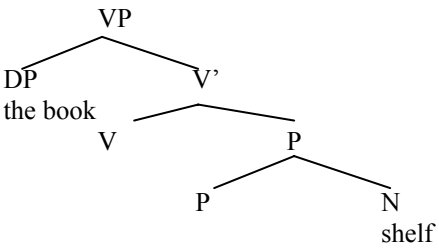
other than –LAA. Unergative verbs of the second type (root verbs and bound roots) are the subject of the last section.

Note that this chapter is largely conjectural poking into a murky area of unergativity in Sakha. Many important issues are therefore put on the back burner. To mention just one, we will leave unattended the question of what derives differences in θ-features between Agent [+c+m]-unergatives (*walk, run, hurry, dance, work*), Theme [-c-m]-unergatives (*glow, shine, babble, click, whistle*) and other unergatives specified as [+m] (*laugh, cry, sleep*) (see section 1.4.3, example (71)).

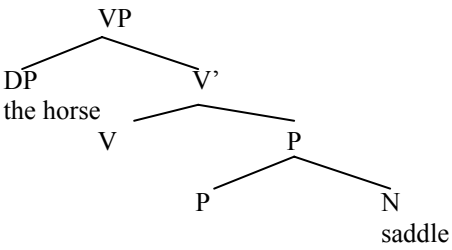
7.1. Recapitulating Hale and Keyser (1993, 1998, 2000)

As described in detail in 1.4.1, H&K explore four alternative avenues of deriving verbs from nouns although eventually the first three get discarded in favour of the last one that there are no denominal verbs. Nevertheless, let's briefly consider all four. One is lexical incorporation defined over lexical relational structures. (1) and (2) repeated from section 1.4.1 show how location and locatum verbs can be derived in the lexicon by incorporating a noun into an empty preposition followed by the incorporation of the N+P complex onto an empty V node.

(1) Location verbs: *shelve, corral, box*



(2) Locatum verbs: *saddle, hobble, blindfold, harness, shoe*



Another avenue which H&K open for nouns on their journey to verbhood is conflation which accompanies the operation of Merge and is defined as a relation between Merge-partners. E.g., an unergative verb like *laugh* results from merging a verbal head with no phonological features, i.e. with a defective p-signature symbolized by ∅ with a noun complement possessing a substantial p-signature

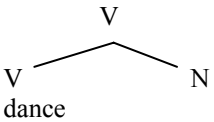
[laugh] as illustrated in (3). Under Merge the nominal p-signature is copied into the empty slot in the verbal head.

(3) Head Complement
{V, [∅]} {N, [laugh]}

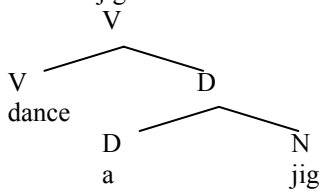
Third option is syntactic incorporation which involves structures like (1) and (2) except that now N→P→V incorporation takes place in the syntax.

A fourth alternative favoured in the end by H&K denies the existence of denominal verbs as such. Instead, it is proposed that the Vocabulary already contains the roots *dance, laugh, saddle, corral*, etc. which are not derived from nouns. Having no category, these roots can be inserted in the V node in (4a-b) appearing with a nominal complement just like *make* in (5).

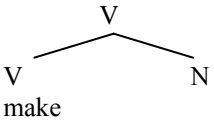
(4) a. John danced.



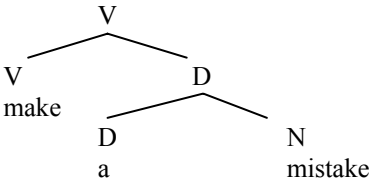
b. John danced a jig.



(5) a. *John made.



b. John made a mistake.



The nominal complement, whether overt or null, must be licensed: in (4b) and (5b) it is licensed as a DP. In (4a) and (5a) it is a bare null N. (4a) is nevertheless grammatical because null N is licensed through the classificatory relationship estabblished between *dance* in V and null N. In other words, *dance*, due to its meaning, is capable of licensing null N by classifying it as a kind of dance. In (5a) bare N cannot be licensed because *make* is devoid of the classifying component. Thus, under this new approach what remains of the original denominal analysis of unergatives is that unergatives have a classifying 'nominal' component as part of their inherent meaning.

7.1.1. Extending H&K's proposal to denominal verb formation in Sakha

As already discussed in 1.4.1, H&K themselves show the untenability of the second, conflation-based analysis because of its failure to explain hyponymous object constructions such as *he danced a jig* or *he bagged the potatoes in a gunnysack*. As for the first analysis - lexical incorporation, it too can hardly be maintained: under any approach, including lexicalist ones, it seems implausible that a process such as

incorporation which has a clearly syntactic nature would be assigned to the lexical component of grammar. This leaves us with two hypotheses - syntactic incorporation and classifying bare roots. Of these, only the former is compatible with the current framework. The latter approach is problematic on conceptual (as we have argued extensively against bare roots in the preceding chapters) as well as empirical grounds. For seemingly monomorphemic verbs like English *dance* the structure in (4a) may seem uncontroversial but not so for bimorphemic *üŋküülee* consisting of the noun *üŋküü* 'dance' plus the verbalizer -LAA.

Thus, it appears that out of the four possibilities outlined by H&K, syntactic incorporation is the most suitable one for denominal verbs. Let's consider in some detail whether the analysis in (1-2) can be applied to Sakha directly, with no modification. H&K make extensive use of P-complements to V as exemplified by (1) and (2), with P's representing zero counterparts of lexical P's. Thus, denominal verbs like *shelve a book* or *saddle a horse* share the same structure with *put (a book on a shelf)* or *provide/fit (a horse with a saddle)*. For instance, if P in (1) were not null, N-incorporation would be blocked explaining the ungrammaticality of **he shelved the books on*.

Since the structures for both location and locatum verbs are identical and their formation proceeds along similar lines, the asymmetry in (6) seems at first sight impossible to derive.

(6) a. Ergis at-y yŋyyr-daa-ta. (locatum)
Ergis horse-acc saddle-verb-past
'Ergis saddled the horse.'
b. *Ergis kinige-ni dolbuur-daa-ta. (*location)
Ergis book-acc shelf-verb-past
'Ergis shelved the book.'

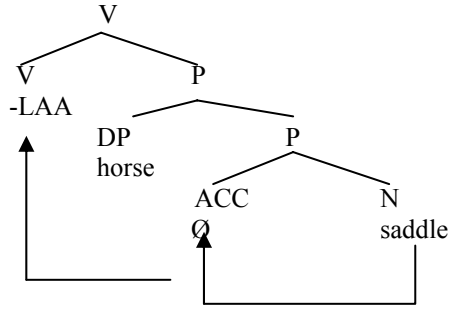
However, if one takes a look at the paraphrases of (6) in (7), different case patterns are revealed. Whereas the accusative case marker can be dropped, the dative one cannot. Furthermore, the interpretation of unmarked accusative 'saddle' in (7a) is highly similar to the interpretation of incorporated 'saddle' in (6a): both are indefinite, non-specific and ambiguous between singular and plural. On the contrary, marked accusative 'saddle' is definite specific singular.

(7) a. Ergis ak-ka yŋyyr-y/yŋyyr ketert-te.
Ergis horse-dat saddle-acc/saddle put-past.3
'Ergis put the/a saddle on the horse.'
b. Ergis kinige-ni dolbuur-ga/*dolbuur uur-da.
Ergis book-acc shelf-dat/*shelf put-past.3
'Ergis put the book on the shelf.'

Taking this semantic similarity as a starting point, the following derivation strictly à la H&K can be advanced. (8) shows a derivation for locatum verbs. What corresponds to English P is a case marker, here ACC which has two variants - null and overt. In incorporating structures the null version is chosen and the noun

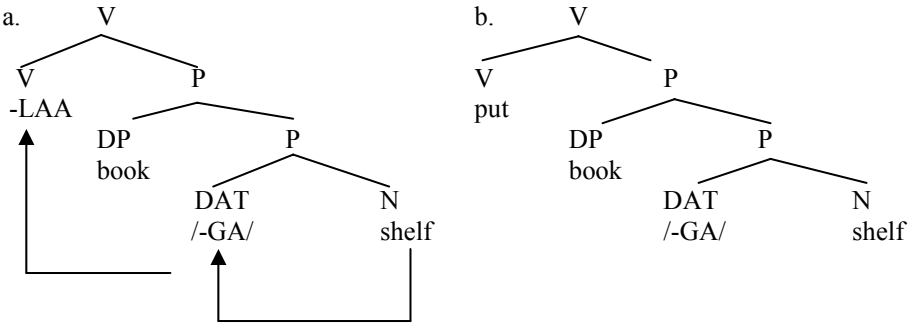
complement can incorporate to P_{ACC} followed by the incorporation of N+P_{ACC} to V deriving *yŋyyrdaa* 'to saddle'.

(8) Locatum (6a): 'Ergis saddled the horse.'



The impossibility of (6b) follows from the structure in (9a) assuming that the dative P is overt and can never be dropped. Thus, (9a) is parallel to English **John shelved the book on*. The partial (boldfaced) structure for (6b) is given in (9a), for (7b) in (9b).

(9) a. *Ergis **kinige-ni dolbuur-daa**-ta
Ergis **book-acc shelf-verb**-past.3
*'Ergis shelved the book on.'
b. Ergis **kinige-ni dolbuur-ga uur**-da
Ergis **book-acc shelf-dat put**-past.3
'Ergis put the book on the shelf.'



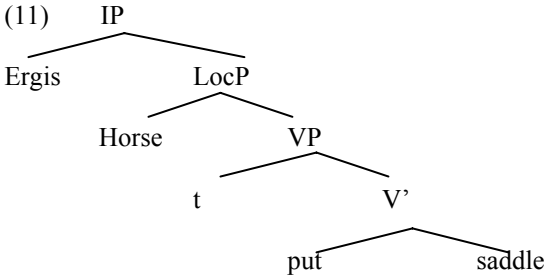
Although this analysis seems plausible, it stumbles upon directional LAA-verbs such as the one in (10a) paraphrasable as (10b). As suggested by the paraphrase, the derivation of *kuorattaa* 'go to the town' in (10a) should involve incorporation of the noun *kuorat* 'town' to P_{DAT} and then to V. In this case the analysis in (9a) cannot be correct.

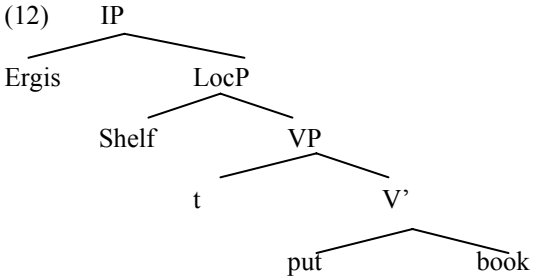
(10) a. Misha kuorat-taa-ta.
Misha town-LAA-past.3
'Misha went to the town.'
b. Misha kuorak-ka bar-da.
Misha town-dat go-past.3
'Misha went to the town.'

Another consideration which contradicts the derivations in (9) is the nature of case markers. The most natural way to treat them is as being spelled out postsyntactically; such treatment is actually the one advanced by DM. If case morphemes are not phonologically specified in the syntax, there should be no difference between P_{ACC} in (8) and P_{DAT} in (9).

Finally, the analysis in (8)-(9) is weakened by the following objection. If incorporation were the only possibility, only verbs built on bare nouns would be encountered. This is not confirmed by the data: LAA-verbs can also be derived from adjective-noun combinations, plural nouns and various kinds of nominal compounds. Their derivation is thus similar to syntactic nominalizations which can target different levels of sentential structure. In the next section we will show at which levels of NP-structure syntactic verbalization takes place and how differences in the levels of application entail differences in interpretation

To begin with, consider the above locatum/location asymmetry in (6). In order to understand the contrast, let's take a look at the full verbal paraphrases of (6) in (7). Assuming that dative locative arguments are licensed in LocP (see section 3.1.2.2), (7a) would have partial representation as in (11) and (7b) as in (12).

(11)


(12)


What is ungrammatical is the LAA-counterpart of (12) in which –LAA has attached to the upper, locative noun 'shelf'. The LAA-counterpart of (11) is o.k. with –LAA attaching to the lower noun 'saddle'. –LAA does have the ability to attach at the level of LocP as witnessed by (10): in (10a) –LAA is suffixed to the noun 'town' which is merged in the specifier of LocP in (10b), the lexical verb paraphrase of (10a). Therefore the reason behind ungrammaticality of (6b) lies not in the attachment possibilities of –LAA but rather in the fact that if –LAA attached at the level of LocP in (12), the lower noun would remain unlicensed. This suggests that if –LAA attached to 'book' in (12) (abstracting away from the presence of the lexical verb), the result would be grammatical as confirmed by (13).

(13) Ergis dolbuur-u kinige-lee-te.
Ergis shelf-acc book-LAA-past.3
'Ergis put a book/books on the shelf.'

Thus, we would like to suggest that attachment possibilities of –LAA depend on the merging order of arguments. If we had a lexical verb like 'put', a VP would be projected and the external and internal arguments would merge, respectively, in the specifier and complement positions. A verbalizing suffix like –LAA is a functional element, a member of the functional lexicon. Since it does not represent a concept (is not a member of the conceptual lexicon), it cannot enter causality relations and therefore cannot become associated with theta features. Therefore, being non-relational and having no arguments, verbalizing elements cannot project a full-fledged phrase and define the merging order of arguments inside this phrase. Instead, what they can do is attach to Ns and NPs and turn them into syntactic verbs. For instance, -LAA can attach to the bare N *kuorat* 'town' resulting in the syntactic verb *kuorattaa* 'town-verb'. This verb can be well-formed all by itself as in (14a): no further arguments need to be introduced. In this case it will receive the interpretation of a weather verb leading to semantic oddness. Whereas with nouns like 'snow', 'rain' and the like, weather interpretation is fine as shown in (14b), with other nouns it is not felicitous, at least in the world that we live in. In an imaginary, fairy tale situation where towns fall from the sky (14a) would be acceptable.

(14) a. #Kuorat-taa-ta.
Town-verb-past.3
#'It towned.'
b. Xaar-daa-ta.
Snow-verb-past.3
'It snowed.'

Thus, whenever a verbalizer attaches to a noun in the syntax, the result is a syntactic verb devoid of any arguments – a no-place verb. However, syntactic argument structure can be introduced with the help of functional projections. One such syntactically introduced argument is the external argument added to a syntactic verb with the help of VoiceP. This is one point where the present model converges with DM but diverges from the original Theta system: in allowing for the syntactic introduction of arguments – in particular, external arguments.

(15) Kesha kuorat-taa-ta.
Kesha town-verb-past.3
'Kesha went to the/a town.'

Apart from external arguments, internal arguments can also be introduced, at most two. One of them will be licensed as dative benefactive, the other one as syntactic accusative KP.

(16) Kesha Misha-qa kinige-ni belex-tee-te.
Kesha Misha-dat book-acc gift-verb-past.3
'Kesha presented Misha with a book.'

Going back to the locatum/location asymmetry, in (6a) the syntactic verb is *yŋyyrdaa* 'saddle-verb' and the introduced arguments are external *Ergis* in Spec,VoiceP subsequently moving to Spec,IP and internal *at* 'horse'. For the time being, it will be tentatively assumed that syntactically introduced internal arguments are merged in Spec,AgrOP where they can receive syntactic accusative case.

As for (6b), the reason it is ungrammatical is interpretive. The subject is merged in Spec,VoiceP and the accusative object in Spec,AgrOP. This structure cannot receive the meaning in (6b) because the noun *dolbuur* 'shelf' is incorporated to the verbalizer: the meaning in (6b) can only arise if 'shelf' were merged in Spec,LocP. Assuming that LocP is projected above AgrOP (sentential architecture being determined by the UG), at the level of semantic interpretation this syntactic hierarchy must be respected. In particular, the semantic component cannot assign to (6b) an interpretation as if 'shelf' were located in the specifier of LocP. (6b), however, can be read as 'Ergis assigned a shelf to the book' if e.g. Ergis works as a librarian: crucially, under this reading (6b) is felicitous both if Ergis puts the book on the shelf or does not.

7.2. Denominal LAA-verbs

The most productive and universal verbalizer is –LAA[1]. Its universality is witnessed by its ability to attach not only to nouns (and adjectives) but also to cardinal and ordinal numerals (17), adverbs (18), interjections (19), interrogative and quantifying demonstrative pronouns (20). (21) shows some examples of de-pronominal LAA-verbs in usage.

(17) *Ikki* 'two' *Ikkilee* 'do two times; provide with two'
Ikkis 'second' *Ikkistee* 'do for the second time, become second'

(18) *Erde* 'early' *Erdelee* 'do something early, come early'
Nahaa 'very, too much' *Nahaalaa* 'overdo it, go too far'

[1] -LAA contains another verbalizer –AA which has restricted use in modern language. –AA is also encountered in the verbalizer –rGAA which is also not productive. We will leave –AA and –rGAA out of discussion.

Urut ‘before, previously’ *Uruttaa* ‘do smth. ahead of smb./smth.’

(19) LAA-verbs derived from interjections:

Ajykka	(Interjection of) Pain	Ajykkalaa	Express pain
Ycca	Cold	Yccalaa	Shiver with cold
Huu	Fear; surprise; relief	huulaa	Shout with fear; express surprise; sigh with relief; frighten/surprise
Haj	For driving cattle	hajdaa	Drive cattle
Tüksü	Enough	Tüksülee	Stop

(20)

Tuox ‘what’	*Tuoxtaa* ‘do what, provide with what’
Töhö ‘how much’	*Töhölöö* ‘count/number how much, do/perform/go through how much’
Xanna ‘where’	*Xannalaa* ‘go where’
Xas ‘how many’	*Xastaa* ‘do how many times’
Xahys ‘which’	*Xahystaa* ‘do which time, become which number’
Bacca ‘this much’	*Baccalaa* ‘do this much, provide with this much’
Occo ‘that much’	*Occoloo* ‘do that much, provide with that much’

(21)

a. En sommun tuox-taa-ty-ŋ?
You my.coat-acc what-LAA-past-2sg
‘What did you do with my coat?’

b. Mende xanna-laa-ta?
Mende where-LAA-past.3
‘Where did Mende go?’

c. Üleqin töhö-löö-tü-ŋ?
Your.work-acc how.much-LAA-past-2sg
‘How much of your work have you finished?’

Apart from productivity and universality, the syntactic status of the suffix –LAA receives support from a wide range of variability in meanings assigned to denominal LAA-verbs. As argued above, e.g. in chapter 2, it is a property of syntactic derivation that it allows contextual determination of meaning, as opposed to lexical derivation which fixes meaning once and for all. How N-LAA combinations will be interpreted depends on the meaning of the incorporated noun, on how many additional arguments are introduced syntactically, on the level of LAA-attachment (bare N or NP, AP-NP, NumP-NP). This becomes evident from the semantic classification given in the following subsections. Consider for instance the verb *xaardaa* ‘snow-verb’. If no (14b) or only one (22a) argument is introduced, it is interpreted as a weather verb. If the sole additional argument is human (or animate), *xaardaa* can also be interpreted as in (22b). If two extra arguments are added, *xaardaa* receives the meanings in (22c).

(22) a. Xallaan xaar-daa-ta.
Sky snow-verb-past.3 'The sky snowed.'
b. Misha xaar-daa-ta.
'Misha took a handful/mouthful of snow.'
'Misha was affected by snow (e.g. became sick).'
c. Misha telgehe-ni xaar-daa-ta.
Misha courtyard-acc snow-verb-past.3
'Misha cleared the courtyard from the snow.'
'Misha filled/layered the courtyard with snow.'

We will assume that there is nothing special about cognate objects: they are just like any other object licensed in Spec,AgrOP and assigned syntactic accusative case. Whether a syntactic verb allows a cognate object or not is predictable from the meaning. For instance, N-LAA verbs with the meaning 'hunt/gather N' do allow cognate objects (N N-LAA: *balyk balyktaa* 'fish fish-verb; catch fish') but not those with the meaning 'use N as instrument'. This is as expected: you can hammer a wall but you can hardly hammer a hammer

The semantic classification below also depends on the attachment level of N. For example, the meaning 'provide with N' is more flexible than 'use N as instrument': in the former the noun can be plural or modified but not in the latter. Again, this is expected: although sharpness/bluntness of a knife affects its efficiency as an instrument, there are no two instruments like a sharp knife versus a blunt knife. Similarly, in (23-24) there is only one instrument – a whip, singular and unmodified. The table in (25) gives a summary indication of meanings, cognate objects and N-restrictions (whether the incorporated N can be plural and modified or must be bare).

(23) Aqa oqo-nu kymnjyy-laa-ta.
Father child-acc whip-verb-past.3
'Father gave the child a whip' (provide with N)
'Father whipped the child' (use N as instrument)

(24) Aqa oqo-lor-u uhun kymnjyy-lar-daa-ta.
Father child-pl-acc long whip-pl-verb-past.3
'Father gave the children long whips' (provide with N)
*'Father whipped the children with long whips' (use N as instrument)

(25) N-LAA verbs: Meanings and restrictions on N

Meaning	Modified N	Plural N	Cognate object
1. Provide with N	Yes	Yes	No
2. Apply N (use N as instrument)	No	No	No
3. Remove N	No	No	Yes
4. Make/hunt/gather N	No	No	Yes
5. Look after N	No	No	Yes
6. Consume N	No	No	Yes

7. Imitate N, act/work as N	Yes	No	No
8. Go in the direction of N	Yes	No	No
9. Secrete/discharge N	Yes	No	Yes
10. Play N	No	No	No
11. Weather N	No	No	No

7.2.1. "Provide with N"

N	N-Gloss	V	V-Gloss
Xarcy	Money	Xarcylaa	Give money
Tuus	Salt	Tuustaa	Salt
Silim	Glue	Silimnee	Glue
Aryy	Butter	Aryylaa	Butter

Verbs with this meaning are transitive, i.e. have two additional arguments: one merged in Spec,VoiceP and another merged in Spec,AgrOP. They do not allow cognate objects. The incorporated noun may be modified and plural.

(26) a. Sargy Mende-ni timir xarcy-laa-ta.
Sargy Mende-acc iron money-verb-past.3
'Sargy gave Mende coins.'

b. Sargy oqo-lor-u kyhyl, saharxaj, küöx sharik-tar-daa-ta.
Sargy child-pl-acc red, yellow, blue/green balloon-pl-verb-past.3
'Sargy gave the children red, yellow, blue/green balloons.'

7.2.2. "Apply N (Use N as an instrument)"

N	N-Gloss	V	V-Gloss
Ötüje	Hammer	Ötüjelee	Hammer
Kymnjyy	Whip	Kymnjyylaa	Whip
Siide	Sieve	Siidelee	Sieve
Öj	Intelligence	Öjdöö	Understand, remember
Bya	Rope	Byalaa	Tie with a rope
Tohoqo	Nail	Tohoqoloo	Nail

Verbs with this meaning are transitive. Cognate objects are not allowed. The incorporated noun cannot be plural or modified (see (24) above).

7.2.3. "Remove N"

N	N-Gloss	V	V-Gloss
Xaar	Snow	Xaardaa	Remove snow
Xax	Skin	Xaxtaa	Peel
Xatyryk	Scale, bark	Xatyryktaa	Remove scale/bark
Byrdax	Mosquito	Byrdaxtaa	Clear from/kill mosquitoes

Verbs in this group are transitive. The incorporated noun cannot be modified (27a) or plural (27b). Cognate objects are allowed (27c).

(27) a. Mende uulussa-ny (*kirdeex) xaar-daa-ta.
Mende street-acc (*dirty) snow-verb-past.3
'Mende removed (*dirty) snow from the street.'
b. Mende balyk-tar-y xatyryk-taa-ta/*xatyryk-tar-daa-ta.
Mende fish-pl-acc scale-verb-past.3/*scale-pl-verb-past.3
'Mende scaled the fish.'
c. Mende kirdeex xaq-y xax-taa-ta
Mende dirty skin-acc skin-verb-past.3
'Mende removed the dirty skin.'

7.2.4. "Make/Hunt/Gather N"

N	N-Gloss	V	V-Gloss
Alaadjy	Pancake	Alaadjylaa	Make pancakes
Djedjen	Strawberry	Djedjennee	Pick strawberries
Tellej	Mushroom	Tellejdee	Pick mushrooms
Kus	Duck	Kustaa	Hunt ducks

The incorporated noun cannot be plural and cannot be modified.

(28) a. *Ookko alaadjy-lar-daa-ta.
Ookko pancake-pl-verb-past.3
b. *Ookko minnjiges alaadjy-laa-ta.
Ookko delicious pancake-verb-past.3

7.2.5. "Look after N"

N	N-Gloss	V	V-Gloss
Süöhü	Cattle	Süöhülee	Look after cattle
Djie	House	Djielee	Do housekeeping
Oqo	Child	Oqoloo	Babysit

Verbs in this group are transitive (29a), the incorporated noun cannot be plural (29b) and modified (29c).

(29) a. Sardaana Misha-ny oqo-loo-to.
Sardaana Misha-acc child-verb-past.3
'Sardaana babysitted Misha.'
b. *Sardaana menik kulun-cuk-taa-ta.
Sardaana naughty foal-dimin-verb-past.3
Intended meaning: 'Sardaana looked after naughty foals.'
c. *Sardaana kuluncuk-tar-daa-ta.

Sardaana foal-pl-verb-past.3
Intended meaning: 'Sardaana looked after several foals.'

7.2.6. "Consume N"

N	N-Gloss	V	V-Gloss
Cej	Tea	Cejdee	Drink tea
Tabax	Tobacco	Tabaxtaa	Smoke
Uu	Water	Uulaa	Drink water

The incorporated noun must be bare. Cognate objects are possible.

(30) Ookko omuk tabaq-yn tabax-taa-ta.
Ookko foreign tobacco-3.acc tobacco-verb-past.3
'Ookko smoked imported tobacco.'

7.2.7. "Imitate N; Act/Work like N"

N	N-Gloss	V	V-Gloss
At	Horse	Attaa	Go down on all fours
Turuja	Crane	Turujalaa	Walk/cry like a crane
Suor	Raven	Suordaa	Cry like a raven
Studen	Student	Studennaa	Be a student
Emcit	Doctor	Emcittee	Work as a doctor

Verbs in this group are intransitive. Cognate objects are not allowed. The incorporated noun can be neither modified nor plural.

(31) a. Keskil (*menik) kuluncuk-taa-ta.
Keskil naughty foal-verb-past.3
'Keskil jumped around like a (*naughty) foal.'
b. Kiniler studen-naa-ty-lar / *studen-nar-daa-ty-lar.
They student-verb-past-pl / *student-pl-verb-past-pl
'They were students.'

7.2.8. "Go in the direction of N"

N	N-Gloss	V	V-Gloss
Djie	Home	Djielee	Go home
Üle	Work	Ülelee	Go to work
Alaaska	Alaska	Alaaskalaa	Go to Alaska
Tya	Countryside	Tyalaa	Go to the countryside

Verbs in this group are intransitive. No cognate objects are allowed. The incorporated noun can be modified but cannot be plural.

(32) Mende soquruu dojdu-laa-ta.
Mende southern country-verb-past.3
'Mende went to a southern country.'

7.2.9. "Secrete/discharge N"

N	N-Gloss	V	V-Gloss
Sil	Saliva	Sillee	Spit
Symyyt	Egg	Symyyttaa	Lay eggs
Kulun	Foal	Kulunnaa	Give birth to a foal
Torbos	Calf	Torbostoo	Give birth to a calf[2]
Tüü	Fur	Tüülee	Shed fur

Cognate objects are allowed (33a). The incorporated noun can be modified (33b) but not plural (33c):

(33) a. Kuurussa ulaxan symyyt-y symyyt-taa-ta.
Hen big egg-acc egg-verb-past.3
'The hen laid a large egg.'
b. Kuurussa kyhyl kömüs symyyt-taa-ta.
Hen red gold egg-verb-past.3
'The hen laid a golden egg/eggs.'
c. *Kuurussa symyyt-tar-daa-ta.
Hen egg-pl-verb-past.3
Intended meaning: 'The hen laid several golden eggs.'

7.2.10. "Play N"

N	N-Gloss	V	V-Gloss
Xaarty	Cards	Xaartylaa	Play cards
Xabylyk	A kind of game	Xabylyktaa	Play the game 'xabylyk'
Futbuol	Football	Futbuollaa	Play football
Kyryympa	Violin	Kyryympalaa	Play violin
Xomus	Mouth harp	Xomustaa	Play mouth harp

Verbs in this group are intransitive. Cognate objects are not allowed (34a). The incorporated noun can be neither modified (34b) nor pluralized (34c):

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[2] *Kulunnaa* 'give birth to a foal' and *torbostoo* 'give birth to a calf' are only used if some abnormalities are involved. In the second case this is reflected by using the noun *torbos* instead of *njirej* 'newborn calf': usually *njirej* first grows to become *torbujax* and only then *torbos*.

a. Bie kulun-naa-ta.
Mare foal-verb-past.3
'The mare gave birth to a deficient foal.'
b. Ynax torbos-too-to / *njirej-dee-te.
Cow calf-verb-past.3 / *newborn.calf-verb-past.3
'The cow gave birth to a deficient calf.'

(34) a. Mende (*kyryympa-ny) kyryympa-laa-ta.
Mende (*violin-acc) violin-verb-past.3
'Mende played a violin.'
b. Mende (*saŋa) kyryympa-laa-ta.
Mende (*new) violin-verb-past.3
'Mende played a (*new) violin.'
c. *Mende kyryympa-lar-daa-ta.
Mende violin-pl-verb-past.3
Intended meaning: 'Mende played several violins.'

7.2.11. Weather verbs

N	N-Gloss	V	V-Gloss
Ardax	Rain	Ardaxtaa	To rain
Xaar	Snow	Xaardaa	To snow
Kuraan	Drought	Kuraannaa	Become droughty
Xalaan	Flood	Xalaannaa	To flood
Toburax	Hail	Toburaxtaa	To hail

Verbs in this group are intransitive. Cognate objects/subjects are not allowed (35a); non-cognate subjects are allowed. The incorporated noun cannot be modified (35c) or plural (35d).

(35) a. (*Xaar/*Xaar-y) Xaar-daa-ta.
(*snow/*snow-acc) snow-verb-past.3
'It(/*snow) snowed (*a snow).'
b. Örüs xalaan-naa-ta. / Xallaan ardax-taa-ta.
River flood-verb-past.3 / Sky rain-verb-past.3
'The river flooded.' / 'The sky rained.'
c. *Maŋan xaar-daa-ta.
White snow-verb-past.3
d. Xalaan(*-nar)-daa-ta.
Flood(*-pl)-verb-past.3 'It flooded.'

7.2.12. Summary

We have argued that a denominal verb like *ülelee* is derived syntactically by attaching the suffix –LAA to the noun *üle* 'work'. Being derived in the syntax, the verb does not have a fixed meaning which varies, depending on the context, between 'provide with work', 'go to work' and 'work'. It is the latter meaning which corresponds to the typical English unergative verb 'to work'. Under the usual analysis of unergatives what sets them apart from other types of verbs is that their sole argument is merged externally. Under the proposed analysis this follows from the fact that the external argument of *ülelee* 'to work' is introduced syntactically and merged in the specifier of VoiceP.

7.3. Denominal verbs, arity operations and accusative case

Denominal verbs, being derived in the syntactic component, cannot be subjected to lexical arity operations. Syntactic arity operations, however, should be possible. In this section we will show that this prediction holds true with respect to reflexivization, expansion and reciprocalization.

7.3.1. Reflexivization: Lexical and syntactic bundling

Consider first reflexivization proper which was argued in chapter 6 to involve a lexical operation. Indeed, syntactic denominal verbs cannot undergo lexical bundling. Out of the eleven meanings discussed in section 7.2, four are semantically compatible with reflexive predicate formation. However, they cannot be reflexivized with the suffix –n: for them the only option of arriving at a reflexive interpretation is through the self-anaphor *beje* and n-marking is banned. The meanings in question are 'provide with N', 'use N as instrument', 'remove N', 'look after N'. Note that the examples in (36c), (37c), (39c) are not ungrammatical: they are only infelicitous with the intended reflexive readings. They do have a second meaning considered shortly which renders them well-formed.

(36) 'Provide with N':
- a. Kesha Misha-ny xarcy-laa-ta/djie-lee-te.
  Kesha Misha-acc money-verb-past.3/house-verb-past.3
  'Kesha provided Misha with money/housing.'
- b. Kesha beje-tin xarcy-laa-ta/djie-lee-te.
  Kesha self-3.acc money-verb-past.3/house-verb-past.3
  'Kesha provided himself with money/housing.'
- c. Kesha xarcy-la-n-na/djie-le-n-ne.
  Kesha money-verb-refl-past.3/house-verb-refl-past.3
  *'Kesha provided himself with money/housing.'

(37) 'Use N as instrument':
- a. Kesha Misha-ny öj-döö-tö/kymnjyy-laa-ta.
  Misha Misha-acc intelligence-verb-past.3/whip-verb-past.3
  'Kesha understood/whipped Misha.'
- b. Kesha beje-tin öj-döö-tö/kymnjyy-laa-ta.
  Misha self-3.acc intelligence-verb-past.3/whip-verb-past.3
  'Kesha understood/whipped himself.'
- c. Kesha öj-dö-n-nö/kymnjyy-la-n-na.
  Misha intelligence-verb-refl-past.3/whip-verb-refl-past.3
  *'Kesha understood/whipped himself.'

(38) 'Remove N':
- a. Kesha Mishany byrdax-taa-ta.
  Kesha Misha-acc mosquito-verb-past.3
  'Kesha killed mosquitoes around/on Misha'

b. Kesha beje-tin byrdax-taa-ta.
Kesha self-3.acc mosquito-verb-past.3
'Kesha killed mosquitoes around/on himself.'
c. *Kesha byrdax-ta-n-na.
Kesha mosquito-verb-refl-past.3

(39) 'Look after N':
a. Kesha Misha-ny oqo-loo-to.
Kesha Misha-acc child-verb-past.3
'Kesha nursed (babysitted, pampered) Misha.'
b. Kesha beje-tin oqo-loo-to.
Kesha self-3.acc child-verb-past.3
'Kesha pampered himself.'
c. Kesha oqo-lo-n-no.
Kesha child-verb-refl-past.3
*'Kesha pampered himself.'

Next, syntactic bundling which derives benefactive reflexives (40) and inalienable possession reflexives (41) can apply to denominal verbs.

(40) a. Misha (beje-tiger) alaadjy-la-n-na/miin-ne-n-ne.
Misha (self-3.dat) pancake-verb-refl-past.3/soup-verb-refl-past.3
'Misha made pancakes/cooked soup for himself.'
b. Misha miin-in tuus-ta-n-na.
Misha soup-3.acc salt-verb-refl-past.3
'Misha salted his soup.'
c. Misha taŋah-yn abyrax-ta-n-na.
Misha clothes-3.acc patch-verb-refl-past.3
'Misha put patches on (mended) his clothes.'

(41) a. Misha sirej-in aryy-la-n-na/ilii-tin krem-na-n-na.
M. face-3.acc butter-verb-refl-past.3/hand-3.acc cream-verb-refl-past.3
'Misha buttered his face/put cream on his hands.'
b. Misha baah-yn em-te-n-ne.
Misha wound-3.acc medicine-verb-refl-past.3
'Misha cured his wound.'
c. Misha ataq-yn byrdax-ta-n-na
Misha leg-3.acc mosquito-verb-refl-past.3
'Misha killed mosquitoes on his leg.'
d. Misha beje-tin xaar-da-n-na
Misha self-3.acc snow-verb-refl-past.3
'Misha removed snow from himself.'

7.3.1.1. Denominal verbs ending in –LA-N

As mentioned above, the examples in (36c), (37c) and (39c) are not ungrammatical: it is the intended proper reflexive meaning which makes them ill-formed. As shown below, assigning them a different meaning makes them well-formed.

(42) Kesha xarcy-la-n-na/djie-le-n-ne.[3]
Kesha money-verb-refl-past.3/house-verb-refl-past.3
*'Kesha provided himself with money/housing.'
But: 'Kesha came into possession of money/housing.'

(43) Kesha öj-dö-n-nö/kymnjyy-la-n-na.
Misha intelligence-verb-refl-past.3/whip-verb-refl-past.3
*'Kesha understood/whipped himself.'
But: 'Kesha came to his senses/came into possession of a whip.'

(44) Kesha oqo-lo-n-no.
Kesha child-verb-refl-past.3
*'Kesha pampered himself.'
But: 'Kesha fathered a child.'

The above three examples do not imply any agentivity which is typical of proper reflexive predicates. If (42) is compared to (36b), the two differ truth-conditionally. (36b) implies that Kesha intentionally exerted effort to earn some money or that he earned money in order to buy a house. As a result, he came into possession of money or housing. In (36b) it is only Kesha who is responsible for his acquisitions. In contrast, (42) has no such implications. Here the only thing that matters is the result, namely, that Kesha somehow came into possession of money and housing: it is of no importance how. It is possible that he earned it on his own but it is also possible that someone gave him everything. Similarly in (37b) and (43) with respect to *öjdöö* 'understand': mental exertion is present only in (37b) and what is emphasized is this psychological work which brings about self-understanding. In (43) with *öjdö-n* 'understand-refl' no mental work is implicated: only the result (character change) is stressed. As for *kymnjyylaa* 'whip', in (37b) and (43) we have completely different meanings – in contrast to the examples just considered whose meanings are comparable. Whereas in (37b) Kesha intentionally whips himself, in (43) the instrumental reading disappears: all that (43) says is that Kesha somehow acquired a whip.

The same considerations extend to the contrast between (39b) and (44). The former with the self-anaphor and no n-marking means 'Kesha pampered himself', the latter has n-marking but no self-anaphor and an entirely different meaning – 'Kesha became a father'. (39b) is agentive, (39c)/(44) is not. The meaning 'to become a parent of' derived with –LA-N is quite productive with nouns denoting various kinds of offspring, cf. (45a) which can be compared to the examples in

[3] For convenience we will continue glossing the suffix –n- as "-refl-".

footnote 2 above derived with –LAA repeated in (45b). Whereas (45a) denotes a natural process, (45b) is perceived as denoting something abnormal. Therefore –LAA deriving the meaning 'to become a parent of' is very restricted whereas –LA-N deriving the same meaning is very productive.

(45) a. Bie kulun-na-n-na. / Ynax njirej-de-n-ne.
Mare foal-verb-refl-past.3 / Cow calf-verb-refl-past.3
'The mare/The cow had a foal/calf.'
b. Bie kulun-naa-ta. / Ynax torbos-too-to.
Mare foal-verb-past.3 / Cow calf-verb-past.3
'The mare/The cow had an abnormal/deficient foal/calf.'

These facts suggest that –LA-N is a morpheme independent from –LAA, i.e. it is not the case that whenever we encounter a denominal verb bearing the suffix –LA-N this verb should have been derived from the corresponding –LAA verb with the help of n-marking. Thus, *öjdön* 'come to senses' is not derived from *öjdöö* 'understand' just as *kulunnan* 'give birth to a (normal) foal' is not derived from *kulunnaa* 'give birth to an abnormal foal'. Rather, *öjdön* and *kulunnan* are derived from the nouns *öj* 'intelligence' and *kulun* 'foal' with –LA-N while *öjdöö* and *kulunnaa* are derived from the same nouns with –LAA.

Thus, we are assuming that –LAA and –LA-N are two separate functional morphemes which attach to nouns in the syntax and derive syntactic denominal verbs. When the suffix attached is –LAA, there are no restrictions on the transitivity of the derived verb: it can be a weather verb in which case no further arguments need to be introduced; alternatively, functional heads (Voice, Ben, AgrO) may be projected licensing extra syntactic arguments.

When the suffix attached is –LA-N, only one external argument may be added. The addition of the reflexive suffix –n to –LAA prevents further projection of arguments other than the external one. In particular, no accusative internal argument may be licensed[4]. That the sole argument of LA-N-verbs is merged externally testifying to their unergative status is witnessed from the fact that LA-N verbs can undergo causativization and passivization – two operations which require the presence of an external argument and which are therefore banned with unaccusative verbs.

(46) a. Olox Misha-ny öj-dö-n-nör-dö.
Life Misha-acc intelligence-verb-refl-caus-past.3
'Life made Misha come to his senses.'
b. Djie-le-n-ilin-ne. / Xarcy-la-n-ylyn-na.
House-verb-refl-pass-past.3 / Money-verb-refl-pass-past.3
'There were an event(s) of acquiring housing/money.'

[4] Although the suffix –n cannot mark an operation affecting the argument structure of [[Noun]-LAA] so we don't get [[[Noun]-LAA]-N], it appears capable of affecting –LAA directly yielding [[Noun]-LA-N]. Thus, when –n attaches to –LAA, it seems to perform the same function as when it attaches to regular (lexical) verbs. At this point we shall leave unattended this intriguing matter of how interaction between functional morphemes resulting in argument structure alternations of the derived verb should be encoded in Theta system.

7.3.2. Causativization

As mentioned in the previous section, denominal LAN-verbs can be causativized as in (46a). (46a) shows that the causer argument added is not an agent but cause which means that expansion in (46a) cannot be lexicon-internal: if it were an instance of lexical causativization, it would have to be agentivization as argued in chapter 5. Another argument for the syntactic status of causativization with denominal verbs is the fact that the underlying external argument does not have to specified as [+c]: with lexical causativization such a requirement is present because lexical causativization is a two-step operation, the first step being decausativization. (46a) is derived from (43) where the external argument is not [+c]. Some more examples of causativized denominal verbs are given in (47).

(47) a. Kyhalqa Misha-ny üle-le-t-te.
Need Misha-acc work-verb-caus-past.3
'Poverty made Misha work.'
b. Muus balyk-ta-p-pa-ta.
Ice fish-verb-caus-neg-past.3
'Ice prevented from fishing.'
c. Kiine oloq-u öj-dö-t-ör.
Cinema life-acc intelligence-verb-caus-aor
'Cinema helps understand life.'

7.3.3. Reciprocal formation

As argued in chapter 6, reciprocal formation proceeds along either lexical or syntactic modes. The lexical mode of reciprocalization entails case reduction, syntactic reciprocalization does not. As revealed by the reciprocity diagnostics below, denominal verbs can only give rise to syntactic reciprocal verbs confirming once again the prediction that syntactically derived denominal verbs cannot possibly undergo arity operations inside the lexicon.

First, as shown in (48), case is not reduced. In (48a) the accusative reciprocal anaphor is allowed. In (48b) there is an overt accusative DP object, in (48c) – overt dative DP.

(48) a. Misha uonna Masha beje beje-ler-in öj-dö-h-öl-lör.
Misha and Masha self self-pl-3.acc intelligence-verb-rec-aor-pl
'Misha and Masha understand each other.'
b. Misha uonna Masha miin-ner-in tuus-ta-s-ty-lar.
Misha and Masha soup-pl-3.acc salt-verb-rec-past-pl
'Misha and Masha salted each other's soup.'
c. Misha uonna Masha oqo-lor-ugar alaadjy-la-s-ty-lar.
Misha and Masha child-pl-3.dat pancake-verb-rec-past-pl
'Misha and Masha made pancakes for each other's children.'

Second, syntactic reciprocals cannot be discontinuous and they cannot appear in the singular with only one argument (see 6.7.2).

(49) *Misha Masha-lyyn em-te-s-te/xarys-ta-s-ta/tuha-la-s-ta/belex-te-s-te.
M. M.-with cure-v-s-past/care-verb-rec-past/use-verb-rec-past/gift-v-s-past

(50) *Misha em-te-s-te/xarcy-la-s-ta/tuha-la-s-ta/futbuol-la-s-ta/belex-te-s-te.
M. cure-v-s-past/money-v-s-past/use-v-s-past/football-v-s-past/gift-v-s-past

To summarize, we have shown in 7.3 that denominal verbs can only undergo syntactic arity operations. Their inability to undergo lexical arity operations follows from their derivational history which is entirely syntactic.

7.4. Denominal verbs ending in suffixes other than –LAA

Apart from LAA- and LAN-verbs, nouns can be verbalized with a number of other suffixes (see appendix 3, section 4). These suffixes can be divided into two groups based on their productivity and regularity. As will be shown, the two types correlate with the two loci of derivation – lexicon and syntax.

7.4.1. Sporadic suffixes

Among highly unproductive suffixes are simplex /–j/, /-r/, /-n/, /-t/ and complex /–AA-j/ and /–AA-r/. Verbs derived with these suffixes do not behave like syntactically derived LAA-verbs. First, they can only attach to bare nouns. Second, the meaning of the derived verb cannot fluctuate and is fixed once and for all: *ytyr* derived from *yt* ‘dog’ can only mean ‘bite’ and cannot mean ‘behave like a dog’, ‘bark’, etc. In addition, the relationship between the base noun and the derived verb is irregular in many cases. The base noun may be archaic or extremely infrequent whereas its verbal derivative is characterized by high lexical frequency. For instance, *bas* ‘head’, *kös* ‘eye’, *kierge* ‘jewel’, *tus* ‘side, direction’ are archaic nouns. Yet, their derivatives *bahyj* ‘master’, *köhün* ‘appear’, *kierget* ‘decorate’, *tuhaaj* ‘direct, point at’ are neither archaic nor infrequent. Similar situation arises with the nouns *baqa* ‘desire’, *cocu* ‘whetstone’, *kyha* ‘hearth, crucible’, *yar* ‘difficulty’ having low frequency but yielding commonly used verbs *cocuj* ‘improve, perfect; sharpen’, *kyhaj* ‘force, urge, spur’, *kyhan* ‘do one’s best’, *yaryj* ‘become sick’, *yaryt* ‘make sick’. As a result, the derivational link between the noun and the verb is often broken and the existence of such a link is not realized by many speakers. For instance, it is possible to have in one’s vocabulary the verbs *cocuj* ‘improve, perfect; sharpen’, *kyhaj* ‘force, urge, spur’, *kyhan* ‘do one’s best’ without simultaneously having the nouns *cocu* ‘whetstone’ and *kyha* ‘hearth, crucible’ from which the verbs in question are historically derived.

As argued in chapter 2, properties like these are typical of lexicon-internal derivation. Therefore we will assume that these cases present instances of frozen lexical denominal verb formation. Given their finite number, they should not pose problems for learnability.

7.4.2. Productive suffixes

Two suffixes will be considered: 1) /-TYj/ which has variants /-sYj/, /-lYj/, /-nYj/ and 2) /–msYj/. It will be argued that /-TYj/- and /-msYj/-suffixation has syntactic status. For the first suffix this assumption receives support from the presence of some degree of meaning fluctuation with verbal derivatives as well as from the fact that the suffix can attach not only bare nouns but also to regular (i.e. non-idiomatic) AP-NP combinations (52)-(53).

(51) a. Misha aba-tyj-da.
Misha bitterness-verb-past.3
'Misha became annoyed.'
b. Iŋse aba-tyj-da.
Greed bitterness-verb-past.3
'Greed turned into bitterness.'

(52) a. Misha myndyr oqonnjor-suj-ar.
Misha wise old.man-verb-aor
'Misha is pretentiously behaving like a wise old man.'
b. Baas kuhaqan iriŋe-tij-bit
wound bad pus-verb-past
'The wound is exuding bad pus.'
c. Ulaxan kihi er-eeri Misha kyra oqo-tuj-but.
Big person aux-ger Misha small child-verb-past
'Though a grown-up adult, Misha became like a small child.'

(53) a. Timir ihit djebin-nij-bit.
Iron casserole rust-verb-past
'The iron casserole became rusty.'
b. Timir ihit kyhyl djebin-nij-bit.
Iron casserole red rust-verb-past
'The iron casserole became covered with red rust.'

The second suffix /–msYj/ derives attitudinal verbs with an entirely compositional meaning 'pretend to be/act like N' with a negative connotation. Besides semantic transparency, another argument for the syntactic status of the suffix is the possibility of its attachment to AP-NP structures.

(54) a. Misha Lena-laax-xa maany yaldjyt-ymsyj-ar.
Misha Lena-assoc-dat dear guest-verb-aor
'Misha behaves like a dear guest at Lena's place.'
b. Misha üöreneecci-ler-ge ulaxan tojo-msuj-ar.
Misha pupil-pl-dat big boss-verb-aor
'Misha behaves like a big cheese towards the children.'
c. Akaary njire-msij-ime!
Stupid calf-verb-neg
'Stop acting naïve (like a stupid calf)!'

7.5. Unergative verbal roots and unergative verbs as √-suffix combinations

As mentioned in the beginning of this chapter, the second type of denominal verbs is represented by verbal roots like *xaam* 'walk', *süür* 'run', *kül* 'laugh' and √-suffixes like *ihiir* 'whistle', *ytyrt* 'sneeze', *ytaa* 'cry'. What is interesting about these verbs is that even though they are unergatives, they are nevertheless possible with accusative objects as shown in (55).

(55) a. Bihigi uhun suol-u xaam-ty-byt.
We long road-acc walk-past-1pl
b. Misha ikki kilometr-y süür-de.
Misha two kilometer-acc run-past.3
c. Misha Masha-ny kül-le.
Misha Masha-acc laugh-past.3
d. Misha yrya-ny ihiir-de.
Misha song-acc whistle-past.3

What is even more important for the current theory is that these verbs are transitive already in the lexicon. Their lexical transitivity is betrayed under causativization. As demonstrated in (56), the introduced causer can only be agentive and cannot be inanimate which is only possible if causativization in (56) is lexical. The preservation of the accusative internal argument under lexical causativization can only be explained if the internal argument had been there to start with.

(56) a. Sardaana/*Tymnyy/*Xahyy bihigi-ni bies kilometr-y süür-der-de.
Sardaana/*Cold/*Yell we-acc five kilometer-acc run-caus-past.3
b. Misha/*Kymnjyy ynaq-y ikki kilometr-y xaam-tar-da.
Misha/*Whip cow-acc two kilometer-acc walk-caus-past.3
c. Lena/*Aba/*Kyhyy Misha-ny Masha-ny kül-ler-de.
L./*Bitterness/*Annoyance M.-acc Masha-acc laugh-caus-past.3
d. Lena/*Köx/*Üörüü Misha-ny yrya-ny ihiir-der-de.
Lena/*Enthusiasm/*Joy Misha-acc song-acc whistle-caus-past.3

Facts about passivization also support the lexically transitive status of second-type unergatives: they can undergo saturation both in the lexicon and in the syntax. As argued in 6.6, whether saturation is lexical or syntactic is revealed by the case marking on the remaining argument: nominative in the case of lexical and accusative in the case of syntactic passivization.

(57) a. Ikki kilometr/kilometr-y süür-ülün-ne/xaam-ylyn-na.
Two kilometer/kilometer-acc run-pass-past.3/walk-pass-past.3
b. Masha/Masha-ny kül-ülün-ne.
Masha/Masha-acc laugh-pass-past.3
c. Yrya/Yrya-ny ihiir-ilin-ne.
Song/Song-acc whistle-pass-past.3

What, then, explains the ability of second-type unergatives to appear as intransitives in the syntax? Going back to Hale & Keyser's (2000) analysis outlined in 1.4.1 and 7.1 above, we would like to argue that unergative verbs of the second type (i.e. containing no lexical noun when decomposed) can appear in structures like (4a) with the null N licensed through classification by V as argued by H&K. Another way to express this is by saying that the bare noun is licensed by the semantics of the unergative verb which allows the establishment of a classificatory relationship between the verb inserted under V in (4a) and the covert N.

There is one interesting datum which may be brought to bear upon the inherent presence of the classifying component in unergative verbs. Sakha has the diminutive suffix /–ka/ which derives diminutive (or endearing) nouns from nominal bases; see e.g. appendix 3, section 1. For instance, *aqaka* can be said about a father who is physically smaller than his children/other fathers or it can be used as a term of affection, endearment.

(58)

Oqo 'child'	*oqoko* 'little child; darling child'
Aqa 'father'	*aqaka* 'little father; daddy'
Ebe 'grandmother'	*ebeke* 'little grandmother; granny'
Kün 'sun'	*künüke* 'dear sun'
Küöl 'lake'	*Küölüke* 'little lake; dear lake'
Kihi 'person, human'	*kihike* 'little person; darling person'
Kinige 'book'	*kinigeke* 'little book; darling book'
Alaadjy 'pancake'	*alaadjyka* 'little pancake'

Curiously, the same suffix can attach to verbs but only to unergatives of the second, non-denominal type. As (59) shows, it is as if diminutive attachment has the effect of turning an unergative verb into a noun so that *süür-eke* 'run-diminutive' can only function as a predicate if it is again verbalized with –LAA. The translations indicate that the diminutive suffix modifies either the surface over which running took place or the event of running itself such that running was done in several short bouts.

(59) Misha süür-eke-lee-te.
Misha run-dimin-verb-past.3
a) 'Misha ran over a small surface.'
b) 'Misha ran around in short bouts.'

In (60) the diminutive verb occurs with a regular non-diminutive noun. Again, as in (59) the verbal diminutive can qualify the running event itself as a series of quick happenings or it can qualify the accusative direct object as having a small size.

(60) Misha xonuu-nu süür-eke-lee-te.
Misha field-acc run-dimin-verb-past.3
a) 'Misha ran over a small field.'
b) 'Misha ran around a field in short bouts.'

The accusative direct object can itself be suffixed with the diminutive suffix. In this case the verbal diminutive can no longer modify the object: the only option left for it is event modification.

(61) Misha xonuu-ka-ny süür-eke-lee-te.
Misha field-dimin-acc run-dimin-verb-past.3
'Misha ran around a small field in short bouts.'

It is the example in (60) which is most telling and, in particular, the translation in (60a) which makes it evident that the unergative verb contains an element which classifies its object in terms of size. This makes (60) similar to the cases considered in 3.1.2.3.4 (footnote 42), namely, predicate classifier languages which have classificatory verbs containing a classificatory morpheme. For convenience the examples are repeated below.

(62) Navajo (Allan 1977:287)

a. béésò sì-?á
money perfect-lie(round entity)
'A coin is lying (there).'
b. béésò sì-nìl
money perfect-lie(collection)
'Some money (small change) is lying (there)'
c. béésò sì-ltsòòz
money perfect-lie(flat flexible entity)
'A note (bill) is lying (there)'

(63) Caddo (Mithun 1986:386)

a. Kapí: kan-čâ:ni'ah
cofee liquid-buy.past
'He bought (liquid) coffee.'
b. Kapí: dan-čâ:ni'ah
cofee powder-buy.past
'He bought (ground) coffee.'

(64) Gunwinggu (Gerdts 1998:90)

bene dulg-naŋ mangaralalymayn
they.two tree-saw cashew.nut
'They saw a cashew tree'

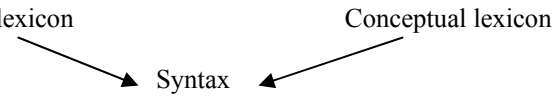
This preliminary investigation shows that at least two of the analyses advanced in Hale and Keyser (1993, 1998, 2000) may be on the right track, viz. syntactic derivation and null noun licensing through classification. What brings these accounts together is the postulation of a nominal component inside unergatives –

either overt, in the form of a lexical nominal base or hidden, in the form of a classifying component.

8. CONCLUSIONS

In this dissertation we have proposed a model of lexical category determination based on argument structure information. Basic assumptions can be summarized as follows. There are two types of lexicons – functional and conceptual whose outputs become inputs to syntax as shown in (1).

(1)



Members of the conceptual lexicon (or simply lexicon) are category-less roots which encode concepts. For each concept its thematic properties are specified in terms of θ-features [±c] and [±m] forming feature clusters. Each feature cluster corresponds to an argument of a predicate that is conventionally saturated by merging a DP in the syntax. Thematic properties of a concept determine whether it will merge in the syntax as a noun, adjective or verb. Non-predicative concepts associated with ∅ arguments will be categorized as nouns, predicative concepts with one argument as adjectives and predicative concepts with more than one argument as verbs. Thematic properties (number of arguments) are rooted in causal relations into which concepts enter: necessary/sufficient conditions associated with a given concept are translated as θ-feature clusters. This approach to categorization can be summarized as below.

(2) Inherent meaning of a concept (causal relations) → thematic properties (number of arguments) → category

The proposed model presents an extension of the Theta system. As such, it contains some inevitable deviations from the original framework. In TS it is argued that a concept must first undergo lexicon marking (including merging indices and Case) before it can be subjected to any type of computation (lexical or syntactic arity operations). Here we have assumed that unmarked concepts can undergo lexicon-internal derivation. In particular, in chapter 5 it was argued that neither lexical nominalization nor lexical adjectivization have the ability to eliminate accusative case feature. Therefore the only way to derive nouns and adjectives from e.g. agentive verbs is by applying m-reduction to a pre-marked concept.

Another deviation is making allowances for introducing syntactic argument structure with the help of functional projections as is done within Distributed Morphology. This helps account, among other things, for the distribution of possessors and benefactives and restrictions on arity operations with the latter. In addition, it makes it possible to maintain the empirically motivated distinction between lexical verbs whose arguments are specified in their lexical θ-grid and syntactic (i.e. unergative denominal) verbs whose arguments are introduced functionally.

In the beginning we have set out to derive, in a principled manner, various asymmetries among the three categories – thematic, morphological and syntactic.

We hope to have succeeded in showing that morphological and syntactic asymmetries can be drawn from thematic properties while thematic asymmetries are retraceable to causality. In particular, the long standing Case/Tense constraint taken since antiquity to be reflective of the noun/verb opposition follows from the present assumptions. Nouns are typical Case-bearers because they are arguments par excellence. As for Tense, verbs and adjectives are predicative categories, nouns are not. Being predicative, verbs and adjectives can supply an event variable which makes them compatible with the projection of Tense. Nouns, on the contrary, can only become associated with an event variable through a verbal copula. Unless co-occurring with a copula, they cannot be embedded under Tense directly.

Thus, by making full use of computational resources offered both by the lexical and syntactic modules (instead of employing just one and crippling the other), the present approach chooses to walk the middle road between DM and TS.

APPENDIX 1: BOUND ROOTS IN SAKHA

1. BOUND ROOTS WHICH BECOME NOUNS

SIMPLEX SUFFIXES

#	√-suffix → N	Gloss
	√-AA/-YA	
1.	Labaa	Tree branch
2.	Myndaa	Summit, top/upper side
3.	Xoruo	Soot, coal
	√-j	
4.	Erej	Sufferance, misery
5.	Oroj	Top of the head
6.	Keemej	Measure
	√-l	
7.	Tumul	Cape, promontory
8.	Kytyl	Shore
	√-m	
9.	Olom	Ford
10.	Kurum	Feast, banquet
11.	Utum	Heredity; system
	√-n	
12.	Kühün	Autumn
13.	Ajan	Travel, journey
	√-r	
14.	Aŋar	Half
15.	Bootur	Epic hero
	√-s	
16.	Tumus	Beak
17.	Örüs	River
18.	Torbos	Calf
	√-t	
19.	Ürüt	Top
20.	Örüt	Side
21.	Xatat	Flint, firestone
22.	Kulut	Slave; servant
	√-x	
23.	Kumax	Sand
24.	Ürex	Small river
25.	Timex	Button

COMPLEX SUFFIXES

	√-AA-s	
26.	Alaas	Alaas (large open round field with one or more lakes surrounded by forest inhabited by one family)
27.	Ojoos	Little island
	√-AA-x	
28.	Cyycaax	Little bird
29.	Kulgaax	Ear
30.	Djukaax	Neighbour
	√-YY-r	
31.	Dolbuur	Cupboard, shelf
32.	Xotuur	Scythe
33.	Iŋiir	Tendon
34.	Kujuur	Landing-net for fishing

2. BOUND ROOTS WHICH BECOME VERBS

SIMPLEX SUFFIXES

#	**√-suffix → V**	**Gloss**
	√-AA (intr.)	
1.	Bergee	Become worse (disease)
2.	Xamsaa	Move
3.	Xamnaa	Move
4.	Axsaa	Weaken, lessen
	√-AA (trans.)	
5.	Abyraa	Save, help out
6.	Ataqastaa	Offend, hurt
7.	Bihiree	Like
8.	Daqaa	Touch lightly
	√-j (intr.)	
9.	Djulaj	Be afraid
10.	Surguj	Squeeze/slip through
11.	Xorguj	Be hungry
12.	Tiij	Reach
	√-j (trans.)	
13.	Uhuj	Teach, train, habituate to
14.	Aaxaj	Pay attention, take into account
15.	Sarbyj	Shorten
16.	Kyryj	Cut
	√-l (trans.)	
17.	Öhül	Disentangle, dismantle; untwist; Go back on one's word

18.	Uhul	Take off; dismiss
	√-n (intr.)	
19.	Taŋyn	Dress oneself
20.	Ülün	Swell
21.	Tulun	Be pulled out
22.	Ojun	Come apart, get detached
	√-n (trans.)	
23.	Ahyn	Feel sorry for
24.	Ütügün	Imitate
25.	Kemsin	Regret, repent
26.	Otun	Make fire
	√-r (intr.)	
27.	Timir	Drown
28.	Itir	Get drunk
29.	Kyyr	Perform a shaman's ritual
	√-r (trans.)	
30.	Kötür	Tear down
31.	Tuur	Pull out
32.	Utar	Oppose, object
33.	Oŋor	Do, make
	√-s (intr.)	
34.	Tubus	Become better
35.	Umus	Dive
36.	Xarys	Wrestle, butt
37.	Ybys	Close up/join tightly
	√-s (trans.)	
38.	Meldjes	Refuse to acknowledge, deny, disavow
39.	Mökküs	Argue, dispute something
40.	Seles	Chat about idly, silly-talk
41.	Üles	Agree upon, arrange about, make an agreement
42.	Sajys	Be unwilling to let someone go
	√-t (intr.)	
43.	Xorgut	Become offended
44.	Tirit	Sweat
45.	Salt	Be bored, be fed up
46.	Kuot	Run away from
	√-t (trans.)	
47.	Ihit	Listen
48.	Ilt	Take away
49.	Yryt	Analyze
	√-x (intr.)	
50.	Arax	Become separated
	√-x (trans.)	

51.	Kötöx	Lift (trans.)
52.	Byrax	Throw (trans.)

COMPLEX SUFFIXES

	√-AA-r (trans.)	
53.	Byhaar	Explain
54.	Araar	Separate
55.	Uhaar	Cause to float
56.	Yhaar	Fry, grill
	√-r-j (intr.)	
57.	Ularyj	Change
58.	Syqaryj	Step aside
	√-s-n (intr.)	
59.	Ilihin	Become exhausted
	√-s-n (trans.)	
60.	Yjyhyn	Swallow
	√-T-Ar (trans.)	
61.	Üller	Divide, distribute
62.	Oxtor	Make fall

3. BOUND ROOTS WHICH BECOME ADJECTIVES

SIMPLEX SUFFIXES

#	**√-suffix → A**	**Gloss**
	√-AA/-YA	
1.	Alaa	Squint
2.	Acaa	Spoiled, capricious
3.	Ütüö	Good, kind, benevolent
	√-A	
4.	Kyra	Small
5.	Böqö	Sturdy
6.	Kuja	Miniature, tiny
	√-j	
7.	Djülej	Deaf
8.	Semej	Modest
9.	Njoqoj	Stubborn
	√-k	
10.	Cebdik	Healthy
11.	Ynyryk	Terrible
	√-KI	
12.	Xolku	Calm, relaxed
13.	Sudurgu	Simple

14.	Süörgü	Improper
	√-l	
15.	Suhal	Urgent
16.	Naqyl	Calm, relaxed
17.	Tunal	Shining white
	√-m	
18.	Syydam	Quick, fast
19.	Bahaam	Abundant
20.	Kelim	Whole, integral
	√-n	
21.	Naryn	Tender
22.	Uran	Refined, exquisite
23.	Kenen	Naïve
	√-r	
24.	Ötör	Recent
25.	Aar-maar	Stupid
26.	Xabyr	Rude, sharp
	√-s	
27.	Kuras	Astringent, pungent (of taste)
28.	Emis	Fat
29.	Alys	Excessive, extreme
	√-t	
30.	Bert	Fine, excellent
31.	Ketit	Broad
	√-x	
32.	Kötöx	Skinny
33.	Tihex	Last
34.	Sedex	Rare, uncommon; sparse
35.	Aax-maax	Stupid
	√-XA	
36.	Bosxo	Free
37.	Somoqo	Solid, integral
38.	Köjgö	Alienated, unloved

COMPLEX SUFFIXES

	√-AA-s	
39.	Yraas	Clean
40.	Ajaas	Untamed (horse)
41.	Cycaas	Shallow
	√-YY-n	
42.	Namyyn	Calm, peaceful
43.	Köhüün	Slow
44.	Xohuun	Diligent, energetic

	√-BA-x	
45.	Syppax	Blunt (e.g. knife)
46.	Sulumax	Unmarried
	√-XA-j	
47.	Ücügej	Good, kind
48.	Alamaqaj	Affable, cordial, friendly
49.	Djoroqoj	Cunning, smart, crafty

4. Bound Roots Which Can Become Nouns, Verbs and Adjectives

#	Root	Noun	Verb	Adjective
1.	√köŋ-	Köŋül ‘freedom’	Köŋöö ‘restrict, limit’	Köŋös ‘greedy’
2.	√xapta-	Xaptahyn ‘flat wooden board’	Xaptaj ‘become flat’	Xaptaqaj ‘flat’
			Xaptat ‘make flat’	
3.	√njurgu-	Njurguhun ‘snowdrop’	Njurguj ‘be first, best, choice’	Njurgun ‘first, best, choice’
			Njurgut ‘glorify’	
4.	√bar-	Baryl ‘sketch, outline’	Baryj ‘dimly appear in the distance’	Baraan ‘dark’
5.	√xar-	Xarys ‘care, protection’	Xaraj ‘hide away, take good care’	Xaram ‘thrifty, economical’
6.	√taa-	Taabyryn ‘puzzle’	Taaj ‘guess’	Taamax ‘enigmatic’
7.	√syl-	Sylaa ‘tiredness’	Sylaj ‘become tired’	Sylaj ‘having bad appetite’
			Sylat ‘make tired’	
8.	√sys-	Syhyan ‘relation, attitude’	Syhyar ‘attach (trans.)’	Syhyamax ‘sociable’
			Syhyn ‘attach oneself to’	
9.	√subur-	Suburqa ‘sheaf of wheat’	Suburuj ‘stretch, extend, shoot up (intrans.)’	Suburxaj ‘stretched, extended’
			Suburut ‘stretch, extend (trans.)’	
10.	√kyr-	Kyryy ‘furthest border, edge’	Kyyrat ‘throw very far; make soar up high’	Kyyraj ‘far away, distant’
			Kyyraj ‘soar up very far, high’	

5. Bound Roots Which Can Become Nouns and Verbs

In a few cases the same suffix derives both nouns and verbs with related meanings.

#	√-suffix	Noun gloss	Verb gloss
1.	Buruj	Guilt, fault, blame	Twist smth
2.	Kujaar	Outer space	Fly up, soar
3.	Omurt	Mouth (cavity)	Fill one's mouth
4.	Tellej	Mushroom	Hang out one's lower lip like a mushroom
5.	Xaxaj	Lion	Growl fiercely
6.	Ytys	Palm of a hand	Take a handful of something
7.	Sanaa	Thought	Think
8.	Tobul	Breakthrough; solution	Cut/hack through, break through; clean through; solve (a problem)
9.	Miceer	Smile	Smile

In all other cases the nominalizer and the verbalizer are not identical to each other.

#	Root	Noun	Gloss	Verb	Gloss
10.	√öj-	Öjüö	Energy snack for the road	Öjöö	Support
11.	√yr-	Yrya	Song	Yllaa	Sing
12.	√alg-	Algys	Blessing	Alqaa	Bless
13.	√oonnj-	Oonnjuu	Game	Oonnjoo	Play
14.	√duor-	Duoraan	Echo	Duoraj	Produce an echo
15.	√xal-	Xalaan	Flood	Xalyj	Overflow
16.	√xos-	Xohoon	Poem	Xohuj	Sing in a poem
17.	√bulk-	Bulkuur	Confusion	Bulkuj	Confuse
18.	√sipp-	Sippiir	Broom	Sippij	Sweep with a broom
19.	√djul-	Djuluur	Diligence, aspiration	Djuluj	Work on/pursue diligently; aspire
20.	√toh-	Tohuur	Ambush	Tohuj	Ambush
21.	√köl-	Kölö	Working cattle	Kölüj	Yoke
22.	√mannj-	Mannja	Favour	Mannjyj	Make favours Become sentimental
23.	√ar-	Aryt	Opening, interval	Aryj	Open
24.	√kyh-	Kyhyy	Resentment	Kyhyj	Resent
25.	√yar-	Yaryy	Disease	Yaryj	Fall sick
26.	√üör-	Üörex	Studies	Üören	Study
				Üöret	Teach
27.	√küü-	Küüs	Strength	Küür	Strain/exert oneself

6. Bound Roots Which Can Become Nouns and Adjectives

#	Root	Noun	Gloss	Adjective	Gloss
1.	√ürü-	Ürüme	Cream	Ürüŋ	White
2.	√bor-	Buor	Soil	Boroŋ	Brown
3.	√küö-	Küöl	Lake	Küöx	Blue/green
4.	√sen-	Senie	Energy	Senie	Well-off
				Senex	In good condition
5.	√eex-	Eeqe	Sarcasm	Eeqij	Sarcastic

7. Bound Roots Which Can Become Verbs and Adjectives

#	Root	Verb	Gloss	Adjective	Gloss
1.	√del-	Delej	Multiply	Delej	Abundant
2.	√munc-	Muncaar	Worry	Muncaar	Anxious
3.	√maŋ-	Maŋxaj	Whiten	Maŋan	White
				Maŋaas	White-headed (cow)
4.	√tymn-	Tymnyj	Become cold	Tymnyy	Cold
5.	√ah-	Ahyj	Become sour	Ahyy	Sour
6.	√türge-	Türget	Make quick	Türgen	Quick, fast
7.	√iT-	Itij	Become warm, hot	Itii	Hot
				Iciges	Warm
8.	√syl-	Sylyj	Become warm	Sylaas	Warm
9.	√xoj-	Xojun	Thicken	Xojuu	Thick, dense
10.	√yr-	Yraat	Go far	Yraax	Far
11.	√syrd-	Syrdaa	Become bright, light	Syrdyk	Bright, light
12.	√kyla-	Kylaj Kylat	Squint (intrans.) Squint (trans.)	Kylar	Squint
13.	√byt-	Bytaar	Slow down	Bytaan	Slow

APPENDIX 2: ROOT WORDS IN SAKHA

1. ROOT WORDS WHICH BECOME NOUNS: NOMINAL ROOTS

#	Noun	Gloss
1.	Aat	Name
2.	At	Horse
3.	Balyk	Fish
4.	Börö	Wolf
5.	Cucuna	Yeti (snowman)
6.	Djükeebil	Aurora borealis
7.	Kün	Sun; day
8.	Kur	Belt
9.	Kus	Duck
10.	Ot	Grass
11.	Taas	Stone
12.	Tiis	Tooth
13.	Timir	Iron
14.	Yj	Month, moon
15.	Yt	Dog

2. ROOT WORDS WHICH BECOME VERBS: VERBAL ROOTS

Table 1: Transitive root verbs

#	Verb	Gloss
1.	Aj	Create
2.	As	Open
3.	Bas	Fetch (water)
4.	Bier	Give
5.	Bil	Know
6.	Bis	Smear
7.	Bop	Forbid, prohibit
8.	Bul	Find
9.	Bys	Cut
10.	Djöl	Make a hole
11.	Ep	Add
12.	Es	Destroy
13.	Et	Say
14.	Gyn	Do
15.	Iil	Hang
16.	Iit	Bring up, sustain
17.	Ilk	Cast away
18.	Is	Drink; go

19.	Kej	Strike with horns, butt, gore
20.	Ket	Wear, put on
21.	Kik	Incite, instigate
22.	Kim	Press hard, attack, advance
23.	Kir	Gnaw
24.	Köm	Bury
25.	Kör	See
26.	Kül	Laugh
27.	Kut	Pour
28.	Kuus	Hug
29.	Mus	Gather
30.	Syys	Be mistaken
31.	Uj	Support the weight of
32.	Uk	Put into
33.	Üŋ(k)	Pray, worship
34.	Uur	Put
35.	Üür	Drive away
36.	Xap	Catch; encompass
37.	Xas	Dig
38.	Yj	Point to
39.	Yt	Shoot
40.	Yyt	Send

Table 2: Intransitive root verbs

#	Verb	Gloss
41.	Aas	Pass
42.	Böt	Hiccup
43.	Buol	Be, become
44.	Bus	Cook, heat
45.	Byk	Look out, peep out
46.	Djaj	Be absorbed, clear up (sky), pass, be over
47.	Döj	Become deaf
48.	Iin	Emaciate
49.	Iir	Go mad; become sour (of milk)
50.	Iŋ	Be absorbed
51.	Ir	Melt (about snow), thaw, warm up
52.	Kiir	Enter
53.	Kön	Straighten
54.	Köt	Fly
55.	Oj	Jump
56.	Öl	Die
57.	Os	Heal
58.	Öt	Ooze

59.	Sas	Hide
60.	Soj	Cool down
61.	Süt	Disappear
62.	Suul	Fall
63.	Süür	Run
64.	Syt	Lie (down)
65.	Syyl	Crawl
66.	Taal	Be petrified

3. Root Words Which Become Adjectives: Adjectival Roots

#	Adjective	Gloss
1.	Aas	Hungry
2.	Bor	Undemanding with respect to food, enduring
3.	Cuor	Sharp, keen (of hearing)
4.	Djiŋ	True, genuine
5.	Kieŋ	Wide
6.	Söp	Right, correct
7.	Sul	Bare; lonely
8.	Teŋ	Equal
9.	Xor	Quickly consumed
10.	Xos	Additional, secondary

4. Root Words Which Are Ambiguous Between Nouns, Verbs and Adjectives

None

5. Root Words Which Are Ambiguous Between Nouns and Verbs

#	Root Word	Noun	Verb
1.	Kös	Migration; a walking mile	Migrate, move from one place to another
2.	Saat	Shame	Be ashamed
3.	Bük	Fold, pleat	Hide os
4.	Tüös	Chest	Evoke, recall (the past)
5.	Tyyn	Breath	Breathe

6. Root Words Which Are Ambiguous Between Nouns and Adjectives

#	Root Word	Noun	Adjective
1.	Aqa	Father	Old, elder
2.	Deŋ	Accident	Rare, sparse

7. ROOT WORDS WHICH ARE AMBIGUOUS BETWEEN VERBS AND ADJECTIVES

#	ROOT WORD	Verb	ADJECTIVE
1.	Toŋ	Freeze	Frozen
2.	Tot	Eat one's fill, glut oneself	Well-fed, with a full stomach
3.	Ir	Melt (about snow), warm up	Hot as in *ir suol* 'hot trail'
4.	Söŋ	Settle to the bottom of a liquid	Thick (sour cream), low (voice)
5.	Köp	Fluff; rise, heave; become stronger (disease)	Fluffy

APPENDIX 3: WORD FORMATION IN SAKHA

1. DERIVING NOUNS FROM NOUNS

PRODUCTIVE SIMPLEX SUFFIXES

1. The suffix /-CI/

N	Gloss	N	Gloss
Is	Inside, inner side; stomach	Icci	Internal spirit; master
Törüt	Reason, cause, origin	Törüccü	Family tree, genealogy
Xappax	Cover, lid	Xappaxcy	Store-room
Ürüme	Cream	Ürümecci	(White) butterfly
Symyja	Lie	Symyjaccy	Liar
Xobuo	Slander	Xobuoccu	Slanderer

PRODUCTIVE COMPLEX SUFFIXES

2. The suffixes /-CI-t/ or /-hY-t/

N	Gloss	N	Gloss
Ot	Grass	Otcut	Person who mows grass
As	Food	Ascyt	Cook
Xamnas	Salary, wages	Xamnaccyt	Servant
Ajan	Travel	Ajannjyt	Traveler
Oton	Berry	Otonnjut	Berry-picker
Balyk	Fish	Balyksyt	Fisherman
Oloŋxo	Epic poem	Oloŋxohut	Epic poet
Uu	Water	Uuhut	Swimmer
Arygy	Wine	Arygyhyt	Alcoholic
Yrya	Song	Yryahyt	Singer
Üle	Work	Ülehit	Worker
Sübe	Advice	Sübehit	Advisor

3. The suffix /-LYk/ (l+k)

N	Gloss	N	Gloss
Kün	Sun; day	Künnük	Diary
As	Food	Ahylyk	Meal
Innje	Needle	Innjelik	Needle-case, needle cushion
Tuma	Seasoning, dressing, spice	Tumalyk	Speciality, hobby
Xoruo	Coal, soot	Xoruoluk	Carbohydrate
Tüös	Chest	Tühülük	Breastplate
Et	Flesh, meat	Ettik	Body (in physics)
Ebii	Addition	Ebiilik	Bonus

SPORADIC SIMPLEX SUFFIXES

4. The suffix /-YY/

N	Gloss	N	Gloss
Yar	Difficulty, grief	Yaryy	Disease
Ot	Grass	Otuu	Grass hut

5. The suffix /-Y/

N	Gloss	N	Gloss
Saas	Age	Saahy	Order, hierarchy

6. The suffix /-j/

N	Gloss	N	Gloss
Ege	Happy event	Egej	Joy

7. The suffix /-jA/

N	Gloss	N	Gloss
Küös	Cooking pot	Köhüje	Little cooking pot
Küöl	Lake	Kölüje	Little lake
Süöm	Inch	Sömüje	Finger

8. The suffix /-m/

N	Gloss	N	Gloss
Sil	Saliva	Silim	Glue
Kül	Ashes	Külüm	Sparkle
Büö	Cork stopper	Büöm	Cozy, remote, isolated place; (traffic) jam
Tas	Outer side	Tahym	Level

9. The suffix /-n/

N	Gloss	N	Gloss
Alyp	Magic	Albyn	Deceit

10. The suffix /-s/

N	Gloss	N	Gloss
Kün	Day	Künüs	Afternoon, midday
Alyp	Magic	Albas	Trick
Aqa	Father; elder	Aqas	Elder sister
Üge	Fable	Üges	Tradition, custom; habit
Suo	Huge(ness), respect(ed)	Suos	Strictness; airs

11. The suffix /-hA/

N	Gloss	N	Gloss
Tula	Environs	Tulaha	Courtyard
Tus	Side, direction	Tusaha	Courtyard

12. The suffix /-t/

N	Gloss	N	Gloss
Is	Inside, inner side; stomach	Ihit	Container; plates and dishes
Töbö	Head	Töböt	Urchin, scamp, rascal
Er	Man	Eret	Fine fellow, good lad

13. The suffix /-TA/

N	Gloss	N	Gloss
Kün	Sun	Künde	Darling
Suol	Road (and a broad range of related meanings)	Suolta	Meaning
Dal	Corral	Dalda	Shelter (for livestock)

14. The suffix /-x/

N	Gloss	N	Gloss
Ulluŋ	Sole	Ulluŋax	Sole; foot
Kuruŋ	Dried up tree/forest	Kuruŋax	Dried up tree/forest
Saqa	Collar; border	Saqax	Horizon
Sür	Soul, internal spirit, core	Sürex	Heart
Xaa	Box, receptacle	Xax	Cover, shell, skin

15. The suffix /-XA/

N	Gloss	N	Gloss
Djyl	Year	Djylqa	Destiny
Xax	Cover, shell, skin	Xaxxa	Shelter
Sür	Soul, internal spirit, core	Sürge	Mood

SPORADIC COMPLEX SUFFIXES

16. The suffix /-AA-n/

N	Gloss	N	Gloss
Tus	Side, direction	Tuhaan	Subject; pertinence
Tuom	Custom, tradition	Tomoon	Order
Üüt	Hole	Üüteen	Small and remote (usually hunter's) cabin

17. The suffix /-hY-n/

N	Gloss	N	Gloss
Kölö	Working cattle	Kölöhün	Sweat
Süme	Sap	Sümehin	Sap

18. The suffix /-BA-x/

N	Gloss	N	Gloss
Xos	Room	Xospox	Small room, pantry
Xaa	Box, receptacle	Xabax	Bladder

19. The suffix /-TA-x/

N	Gloss	N	Gloss
Tüü	Fluff, fur	Tüütex	Sheaf
Uu	Water	Utax	Beverage

PRODUCTIVE DIMINUTIVES

20. The suffix /-CIk/

N	Gloss	N	Gloss
Cuoraan	Bell	Cuoraancyk	Little bell
Kulun	Foal, colt	Kuluncuk	Little foal, colt

21. The suffix /-kA/

N	Gloss	N	Gloss
Oqo	Child	Oqoko	Little/darling child
Aqa	Father	Aqaka	Little/darling father
Ehe	Grandfather	Eheke	Little/darling grandfather

22. The suffix /-CAAn/

N	Gloss	N	Gloss
Doqor	Friend	Doqorcoon	Friend (endearing)
Kyys	Girl	Kyyscaan	Girl (endearing)
Uol	Boy	Uolcaan	Boy (endearing)
Keskil	Proper name	Keskilceen	Keskil (endearing)

2. DERIVING NOUNS FROM VERBS

PRODUCTIVE SIMPLEX SUFFIXES

23. The suffixes /–YY/ and /-hYn/

V	Gloss	N	Gloss
Olor	Sit, live	Oloruu	Sitting, living; life
Ys	Sow	Yhyy	Sowing; crops
Bys	Cut	Byhyy	Cutting; piece; shape;

			character
Yryt	Analyze	Yrytyy	Analyzing; analysis
Üün	Grow	Üünüü	Growing; harvest
Bar	Leave	Baryy	Leaving; departure
Üŋ(k)	Pray, worship	Üŋüü	Praying, worshipping
		Üŋküü	Dance

V	Gloss	V-hYn → N	Gloss
Salaa	Lick	Salaahyn	Licking; leftover food
Soloo	Clear a forest	Soloohun	Clearing; land cleared
Salqaa	Continue	Salqaahyn	Continuing; addition
Xamnaa	Move	Xamnaahyn	Moving; movement
Bosxoloo	Liberate	Bosxoloohun	Liberating; liberation
Battaa	Press	Battaahyn	Pressing; pressure
Yjaa	Weigh	Yjaahyn	Weighing; weight; scales
Daqaa	Touch lightly	Daqaahyn	Adjective

24. The suffix /-CI/

V	Gloss	N	Gloss
Üören	Study	Üöreneecci	Pupil
Üöret	Teach	Üöreteecci	Teacher
Xamsat	Move (trans.)	Xamsataaccy	Engine
Könnör	Straighten	Könnörööccü	Rectifier
Kerbee	Gnaw/bite through	Kerbeecci	Rodent
Salaj	Lead, direct, run	Salajaaccy	Leader, director

25. The suffix /–k/

V	Gloss	N	Gloss
Bier	Give	Berik	Bribe
Xon	Stay overnight	Xonuk	Overnight stay
Kybyt	Insert	Kybytyk	Insertion
Tur	Stand	Turuk	State, condition
Süür	Run	Süürük	Current, flow
Xolbos	Unite	Xolbohuk	Union
Tüm	Sum up, conclude; unite	Tümük	Conclusion
Ytyj	Whip cream	Ytyk	Utensil for whipping cream
Suruj	Write	Suruk	Letter, writing

26. The suffix /–l/

V	Gloss	N	Gloss
Tut	Hold	Tutul	System
Tap	Hit one's aim	Tabyl	Luck
Anaa	Appoint	Anal	Destiny

Kuttaa	Frighten	Kuttal	Fear
Taptaa	Love	Taptal	Love
Üktee	Step	Üktel	Step

27. The suffix /–m/

V	Gloss	N	Gloss
Tut	Hold	Tutum	A measure of length equal to the length of one's fist held together
Ytyr	Bite	Ytyrym	A bit
Sit	Catch up with	Sitim	Connection, net(work)
Bihiree	Admire	Bihirem	Admiration

28. The suffix /–x/

V	Gloss	N	Gloss
Bys	Cut	Byhax	Knife
Sox	Pound in mortar	Soqox	Pestle
Kürt	Shovel	Kürdjex	Shovel
Taraa	Comb	Taraax	Comb
Iskej	Swell	Iskex	Fish roe

PRODUCTIVE COMPLEX SUFFIXES

29. The suffix /–AA-n/

V	Gloss	N	Gloss
Ühüj	Allegedly say	Ühüjeen	Legend
Tygys	Fillip each other	Tyksaan	A kind of game
Ugus	Give away each other	Uksaan	A kind of game
Süür	Run	Süüreen	Current, flow
Xap	Catch; encompass	Xabaan	Scope

30. The suffix /–bYl/

When the base verb contains –l- (if it ends in –lAA), -bYr is used.

V	Gloss	N	Gloss
Sataa	Know how	Satabyl	Ability, skill
Toxtoo	Stop	Toxtobul	Stop (e.g. bus stop)
Öröö	Rest, take a day-off	Öröbül	Day off
Tölöö	Pay	Tölöbür	Payment

31. The suffixes /-YY-r/, /-A-r/: Present tense participles reanalyzed as nouns

V	Gloss	N	Gloss
Sotun	Wipe oneself	Sottor	Towel (participle: wiping oneself)
Köt	Fly	Kötör	Bird (participle: flying)
Xajys	Turn	Xajyhar	Skis (participle: turning)

Xarb-aa	Sweep	Xarb-yyr	Broom (participle: sweeping)
Xat-aa	Lock	Xat-yyr	Door lock (participle: locking)

32. The suffix /-LYk/ (l+k) and its variant /-TYk/ (t+k)

V	Gloss	N	Gloss
Xap	Catch	Xabylyk	Game of catching small sticks
Ep	Add	Ebilik	Addition
Tis	Thread, string	Tihilik	Chain
Mun	Lose one's way, get lost	Munnuk	Corner
Syt	Lie down	Syttyk	Pillow

33. The suffixes /-l-TA/, /-m-TA/

V	Gloss	N	Gloss
Djahaj	Manage, direct	Djahalta	Order, command
Terij	Arrange, organize	Terilte	Company, institution
Salaj	Govern, coordinate	Salalta	Government
Tögürüj	Become round	Tögürümte	Circle; roundabout

SPORADIC SIMPLEX SUFFIXES

34. The suffix /–Y/

V	Gloss	N	Gloss
Yhaar	Fry, grill	Yhaary	Fried food

35. The suffix /–BA/

V	Gloss	N	Gloss
Uol	Become lower, go down, subside (of water)	Uolba	Body of water with water having subsided
Uor	Steal	Uorba	Suspicion

36. The suffix /–j/

V	Gloss	N	Gloss
Büt	End, finish	Bütej	Barrier, an enclosed space

37. The suffix /-jA/

V	Gloss	N	Gloss
Bys	Cut	Byhyja	Small knife

38. The suffix /–n/

V	Gloss	N	Gloss
Tüm	Sum up, conclude; unite	Tümen	Parliament
Kepsee	Tell, narrate	Kepseen	Story
Ergij	Turn around	Ergin	Environs, neighborhood

Iskej	Swell	Isken	Swelling

39. The suffix /–ŋ/

V	Gloss	N	Gloss
Kör	See	Körüŋ	Appearance
Sie	Eat	Sieŋ	Carrion
Tep	Kick	Tebiŋ	Support; mentor
Djaj	Be absorbed, clear up (sky), pass, be over	Djajyŋ	Side, border, edge
Et	Say	Etiŋ	Thunder
Kilej	Reflect, shine, give off a subdued glitter	Kileŋ	Ice-crusted ground; reflection, sheen

40. The suffix /–s/

V	Gloss	N	Gloss
Xat	Twist/weave (a rope)	Xatys	Leather rope
Köm	Bury	Kömüs	Gold or silver (depending on the modifier)
Xamnaa	Move	Xamnas	Salary
Kyrbaa	To cut into pieces	Kyrbas	A piece
Taŋaa	Put together pieces of material (archaic)	Taŋas	Clothes
Turtaj	Become white	Turtas	Roe deer (with a white rump patch)
Bocuguraa	Onomatopoeic: produce sounds like ‘bocu’	Bocuguras	Ruffed grouse

41. The suffix /–hA/

V	Gloss	N	Gloss
Xon	Stay overnight	Xonoho	Guest staying overnight
Üt	Fry, roast on embers/on a spit	Ütehe	Spit
Telgee	Spread, lay, furnish with a bedding	Telgehe	Courtyard
Keltej	Become asymmetric	Keltehe	Stye (swelling on an eyelid)

42. The suffix /–t/

V	Gloss	N	Gloss
Bys	Cut	Byhyt	Barrier preventing passage; dam, dike
Toŋ	Freeze	Toŋot	Crust of ice over snow
Uk	Put into	Ugut	Poultice, fomentation
Uop	Take a mouthful	Obot	Appetite

43. The suffix /–XA/

V	Gloss	N	Gloss
Sahar	Become yellow	Saharqa	Dawn
Xajys	Turn	Xajysxa	Direction
Bil	Know	Bilge	Prognosis
Ytyr	Bite, pinch	Ytarqa	Earring
Mataj	Have a broad back	Mataqa	Large bag
Albaa	Flatter, coax, wheedle	Albaqa	Flattery, coaxing, wheedling

SPORADIC COMPLEX SUFFIXES

44. The suffix /-AA-x/ and its variant /-YA-x/

V	Gloss	N	Gloss
Uur	Put, decree	Uuraax	Decree
Yyr	Divide in two	Yyraax	A division in a hoof (of artiodactyls)
Yj	Point	Yjaax	Decree
Tut	Hold	Tutaax	Handle
Ys	Sprinkle, spatter	Yhyax	National holiday on summer's solstice which culminates in the sprinkling of *kymys* (national drink of fermented mare's milk) on the ground to feed the spirits of nature

45. The suffix /-BA-x/

V	Gloss	N	Gloss
Xas	Dig	Xaspax	Hole
Ör	Knit	Örböx	Rags
Köp	Fluff; rise, heave, float to the surface; become stronger (disease)	Köppöx	Junk floating on the water surface
Tüs	Fall	Tühümex	Chapter; round (in sports)
Üt	Put into water	Ütümex	Pole used in fishing
Xap	Catch	Xappax	Cover, lid

46. The suffix /-jA-x/

V	Gloss	N	Gloss
Uor	Steal	Uorujax	Thief
Küree	Run away	Küreejex	Fugitive, runaway
Bük	Bend, fold, arch, curve	Bügüjex	Gadfly
Üören	Study	Üörüjex	Habit

47. The suffix /-lqA/ (l+XA)

V	Gloss	N	Gloss
Aj	Create	Ajylqa	Nature
Uj	Support the weight of	Ujulqa	Emotional state
Kyhaj	Force, urge, spur	Kyhalqa	Need, want, urgency
Tüs	Fall	Tühülge	Arena
Djaptaj	Pile up, layer	Djaptalqa	Layer, stratum

48. The suffix /-hY-k/

V	Gloss	N	Gloss
Oŋor	Make	Oŋohuk	Thing made
Üller	Divide, partition, distribute	Üllehik	Division
Killer	Enter, insert	Killehik	Insertion; patch

49. The suffix /-XA-j/

V	Gloss	N	Gloss
Xabys	Wrestle with	Xapsaqaj	Wrestling competition
Öhöö	Bear a grudge against	Öhögöj	Hostility, feud
Toŋsuj	Knock	Toŋsoqoj	Woodpecker
Öröj	Look up; keep up the spirits, become energetic	Örögöj	Success, triumph
Küörej	Soar up, shoot upwards	Küöregej	Lark (bird)

50. The suffix /-XA-s/

V	Gloss	N	Gloss
Djöl	Pierce, make a hole	Djöloqös	Hole
Ya	Milk	Yaqas	Bucket for milking
Butuj	Mix, stir	Butugas	Soup
Üün	Grow	Üünüges	Shoot, sprout; puppy

3. Deriving Nouns From Adjectives

Deriving nouns from adjectives is not morphologically marked because any adjective can be zero-converted into a noun. There are only a few sporadic cases in which the underlying base to which a suffix is attached is an adjective.

51. The suffix /-AA-n/

A	Gloss	N	Gloss
Cuor	Sharp, keen (of hearing)	Cuoraan	Bell
Kur	Dry, old, stale	Kuraan	Drought

52. The suffix /-jAx/

A	Gloss	N	Gloss
Bylaa	Long (archaic)	Bylaajax	Stick for a shaman's drum

			(half a meter long)

53. The suffix /-LYk/ (l+k)

A	Gloss	N	Gloss
Xat	Extra	Xattyk	Extra layer of clothing

54. The suffix /-ŋ/

A	Gloss	N	Gloss
Kur	Dry, old, stale	Kuruŋ	Dried up tree/forest

55. The suffix /-s/

A	Gloss	N	Gloss
Saŋa	New	Saŋas	Daughter/sister-in-law

56. The suffix /-t/

A	Gloss	N	Gloss
Toŋ	Frozen, cold	Toŋot	Crust of ice over snow

57. The suffix /-XA-s/

A	Gloss	N	Gloss
Sürün	Basic, fundamental	Sürdjüges	A pole serving as a basis for a fence

4. Deriving Verbs From Nouns

Productive Complex suffixes

1. The suffix /-TYj/ and its variants /-sYj/, /-lYj/, /-nYj/

These are double suffixes. The second formant is /-j/, the first is –t, -s, –l or –n.

N	Gloss	V-intr	Gloss
Ürüme	Cream	Ürümetij	Become creamy
Iriŋe	Pus	Iriŋetij	Exude pus
Kihi	Person	Kihitij	Become humane
Aba	Bitterness, annoyance	Abatyj	Be annoyed
Uot	Fire	Uottuj	Become spoiled under fire or sun
Kyryk	Anger, spite	Kyryktyj	Become angry
Cer	Scar, callus	Cerdij	Become scarred/covered with callus
Oqonnjor	Old man	Oqonnjorsuj	Become (like) an old man
Olox	Life, seat	Oloxsuj	Settle
Kyŋ	Onomatopoeic √	Kyŋsyj	Speak through one's nose
Sip	Onomatopoeic √	Sipsij	Whisper

Lax	Onomatopoeic √	Laxsyj	Talk rubbish
Xax	Onomatopoeic √	Xaxsyj	Cough heavily
Kyyl	Animal	Kyyllyj	Become brutal
Djebin	Rust	Djebinnij	Become rusty

2. The suffix /-msYj/ (m+s+j)

This affix has three formants: -m, -s and –j. It derives intransitive verbs meaning 'act according to the property of the base which the subject believes himself to possess' with a negative connotation of boastfulness, showing off, pretentiousness. For example, *küühümsüj* 'pretend to be strong' means that the subject of this derived verb believes himself to be strong and acts accordingly but other people assume that the subject pretends to be strong while in reality he is not.

N	Gloss	V-intr	Gloss
Njirej	A calf	Njiremsij	Act stupid, naïve
Tojon	Boss	Tojomsuj	Act bossy
Oqo	Child	Oqomsuj	Act childish, pretend to be childish, naïve
Yaldjyt	Guest	Yaldjytymsyj	Do nothing like a guest, demand respect like a guest
Uus	Master, craftsman	Uuhumsuj	Pretend to be a master, show off one's craftsmanship
Küüs	Strength	Küühümsüj	Pretend to be strong
Djahal	Order, command	Djahalymsyj	Meddle, interfere with one's orders when nobody asks

SPORADIC SIMPLEX SUFFIXES

3. The suffix /-j/

N	Gloss	V-trans	Gloss
Cocu	Whetstone, grindstone	Cocuj	Improve, perfect; sharpen
Xarys	Care, protection	Xaryhyj	Protect
Köx	Initiative, enthusiasm	Köqüj	Stimulate
Bas	Head	Bahyj	Master
Kyha	Hearth, crucible	Kyhaj	Force, urge, spur
Xaa	Box	Xaaj	Lock up/in
N	**Gloss**	**V-intr**	**Gloss**
Syt	Smell	Sytyj	Rot (acquire smell)
Kierge	Jewel	Kiergej	Become prettier
Yar	Difficulty	Yaryj	Become sick

4. The suffix /-r/

N	Gloss	V-intr	Gloss
Bylyt	Cloud	Bylytyr	Become cloudy
Kiehe	Evening	Kieher	Grow dark
Tyal	Wind	Tyalyr	Blow, become windy
Baas	Wound	Baahyr	Be wounded
Xahyy	Yell, scream	Xahyyr	Scream
Aba	Bitterness, annoyance	Abar	Be annoyed
N	**Gloss**	**V-trans**	**Gloss**
Baqa	Desire, N	Baqar	Desire
Yt	Dog	Ytyr	Bite
Saŋa	Speech	Saŋar	Speak
Ymsyy	Envy	Ymsyyr	Envy
Iŋse	Greed	Iŋser	Be greedy, covet
Xarda	Reply, answer	Xardar	Reply, answer

5. The suffix /-n/

N	Gloss	V-trans	Gloss
Tos	Onomatopoeic word	Tohun	Break, intrans.
Tas	Onomatopoeic word	Tahyn	Clap, applaud
Kyp	Descriptive word ‘pinch’	Kybyn	Grip, put under one’s arm
Kyha	Hearth, crucible	Kyhan	Do one’s best
Tuha	Use	Tuhan	Use
Kös	Archaic for ‘eye’	Köhün	Appear, intrans.
Sötöl	Cough	Sötölün	Cough
Uus	Master; blacksmith	Uhan	Handcraft

6. The suffix /-t/

N	Gloss	V-trans	Gloss
Kierge	Jewel	Kierget	Decorate
Syt	Smell	Sytyt	Make rot
Yar	Difficulty	Yaryt	Make sick
Kyp	Descriptive word ‘pinch’	Kybyt	Insert

SPORADIC COMPLEX SUFFIXES

7. The suffix /-AA-j/

N	Gloss	V	Gloss
Tus	Side, direction	Tuhaaj	Direct at, point at

8. The suffix /-AA-r/

N	Gloss	V	Gloss
Tas	Outside	Tahaar	Take out; publish

5. DERIVING VERBS FROM VERBS

Deriving verbs from verbs is not a productive process and there are only a few sporadic cases mentioned below.

9. The suffix /–AA/

V	Gloss	V-AA → V	Gloss
Ygys	Be squeezed	Yksaa	Hurry
Yj	Point	Yjaa	Weigh
Bar	Go	Baraa	Spend

10. The suffix /–LAA/

V	Gloss	V-LAA → V	Gloss
Bat	Fit into smth., intr.	Battaa	Press, oppress
Kör	See, tr.	Kördöö	Look for; ask for
Xas	Dig, tr.	Xastaa	Scratch, scrape
Tox	Throw away, pour out	Toxtoo	Stop

11. The suffix /-j/

V	Gloss	V-j → V	Gloss
Xor	Furrow	Xoruj	Plough (not deeply) Shave
Kys	Plane smth, scrape, carve	Kyhyj	Scrape
Tut	Hold	Tutaj	Diminish, dwindle (intr.)
Aax	Read	Aaxaj	Pay attention

12. The suffix /-n/

V	Gloss	V-n → V	Gloss
Xor	Furrow	Xorun	Shave (reflexive)

13. The suffix /–r/

V	Gloss	V-r → V	Gloss
Xat	Become dry	Xatyr	Become dry (of skin)
Uop	Take a mouthful	Obor	Absorb

14. The suffix /-t/

V	Gloss	V-t → V	Gloss
Xor	Furrow	Xorut	Plough (deeply)
Yj	Point	Yjyt	Ask

15. The suffix /k+n/

V	Gloss	V-k-n → V	Gloss
Ys	Scatter	Yhygyn	Drop smth, let fall
			Neglect

16. The suffix /k+r/

V	Gloss	V-k-r → V	Gloss
Iir	Go mad	Iirigir	Behave foolishly, act madly

17. The suffix /l+j/

V	Gloss	V-lyj → V	Gloss
Yk	Squeeze	Ygylyj	Get stressed up, become pressed
Sim	Stuff in	Similij	Vanish, disappear
Is	Swell	Ihelij	Swell, redden from cold

18. The suffix /r+j/

V	Gloss	V-r-j → V	Gloss
Djöl	Make holes	Djölörüj	Get holes
Sük	Carry on one's back	Sügürüj	Worship, revere

19. The suffix /s+n/

V	Gloss	V-s-n → V	Gloss
Yk	Squeeze	Ygyhyn	Strain oneself
Iil	Hang	Iilihin	Become entangled
Ilk	Cast away	Ilgihin	Shake down (e.g. head)

20. The suffix /t+n/

V	Gloss	V-t-n → V	Gloss
Sim	Stuff in	Simitin	Be(come) shy, embarrassed

21. The suffix /-AA-r/

V	Gloss	V-AA-r → V	Gloss
Tuoj	Blabber; sing	Tujaar	Sing (lark)

6. Deriving Verbs From Adjectives

Productive Simplex Suffixes

22. The suffix /-j/

All 'adjective-j' verbs are intransitive.

A	Gloss	V	Gloss
Tyjys	Hard, tough, harsh	Tyjyhyj	Harden, toughen
Naqyl	Leisurely	Naqylyj	Relax, become

			leisurely
Tunal	Shining white	Tunalyj	Turn/appear white, shine
Kur	Old, stale	Kuruj	Become stale
Xom	Sad	Xomoj	Become sad
Kilbik	Timid, shy	Kilbigij	Be timid, shy
Köppö	Lazy	Köppöj	Become lazy
Symsa	Tasteless; crafty, cunning	Symsaj	Become tasteless; taste

23. The suffix /-r/

All 'adjective-r' verbs are intransitive.

A	Gloss	V	Gloss
Sylaas	Warm	Sylaahyr	Become warm
Tyjys	Hard, tough, harsh	Tyjyhyr	Harden, toughen
Cuumpu	Quiet	Cuumpur	Become quiet
Ütüö	Good	Ütüör	Get better/well, recuperate
Djalbaa	Absent-minded	Djalbaar	Become absent-minded
Yraas	Clean	Yraahyr	Become clean
Xaraŋa	Dark	Xaraŋar	Darken
Uustuk	Complicated	Uustugur	Become complicated
Cebdik	Healthy	Cebdigir	Become healthier
Djajqa	Cloudless or with few clouds	Djajqar	Clear up (sky)

24. The suffix /-t/

All 'adjective-t' verbs are transitive.

A	Gloss	V	Gloss
Tyjys	Hard, tough, harsh	Tyjyhyt	Harden, toughen
Naqyl	Leisurely	Naqylyt	Make relax, make leisurely
Tunal	Shining white	Tunalyt	Make white, make shine
Köppö	Lazy	Köppöt	Make lazy

PRODUCTIVE COMPLEX SUFFIXES

25. The suffix /-TYj/ and its variants /-sYj/, /-lYj/

These are double suffixes. The second formant is /-j/, the first is –t, -s or –l.

A	Gloss	V	Gloss
Araqas	Orange	Araqystyj	Become orange
Xara	Black	Xaratyj	Blacken
Kyra	Small	Kyratyj	Become small
Munaax	Doubtful, unclear	Munaaxsyj	Doubt
Döböŋ	Fast, quickly done	Döböŋsüj	Become fast, quickly done
Symsa	Tasteless; crafty, cunning	Symsatyj	Become crafty, cunning

26. The suffix /-msYj/ (m+s+j)

A	Gloss	V	Gloss
Kyrdjaqas	Old	Kyrdjaqahymsyj	Pretend to be old
Bert	Excellent	Berdimsij	Pretend to be excellent
Öjdööx	Clever	Öjdööqümsüj	Pretend to be clever
Ütüö	Kind, noble	Ütüömsüj	Put on airs
Sytyy	Cunning	Sytyymsyj	Pretend to be cunning

SPORADIC COMPLEX SUFFIXES

27. The suffix /-AA-r/

A	Gloss	V	Gloss
Kyj	Distant, remote, far	Kyjaar	Fly far away

7. DERIVING ADJECTIVES FROM NOUNS

A variety of suffixes occurs but only sporadically. The productive suffixes include (simplex) –KI, (complex) /–LAAx/, /-msAx/ and /-TAAqY/.

PRODUCTIVE SIMPLEX SUFFIXES

1. The suffix /-KI/

N	Gloss	N-k → A	Gloss
Xotu	North	Xotugu	Northern
Soquruu	South	Soquruuŋu	Southern
Sarsyn	Tomorrow	Sarsyŋŋy	Tomorrow's

PRODUCTIVE COMPLEX SUFFIXES

2. The suffix /-L-AA-x/

N	Gloss	N-LAAx → A	Gloss
Küüs	Strength	Küüsteex	Strong
Öj	Mind, intelligence	Öjdöөx	Clever, intelligent
Kir	Dirt	Kirdeex	Dirty
As	Food	Astaax	Substantial, productive
Ax	Rancidity	Axtaax	Rancid

3. The suffix /-msAx/ (m+s+x)

N	Gloss	N-msAx → A	Gloss
Beje	Self	Bejemsex	Selfish
Oqo	Child	Oqomsox	Child-loving
Et	Meat	Etimsex	Meat-loving
Balyk	Fish	Balygymsax	Fish-loving
Djon	People	Djonumsax	Sociable
Kuoska	Cat	Kuoskamsax	Cat-loving

4. The suffix /-TAAqY/ (/-TA/ + /-KI/)

Historically the suffix can be decomposed into the locative suffix –TA (with subsequent vowel lengthening) and the suffix –KI. Locative suffix is no longer productive in Sakha.

N	Gloss	A	Gloss
Ojuur	Forest	Ojuurdaaqy	Pertaining to forest
Kuorat	Town	Kuorattaaqy	Pertaining to town
Tya	Countryside; forest	Tyataaqy	Pertainining to countryside, forest Bear (euphemism)
Ot yja	July (lit. grass month-3)	Ot yjynaaqy	Pertaining to July
Muus ustar	April (lit. ice floats)	Muus ustardaaqy	Pertaining to April

SPORADIC SIMPLEX SUFFIXES

5. The suffix /–A/

N	Gloss	N-A → A	Gloss
Meŋ	Birthmark, mole	Meŋe	Eternal

6. The suffix /–BA/

N	Gloss	N-BA → A	Gloss
Tus	Side, direction	Tuspa	Separate

7. The suffix /–j/

N	Gloss	N-j → A	Gloss
Siik	Humidity	Siikej	Raw

8. The suffix /-k/

N	Gloss	N-k → A	Gloss
Ürüt	Top	Ürdük	Tall

9. The suffix /-n/

N	Gloss	N-n → A	Gloss
Sür	Soul, internal spirit, core	Sürün	Basic, fundamental, essential
Suo	Huge(ness), respect(ed)	Suon	Fat
Duol	Open space, expanse	Duolan	Vast; furious, fierce

10. The suffix /-ŋ/

N	Gloss	N-ŋ → A	Gloss
Buor	Soil	Boroŋ	Brown

11. The suffix /-r/

N	Gloss	N-r → A	Gloss
Xatyŋ	Birch	Xatyŋyr	Slender

12. The suffix /-s/

N	Gloss	N-s → A	Gloss
Ös	Spite, hostility	Öhös	Stubborn

13. The suffix /-TY/

N	Gloss	N-TY → A	Gloss
Kün	Sun	Kündü	Dear

14. The suffix /–x/

A	Gloss	N-x → A	Gloss
Kuraan	Drought	Kuraanax	Dry; empty
Külüm	Sparkle	Külümex	Flash-like; exceptional

SPORADIC COMPLEX SUFFIXES

15. The suffix /-LYk/ (l+k)

N	Gloss	N-LYk → A	Gloss
Uus	Master, (black)smith	Uustuk	Complicated
As	Food	Astyk	Enjoyable
Tot	Repletion, full stomach; well-fed	Tottuk	Rude, offensive

16. The suffix /-TA-x/

N	Gloss	N-TAx → A	Gloss
Tüü	Fluff, fur	Tüütex	Fluffy (light, airy)
Icci	Internal spirit; master; ghost	Iccitex	Abandoned

17. The suffix /-TY-ŋ/

N	Gloss	N-TYŋ → A	Gloss
Is	Inside	Istiŋ	Sincere
Tas	Outside	Tastyŋ	In indirect blood relationship
Bas	Head	Bastyŋ	Best

18. The suffix /-XA-j/

N	Gloss	N-XAj → A	Gloss
Kuba	Swan	Kubaqaj	Pale

19. The suffix /-XA-s/

N	Gloss	N-XAs → A	Gloss
Eje	Peace	Ejeqes	Peaceful, amiable

8. Deriving Adjectives From Verbs

Productive Simplex Suffixes

20. The suffix /-A/

V	Gloss	A	Gloss
Kön	Straighten	Könö	Straight
Tier	Turn inside out	Tiere	Wrong
Ygys	Be squeezed, sit close	Yksa	Near, close, cramped, compact
Syys	Be mistaken	Syyha	Wrong
Bys	Cut	Byha	Short, quick, direct
Tap	Hit one's aim	Taba	Correct

21. The suffix /-k/

V	Gloss	V-k → A	Gloss
Itir	Get drunk	Itirik	Drunk
Ort	Remain, be left over	Orduk	Spare, left over
Cuguj	Recede, back down	Cuguk	Timid, cautious, wary
Sim	Stuff in	Simik	Shy
Tögürüj	Become round	Tögürük	Round

22. The suffix /–s/

V	Gloss	V-s → A	Gloss
Aŋardaa	Divide in two	Aŋardas	Single, alone
Kuttaa	Frighten	Kuttas	Fearful
Kylgaa	Shorten	Kylgas	Short
Kyŋkynaa	Clink	Kyŋkynas	Clinking

23. The suffix /-x/

V	Gloss	V-x → A	Gloss
Tis	Thread (as if) on a string	Tihex	Final
Kebiree	Become fragile	Kebirex	Fragile
Sergee	Show interest	Sergex	Brisk, lively, alert
Elbee	Multiply	Elbex	Multiple, a lot
Symsaj	Become tasteless	Symsax	Tasteless
Djüdjej	Become skinny	Djüdjex	Skinny

PRODUCTIVE COMPLEX SUFFIXES

24. The suffix /-YY-k/

V	Gloss	V-YYk → A	Gloss
Kül	Laugh	Külüük	Risible, disposed to laugh
Süür	Run	Süürüük	Disposed to run
Etis	Quarrel	Etihiik	Quarrelsome
Tuhun	Wrestle	Tustuuk	Able to wrestle
Kördös	Beg, request	Kördöhüük	Habitually begging, asking for
Ahyn	Feel sorry for, pity	Ahynyyk	Pitiful, compassionate

25. The suffix /-m-t-YA/

V	Gloss	V-YmTYA → A	Gloss
Bar	Brew, intrans.	Barymtya	Strong (of tea)
Tuluj	Tolerate, trans.	Tulujumtuo	Enduring, tough
Bul	Find	Bulumtuo	Able to find
Ihit	Listen, obey	Istimtie	Able to listen/to obey

26. The suffix /-XA-j/

V	Gloss	V-XAj → A	Gloss
Sahar	Become yellow	Saharxaj	Yellow
Incej	Become wet	Inceqej	Wet
Taraj	Become bald	Taraqaj	Bald

27. The suffix /-XA-n/

V	Gloss	V-XAn → A	Gloss
Yr	Lose weight	Yrygan	Lean
Syhyn	Attach, stick to	Systygan	Contagious

Et	Say	Etigen	Sonorous, resonant
Yaraa	Become heavy	Yaraxan	Difficult, heavy

28. The suffix /-XA-r/

V	Gloss	V-XAr → A	Gloss
Allaj	Open mouth widely	Allaqar	With a wide-open mouth
Maadjaj	Be bandy-legged	Maadjaqar	Bandy-legged
Kedej	Bend forward	Kedeger	Forward-bending
Njoxcoj	Stoop	Njoxcoqor	Stooping, hunchbacked

29. The suffix /-XA-s/

V	Gloss	V-Xas → A	Gloss
As	Open	Ahaqas	Open
Ahyn	Feel sorry for	Ahynygas	Compassionate
Bil	Know	Biliges	Curious, inquisitive
Minnjij	Become sweet	Minnjiges	Sweet, delicious

SPORADIC SIMPLEX SUFFIXES

30. The suffix /–YA/

V	Gloss	V-YA → A	Gloss
Körüs	Meet	Körsüö	Modest, amiable
Döj	Become deafened	Döjüö	Sluggish, reticent
Xaŋsyj	Snuffle, speak through the nose	Xaŋsya	Snuffling
Endej	Make mistakes	Endie	Wrong

31. The suffix /-BA/

V	Gloss	V-BA → A	Gloss
Syyl	Crawl	Syylba	Slow, sluggish
Tal	Choose	Talba	Choice
Köp	Fluff; rise, heave, float to the surface (e.g. junk, dead fish)	Köppö	Lazy

32. The suffix /-j/

V	Gloss	V-j → A	Gloss
Büt	End, finish	Bütej	Closed; muffled, smothering (heat, cold), remote (place)
Toŋ	Freeze	Toŋuj	Sensitive to cold; reserved, cold, distant

33. The suffix /-KI/

V	Gloss	V-KI → A	Gloss
Cepcee	Become light	Cepceki	Light
Bastaa	Become first	Bastaky	First
Büt	End	Büteŋi	Rather muffled, rather remote

34. The suffix /-m/

V	Gloss	V-m → A	Gloss
Yk	Squeeze; urge, demand	Ygym	Tightfisted
Tat	Pull	Tatym	Insufficient
Xoroo	Quickly consume	Xorom	Quickly consumed/finishing

35. The suffix /-n/

V	Gloss	V-n → A	Gloss
Büt	End, finish	Bütün	Whole
Xoloo	Compare	Xoloon	No better
Dalaj	Swing hands, hit	Dalan	Reckless, careless
Örköj	Become enthusiastic	Örkön	Victorious, invincible

36. The suffix /-XA/

V	Gloss	V-XA → A	Gloss
Djaj	Be absorbed; clear up (sky)	Djajqa	Cloudless or with few clouds
Xaam	Walk	Xamaqa	Saleable, marketable

SPORADIC COMPLEX SUFFIXES

37. The suffix /-AA-x/, /-YA-x/

V	Gloss	V-AAx → A	Gloss
Mun	Get lost	Munaax	Doubtful
Iit	Bring up, sustain	Iitiex	Adopted; domesticated

38. The suffix /-BA-s/

V	Gloss	V-BAs → A	Gloss
Tal	Choose	Talymas	Choosy, fastidious

39. The suffix /-BA-x/

V	Gloss	V-BAx → A	Gloss
Bar	Go, leave	Barbax	Unimportant, insignificant
Köt	Fly	Kötümex	Negligent, slipshod
Tut	Hold	Tuppax	Having the habit of grabbing things
Sie	Eat	Siemex	Carnivorous

40. The suffix /-jA-x/

V	Gloss	V-jAx → A	Gloss
Iit	Bring up, sustain	Iitijex	Adopted; domesticated

41. The suffix /-hA-x/

V	Gloss	V-hAx → A	Gloss
Njolboj	Become oval	Njolbuhax	Oval

Yaryj	Be sick	Yaryhax	Sick
Namyj	Weaken, soften, attenuate	Namyhax	Low, short

42. The suffix /-hY-k/

V	Gloss	V-hYk → A	Gloss
Büt	End	Bütehik	Final, last

43. The suffix /-TA-x/

V	Gloss	V-TAx → A	Gloss
Bys	Cut	Bystax	Intermittent, occasional

9. Deriving Adjectives From Adjectives

44. The suffix /-TYŋY/

A	Gloss	A-TYŋY → A	Gloss
Ulaxan	Big	Ulaxannyŋy	Biggish
Kyra	Small	Kyratyŋy	Smallish
Kyhyl	Red	Kyhyllyŋy	Reddish

45. The suffix /-TAAqY/ (/-TA/ + /-KI/)

A	Gloss	A	Gloss
Cugas	Near, close	Cugastaaqy	Found near, close
Yraax	Far away	Yraaxtaaqy	Found far away
Bylyrgy	Ancient	Bylyrgytaaqy	Pertaining to ancient times
Saasky	Pertaining to spring	Saaskytaaqy	Pertaining to spring

46. Some sporadic cases

A	Gloss	A	Gloss
Sul	Bare; lonely	Sulumax	Single, unmarried
Kieŋ	Wide	Keŋis	Insatiable
Toŋ	Frozen, cold	Toŋuj	Sensitive to cold; reserved, distant
Kyra	Small	Kyragy	Sharp-sighted

APPENDIX 4: CAUSATIVE/UNACCUSATIVE ALTERNATION IN SAKHA

I. Causative/unaccusative pairs where no n-marking is involved
II. Causative/unaccusative pairs where n-marking is involved
III. Morphological correspondences between transitive verbs, their unaccusative alternates and adjectives

I. Causative/unaccusative pairs where no n-marking is involved

1. Regular causatives

Causative	Causative gloss	Unaccusative
Könnör	Straighten	Kön
Munnar	Make lost	Mun
Xaallar	Leave, cause to remain, to stay behind	Xaal
Uunnar	Stretch	Uun
Üünner	Make grow	Üün
Uollar	Make run dry (rivers, lakes, etc.)	Uol
Berget	Aggravate	Bergee
Ubat	Dilute	Ubaa
Kebiret	Make fragile	Kebiree
Axsat	Weaken, lessen	Axsaa

2. Causative: √-t; unaccusative: √-j

Causative	Causative gloss	Unaccusative
Araldjyt	Distract	Araldjyj
Djaahyt	Make yawn	Djaahyj
Djalkyt	Splash	Djalkyj
Djüdjet	Make lose weight	Djüdjej
Dolgut	Make surge, rise in waves; agitate	Dolguj
Dorgut	Make sound	Dorguj
Duorat	Make produce an echo	Duoraj
Elet	Wear out	Elej
Ergit	Make turn around	Ergij
Iedet	Make fare ill; dilapidate	Iedej
Ilit	Make wet, soak	Ilij
Ihelit	Make swell/red from cold	Ihelij
Kehet	Teach a lesson	Kehej
Köhüt	Make numb	Köhüj

Kyhyt	Vex; make itch	Kyhyj
Kyryt	Make old	Kyryj
Mannjyt	Make sentimental	Mannjyj
Melit	Make perish	Melij
Menerit	Make hallucinate, give a headache	Menerij
Nüölüt	Make subside, satisfy	Nüölüj
Orgut	Boil	Orguj
Oŋot	Open	Oŋoj
Öqüt	Make belch	Öqüj
Seget	Open slightly	Segej
Sylat	Make tired	Sylaj
Syqaryt	Move aside	Syqaryj
Tenit	Spread	Tenij
Tokurut	Crook, curve	Tokuruj
Tökünüt	Roll	Tökünüj
Turgut	Renew, revive	Turguj
Turtat	Make white	Turtaj
Tüöhet	Make senile	Tüöhej
Uot	Make fat	Uoj
Utut	Make sleep	Utuj
Uurat	Dismiss, make stop	Uuraj
Xaltaryt	Make slip	Xaltaryj
Yrqat	Make fat	Yrqaj
Sylyt	Make warm	Sylyj
Keltet	Make asymmetric	Keltej
Ülüt	Frostbite	Ülüj
Umat	Burn	Umaj

3. Causative: V-t; unaccusative: V

Causative	**Causative gloss**	**Unaccusative**
Iirt	Drive mad; make sour (dairy produce)	Iir
Kuurt	Dry	Kuur
Döjüt	Deafen	Döj
Kötüt	Fly	Köt
Ötüt	Ooze	Öt
Sojut	Cool down	Soj
Söŋüt	Precipitate	Söŋ
Tejit	Alienate	Tej
Bötüt	Make hiccup	Böt
Timirt	Drown	Timir

Itirt	Make drunk	Itir
Bajyt	Make rich	Baj
Kytart	Make blush	Kytar
Köbüt	Make fluff, rise	Köp

4. Causative: V-Ar/-YAr; unaccusative: V

Causative	**Causative gloss**	**Unaccusative**
Ahar	Let pass	Aas
Batar	Fit into smth	Bat
Buhar	Cook, heat	Bus
Büter	End, finish	Büt
Iŋer	Absorb	Iŋ
Ölör	Kill	Öl
Ohor	Heal	Os
Süter	Lose	Süt
Tupsar	Improve	Tubus
Ypsar	Close up/join tightly	Ybys
Ordor	Leave over	Ort
Totor	Satiate	Tot
Tolor	Fill	Tuol
Tüher	Drop	Tüs
Uŋar	Make faint	Uŋ
Xatar	Wither, dry out	Xat
Köhör	Make move, migrate	Kös
Toŋor	Freeze	Toŋ
Irier	Melt, thaw, warm up	Ir
Sytyar	Make lie (down)	Syt
Turuor	Make stand, raise	Tur
Sahyar	Hide	Sas
Yryar	Make lose weight	Yr

5. Causative: √-j / √-t / √-r; unaccusative: √-Lyn (passive suffix)

Causative	**Causative gloss**	**Unaccusative**
Buraj	Scatter	Buralyn
Djaptaj	Compress	Djaptalyn
Subuj	Trail (said of something long)	Subulun
Erij	Twist	Erilin
Bürüj	Cover	Bürülün
Ütürüj	Knock down, shove aside	Ütürülün

Ürej	Destroy	Ürelin
Ercij	Exercise, train, develop	Ercilin
Saaj	Hit	Saalyn
Bulkuj	Mix, stir; confuse	Bulkulun
Kybyt	Insert	Kybylyn
Imit	Press, rumple, wrinkle	Imilin
Siir	Tear	Silin
Tuur	Pull out	Tulun
–	Stumble upon (transitive alternate absent)	Ketilin

6. Other irregular pairs

Causative	**Causative gloss**	**Unaccusative**
Killer	Make enter, bring inside	Kiir
Tahaar	Take out; publish	Taqys
Araar	Separate	Arax
Tiert	Make arrive, reach	Tiij

II. Causative/unaccusative pairs where n-marking is involved

1. Causative: V; unaccusative: V-n

Causative	**Causative gloss**	**Unaccusative**
Es	Destroy; explode	Ehin
Byyhaa	Save	Byyhan
Abyraa	Save	Abyran
Tox	Spill	Toqun
Baraa	Spend, waste	Baran
Xoroo	Spend, waste	Xoron
Tiree	Prop, support, lean	Tiren
Tajaa	Prop, support, lean	Tajan
Tes	Pierce through	Tehin
Aqaa	Smear, glue	Aqan
Sibee	Smear	Siben
Sajqaa	Rinse	Sajqan
Mus	Gather, collect	Muhun
Öjöö	Support	Öjön
Saqalaa	Begin	Saqalan
Xolboo	Connect	Xolbon
Öhül	Disentangle, dismantle; untwist	Öhülün
Salqaa	Continue, lengthen	Salqan
Djöl	Make a hole	Djölün

2. Causative: √-n-caus; unaccusative: √-n

Causative	**Causative gloss**	**Unaccusative**
Tilinner	Bring to life, revive	Tilin
Tylynnar	Bring to life, make blossom (about plants)	Tylyn
Ülünner	Make swell	Ülün
Xolunnar	Defame	Xolun
Ilihinner	Exhaust	Ilihin
Tülünner	Make rise, heave	Tülün
Xoŋunnar	Tear off	Xoŋun
Sajynnar	Develop	Sajyn
Ojunnar	Take apart, detach	Ojun
Iŋner	Make stick/cling to	Iŋin
Allar	Make seep, ooze	Alyn

3. Causative: √-t; unaccusative: √-n

Causative	**Causative gloss**	**Unaccusative**
Aldjat	Break	Aldjan
Synnjat	Make rest	Synnjan
Xajyt	Crack apart	Xajyn
Tarqat	Spread	Tarqan
Tohut	Break	Tohun

4. Causative: V-n-caus; unaccusative: V

Causative	**Causative gloss**	**Unaccusative**
Syryt-yn-nar	Bring, make go	Syryt
Ulaatynnar	Make grow	Ulaat
Kytaatynnar	Harden, make tough, sturdy	Kytaat

5. Causative: √-caus; unaccusative: √-n

Causative	**Causative gloss**	**Unaccusative**
Tönnör	Return	Tönün
Oxtor	Make fall	Oqun
Suullar	Make fall	Suulun
Uullar	Melt	Uulun
Syhyar	Stick	Syhyn

III. Morphological correspondences between transitive verbs, their unaccusative alternates and adjectives

1. /-k/-adjectives

Transitive: V-t	**Unaccusative: V**	**Adjective: V-k**
Itirt ‘make drunk’	Itir ‘become drunk’	Itirik ‘drunk’
Sojut ‘cool down’	Soj ‘cool down’	Sojuk ‘cool’
Transitive: V-Ar	**Unaccusative: V**	**Adjective: V-k**
Ordor ‘leave for later’	Ort ‘remain, be left over’	Orduk ‘spare, left over; the best’
Transitive: √-t	**Unaccusative: √-j**	**Adjective: √-k**
Tökünüt ‘make round; roll’	Tökünüj ‘become round; roll’	Tökünük ‘round’
Tögürüt ‘make round’	Tögürüj ‘become round’	Tögürük ‘round’
Kilbit ‘embarrass’	Kilbij ‘be timid, shy’	Kilbik ‘timid, shy’
Xoluocut ‘make tipsy, intoxicate’	Xoluocuj ‘become tipsy’	Xoluocuk ‘tipsy’
Cugut ‘make recede, back down’	Cuguj ‘recede, back down’	Cuguk ‘receding, timid, cautious, wary’

2. /-x/-adjectives

Transitive: V-t	**Unaccusative: V**	**Adjective: V-x**
Elbet ‘multiply’	Elbee ‘multiply’	Elbex ‘many, multiple’
Aqyjat ‘dwindle’	Aqyjaa ‘dwindle’	Aqyjax ‘few, scarce’
Möltöt ‘weaken’	Möltöö ‘weaken’	Möltöx ‘weak’
Kebiret ‘make fragile’	Kebiree ‘become fragile’	Kebirex ‘fragile’
Transitive: √-t	**Unaccusative: √-j**	**Adjective: √-x**
Tutat ‘diminish, dwindle’	Tutaj ‘diminish, dwindle’	Tutax ‘insufficient, inadequate’
Symsat ‘make tasteless’	Symsaj ‘become tasteless’	Symsax ’tasteless’
Djüdjet ’make skinny’	Djüdjej ‘become skinny	Djüdjex ‘skinny’

3. /-YY/-adjectives

Transitive: √-t	**Unaccusative: √-j**	**Adjective: √-YY**
Tymnyt ‘make cold’	Tymnyj ‘become cold’	Tymnyy ‘cold’
Ahyt ‘make sour’	Ahyj ‘become sour’	Ahyy ‘sour’
Itit ‘make hot’	Itij ‘become hot’	Itii ‘hot’

4. /-XA-j/-adjectives

Transitive: V-t	**Unaccusative: V**	**Adjective: V-XA-j**
Sahart ‘make yellow’	Sahar ‘become yellow’	Saharxaj ‘yellow’
Kytart ‘redden’	Kytar ‘redden’	Kytarxaj ‘reddish’
Boloort ‘blur’	Boloor ‘become blurred’	Boloorxoj ‘blurred’
Tetert ‘make rosy’	Teter ‘become rosy’	Teterkej ’rosy’
Transitive: √-t	**Unaccusative: √-j**	**Adjective: √-XA-j**
Keltet ‘make crooked, asymmetric’	Keltej ‘become crooked, asymmetric’	Keltegej ‘crooked, asymmetric’
Incet ‘make wet’	Incej ‘become wet’	Inceqej ‘wet’
Tarat ‘make bald’	Taraj ‘become bald’	Taraqaj ‘bald’
Xaptat ’flatten’	Xaptaj ’flatten’	Xaptaqaj ’flat’
Bytaryt ‘crumble up’	Bytaryj ‘crumble up’	Bytarxaj ’small, minute, fine’
Kubaryt ‘make pale’	Kubaryj ‘become pale’	Kubarxaj ‘pale’
Xamparyt ‘break to pieces’	Xamparyj ‘break to pieces’	Xamparxaj ‘breakable, fragile’
Xaltaryt ’make slip’	Xaltaryj ‘slip’	Xaltarxaj ’slippery’

5. /-XA-r/-adjectives and /-GY-r/-adjectives

Transitive: √-t	**Unaccusative: √-j**	**Adjective: √-XA-r/-GY-r**
Njoxcot ‘make stoop’	Njoxcoj ‘stoop’	Njoxcoqor ‘stooping, hunchbacked’
Arbat ‘cause to have messy hair’	Arbaj ‘have messy hair’	Arbaqar ‘messy-haired’
Bagdat ‘make broad-shouldered’	Bagdaj ‘be broad-shouldered’	Bagdaqar ‘broad-shouldered’
Maadjat ‘make bandy-legged’	Maadjaj ‘be bandy-legged’	Maadjaqar ‘bandy-legged’
Syntat ‘make snub-nosed’	Syntaj ‘be snub-nosed’	Syntaqar ‘snub-nosed’
Kedet ‘bend forward’	Kedej ‘bend forward’	Kedeger ‘forward-bending’
Melit ‘make disappear’	Melij ‘disappear’	Meligir ‘absent’
Bekit ‘make lean’	Bekij ‘be lean’	Bekigir ‘lean’
Tomtot ‘make bulge’	Tomtoj ‘bulge’	Tomtoqor ‘bulging’

6. /-XA-s/-adjectives

Transitive: √-j	**Unaccusative: √-LYn**	**Adjective: √-LYn-XA-s**
Subuj ‘trail, stretch out’	Subulun ‘trail’	Subullaqas ‘stretched out,

		trailing’
Erij ‘twist’	Erilin ‘be twisted’	Erilleqes ‘twisted’
Transitive: V-t	**Unaccusative: V**	**Adjective: V-XA-s**
Symnat ‘soften’	Symnaa ‘soften’	Symnaqas ‘soft’
Kyarat ‘make narrow’	Kyaraa ‘become narrow’	Kyaraqas ‘narrow’
Transitive: √-t	**Unaccusative: √-j**	**Adjective: √-XA-s**
Kyryt ‘make old’	Kyryj ‘become old’	Kyrdjaqas ‘old’
Minnjit ‘sweeten’	Minnjij ‘become sweet’	Minnjiges ‘sweet’

7. Homophonous cases: V_{UNACC} = A

Transitive	**Unaccusative**	**Adjective**
Toŋor ‘freeze’	Toŋ ‘freeze’	Toŋ ‘frozen’
Totor ‘satiate’	Tot ‘become satiated’	Tot ‘full, satiated’
Irier ‘melt, warm up’	Ir ‘melt, warm up’	Ir ‘warm, hot’
Köbüt ‘cause to fluff, rise, heave’	Köp ‘fluff, rise, heave’	Köp ‘fluffy’
Delet ‘multiply’	Delej ‘multiply’	Delej ‘abundant’
Sylat ‘make tired’	Sylaj ‘become tired’	Sylaj ‘tired’
Nuoqat ‘bend down’	Nuoqaj ‘bend down’	Nuoqaj ‘down-bending, flexible’

8. Irregular cases

Transitive	**Unaccusative**	**Adjective**
Njulut ‘make tasteless, lukewarm’	Njuluj ‘lose taste, become lukewarm’	Njuluun ‘lukewarm; tasteless’
Sylyt ‘make warm’	Sylyj ‘become warm’	Sylaas ‘warm’
Maŋxat ‘whiten’	Maŋxaj ‘whiten’	Maŋan ‘white’
Njurgut ‘make first, best’	Njurguj ‘become first, best’	Njurgun ‘first, best’
Djadat ‘make poor’	Djadaj ‘become poor’	Djadaŋy ‘poor’

APPENDIX 5: N-MARKING IN SAKHA

This appendix considers the effect of marking a transitive verb with the suffix –n. All verbs in the appendix have been divided into five groups. In the first three we are interested in whether n-marking results in a proper reflexive reading (R), an inalienable possession reflexive reading (IP) or a benefactive reflexive reading (BEN). Verbs in the first three groups have been sorted by the θ-features of their external argument: i) verbs with [+c+m] external argument, ii) verbs with a [+c] external argument and iii) verbs with a [+m] external argument.

Verbs in the fourth group, when n-marked, result in an idiosyncratic (non-reflexive) meaning: they never allow R but very few of them may allow IP or BEN. Also included here is a list of intransitive verbs which can be n-marked.

The last, fifth group lists verbs which have a stem-final –n and cannot attach the suffix –n.

I. Agentive [+c+m] verbs
II. [+c] verbs
III. [+m] verbs
IVa. Idiosyncratic n-marking: Transitive verbs
IVb. Idiosyncratic n-marking: Intransitive verbs
V. Verbs ending in -n

I. Agentive [+c+m] verbs

V	Gloss	V-n	R	IP	BEN
Taraa	Comb, brush	Taraan	+	+	-
Tarbaa	Scratch	Tarban	+	+	-
Xoruj	Shave	Xorun	+	+	-
Kyryj	Cut	Kyryn	+	+	+
Suuj	Wash	Suun	+	+	+
Sot	Wipe	Sotun	+	+	+
Aal	Rub	Aalyn	+	-	-
Iit	Bring up, sustain	Iitin	+	-	-
Möx	Scold	Möqün	+	-	-
Kömüskee	Defend	Kömüsken	+	-	-
Üöx	Curse, call names	Üöqün	+	-	-
Tiej	Transport	Tiejin	-	-	+
Die	Say	Dien	+	-	-
Xajqaa	Praise	Xajqan	+	-	-
Kyrbaa	Beat		-	-	-
Oqus	Hit	Oxsun	-	+	-
Arbaa	Praise, exaggerate	Arban	+	-	-
Teŋnee	Compare	Teŋnen	+	-	-
Senee	Despise	Senen	+	-	-
Kör	See	Körün	+	+	+

Anaa	Appoint	Anan	+	-	-
Ataqastaa	Offend, hurt	Ataqastan	+	-	-
Baaj	Bind, tie	Baa(jy)n	+	+	+
Suruj	Write	Surun	-	-	+
Terij	Prepare for a journey; arrange, set up	Terin	+	-	+
Xaryhyj	Save, protect	Xaryh(yj)yn	-	-	+
Ep	Add	Ebin	-	-	+
Kepsee	Tell	Kepsen	-	-	+
Kert	Chop	Kerdin	-	-	+
Kötöx	Lift		-	-	-
Süüj	Win		-	-	-
Tahyj	Spank	Tah(yj)yn	+	+	-
Tal	Choose	Talyn	-	-	+
Tik	Sew	Tigin	-	-	+
Tut	Hold, build	Tutun	+	+	+
Xomuj	Gather, collect; tidy up	Xomun	+	-	+
Yj	Point to		-	-	-
Yl	Take	Ylyn	+	-	+
Yllaa	Sing	Yllan	+	-	-
Yjaa	Hang	Yjan	+	-	-
Yt	Shoot	Ytyn	+	+	-
Yryt	Analyze		-	-	-
Yŋyr	Invite		-	-	-
Tart	Pull	Tardyn	+	+	-
Tiert	Bring, make reach		-	-	-
Kürt	Shovel	Kürdjün	-	-	+
Byrax	Throw (trans.)		-	-	-
Uhaar	Cause to float	Uhaaryn	-	-	+
Yhaar	Fry, grill	Yhaaryn	-	-	+
Ataar	See off		-	-	-
Üller	Divide, distribute	Üllerin	-	-	+
Djahaj	Arrange, manage, direct	Djaha(jy)n	+	-	+
Xaaccaj	Supply/provide with	Xaaccan	+	-	-
Taŋnar	Betray		-	-	-
Utar	Oppose, object		-	-	-
Oŋor	Do, make	Oŋorun	-	-	+
Tebee	Shake off/down	Teben	+	+	+
Xoloo	Compare	Xolon	+	-	-
Berij	Untangle, untwine, sort out; put in order	Berin	-	-	+
Toŋsuj	Knock on	Toŋsun	-	+	-
Aaxaj	Pay attention, take into account		-	-	-
Buoj	Forbid, prohibit	Buojun	+	-	-
Mohoj	Obstruct, hinder		-	-	-

Saxsyj	Shake up	Saxsyn	+	+	+
Kyraa	Curse	Kyran	+	-	-
Salaa	Lick	Salan	+	+	-
Kut	Pour	Kutun	-	-	+
Kuus	Hug		-	-	-
Kys	Plane smth, scrape, carve	Kyhyn	-	-	+
Sim	Stuff, fill with	Simin	+	-	+
Sir	Disdain, reject	Sirin	+	-	-
Süör	Untie	Süörün	-	-	+
Syyj	Release, expel, dismiss		-	-	-
Tas	Carry	Tahyn	-	-	+
Tis	Thread (as if) on a string	Tihin	-	-	+
Tyk	Fillip	Tygyn	-	+	-
Tyyt	Touch	Tyytyn	-	+	-
Uj	Support the weight of	Ujun	+	+	+
Kyaj	Win	Kyan	+	-	-
Kik	Incite, instigate		-	-	-
Kim	Press hard, attack, advance		-	-	-
Kir	Gnaw	Kirin	-	+	-
Köm	Bury		-	-	-
Aqal	Bring	Aqalyn	-	-	+
As	Push	Annjyn	+	-	-
Bas	Fetch (water)	Bahyn	-	-	+
Bis	Smear	Bihin	+	+	-
Bop	Forbid, prohibit	Bobun	+	-	-
Bul	Find	Bulun	-	-	+
Köŋöö	Restrict, limit	Köŋön	+	-	-
Ketee	Watch, keep an eye on		-	-	-
Kistee	Hide, conceal	Kisten	-	-	+
Aj	Create	Ajyn	-	-	+
Ilk	Toss	Ilgin	-	+	-
Uur	Put	Uurun	-	-	+
Xas	Dig	Xahyn	+	-	+
Xot	Win		-	-	-
Yyt	Send	Yytyn	-	-	+

II. [+c] verbs

V	Gloss	V-n	R	IP	BEN
Kuurt	Dry	Kuurdun	-	+	+
Könnör	Straighten	Könnörün	-	+	+
Xaallar	Leave, cause to remain	Xaallaryn	-	-	+
Üünner	Make grow	Üünnerin	-	+	+
Ubat	Dilute	Ubatyn	-	-	+
Saaj	Hit	Saajyn	-	+	-
Ercij	Exercise, train, develop	Erc(ij)in	-	+	-

Sap	Close	Sabyn	-	-	+
Xolboo	Connect	Xolbon	-	-	+
Ergit	Make turn around	Ergitin	-	-	+
Ilit	Make wet, soak	Ilitin	-	-	+
Orgut	Boil	Orgutun	-	-	+
Seget	Open slightly	Segetin	-	-	+
Sylyt	Make warm	Sylytyn	-	+	+
Ülüt	Frostbite	Ülütün	-	+	-
Umat	Burn	Umatyn	-	-	+
Sojut	Cool down	Sojutun	-	-	+
Köbüt	Make fluff, rise	Köbütün	-	-	+
Ahar	Let pass	Aharyn	-	-	+
Buhar	Cook, heat	Buharyn	-	-	+
Iŋer	Absorb	Iŋerin	-	-	+
Ölör	Kill; hurt	Ölörün	-	+	-
Ordor	Leave over	Ordorun	-	-	+
Killer	Make enter, bring inside	Killerin	-	-	+
Tönnör	Return	Tönnörün	-	-	+
Uullar	Melt	Uullaryn	-	-	+
Syhyar	Stick	Syhyaryn	-	-	+
Sirget	Disgust		-	-	-
Öhürget	Hurt, offend		-	-	-
Kuttaa	Frighten, scare		-	-	-
Salgyt	Bore, annoy		-	-	-

III. [+m] verbs

V	Gloss	R	IP	BEN
Taptaa	Love	-	-	-
Sanaa	Think	-	-	-
Abaahy kör	Dislike, hate	-	-	-
Ihit	Hear, obey, listen to	-	-	-
Küüt	Wait	-	-	-
Söx	Admire	-	-	-
Iteqej	Believe	-	-	-
Ubaastaa	Respect	-	-	-
Bihiree	Like, admire	-	-	-

IVa. Idiosyncratic n-marking: Transitive verbs

V	Gloss	V-n	Gloss	IP	BEN
Bil	Know	Bilin	Admit, confess	-	-
Bier	Give	Berin	Give up, surrender	-	+
Tiij	Reach	Tiijin	Commit suicide	-	-
Söbülee	Like	Söbülen	Agree	-	-
Öjdöö	Understand	Öjdön	Come to senses	-	-
Byhaar	Explain	Byhaaryn	Make up one's mind	-	-

Sataa	Know how, be able to	Satan	Work out, turn out ok	-	-
As	Open	Ahyn	Clear up (sky)	-	-
Bys	Cut	Byhyn	Be torn; become broke	+	+
Byldjaa	Snatch away	Byldjan	Become ruined	-	-
Kuot	Outrun	Kuotun	Evade	-	-

IVb. Idiosyncratic n-marking: Inransitive verbs

V	Gloss	V-n	Gloss
Küree	Run away (in general)	Küren	Escape (danger)
Buol	Be, become	Buolun	Agree
Kiir	Enter	Kiirin	Agree
Tur	Stand (up)	Turun	Get down to business

V. Verbs ending in –n

V	Gloss
Tuhan	Use
Ahyn	Feel sorry for
Tumun	Avoid
Umun	Forget
Aqyn	Miss
Ütügün	Imitate
Kemsin	Regret
Yhygyn	Let fall, neglect
Myyn	Consider inadequate
Miin	Ride a horse/a person, exploit somebody
Gyn	Do
Xan	Be satiated with
Astyn	Enjoy
Eren	Rely upon

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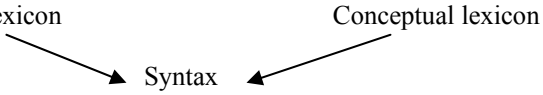
SAMENVATTING IN HET NEDERLANDS

Lexicale Categorieën en Argumentstructuur
Een studie met betrekking tot het Sakha

Dit proefschrift ontwikkelt een theorie van lexicale categorieën in termen van hun argumentstructuur. Het voorgestelde model is een verdere ontwikkeling van Reinhart's (2000-2003) Theta systeem (hierna genoemd TS) dat aanvankelijk alleen voor werkwoorden bedoeld was. Het te bereiken doel is om de beginselen van TS toe te passen op nomina en adjectiva. De hypothese wordt verdedigd op basis van feitelijke materialen uit het Sakha, een Turkse taal gesproken in de Republiek Sakha (oftewel Jakoetië) gelegen in het noordoostelijke deel van Rusland.

Er wordt onderscheid gemaakt tussen twee typen lexicon's – functioneel en conceptueel zoals voorgesteld in (1).

(1) 

De elementen van het conceptuele lexicon (of gewoon lexicon) zijn categorieloze wortels die concepten coderen. De thematische eigenschappen van elk concept zijn gespecificeerd in termen van de theta-kenmerken [±c] (Cause change) and [±m] (Mental state). Het zijn deze theta-kenmerken die de basis vormen voor het uitbreiden van TS naar nomina en adjectieven. De onderliggende motivatie voor de theta-kenmerken stamt uit de menselijke perceptie van causaliteit. Reinhart identificeert drie fundamentele causale relaties die door mensen gebruikt worden om hun visie van gebeurtenissen weer te geven – **enable, cause** en **motivate**. Er is sprake van de relatie **enable** als een gebeurtenis gezien wordt als een noodzakelijke voorwaarde voor het plaatsvinden van een andere gebeurtenis. Bijvoorbeeld, om in de rivier te verdrinken moet men eerst de rivier ingaan; dus dat laatste (het water van een rivier ingaan) vormt een noodzakelijke maar niet een voldoende voorwaarde omdat het ook mogelijk is om een rivier in te gaan zonder te verdrinken. Wanneer de eerste gebeurtenis wordt opgevat als een voldoende voorwaarde voor de tweede, bijvoorbeeld in het geval van een glas dat op de grond valt en meteen daarna breekt, is er sprake van de relatie **cause**. De relatie **motivate** houdt stand als ook **enable** of **cause** van kracht zijn en bovendien een mentale toestand bemiddelt tussen de gebeurtenissen. Reinhart stelt voor dat **cause** en **motivate** respectievelijk met de kenmerken [+c] en [+m] overeenkomen (**enable** komt overeen met geen enkele kenmerk want alle geselecteerde argumenten kunnen beschouwd worden als noodzakelijke voorwaarden voor de gebeurtenis).

Theta-kenmerken komen bijeen in theta-bundels of theta-clusters die traditionele theta-rollen zoals *Agent*, *Cause*, *Experiencer,* e.d. vervangen. Het werkwoord *eten*, bijvoorbeeld, is geassocieerd met twee theta-clusters: [+c+m] (Agent) en [-c-m] (Theme). Dat betekent, in andere woorden, dat de aanwezigheid van zowel een *Agent* als een *Theme* noodzakelijk is voor het plaatsvinden van de gebeurtenis van

het eten. Bovendien vormt de aanwezigheid van een persoon die het eten naar binnen werkt (een [+c+m] Agent) ook een voldoende voorwaarde.

Het is de relatie tussen noodzakelijke/voldoende voorwaarden en theta-kenmerken dat het uitbreiden van TS naar naamwoorden en adjectieven mogelijk maakt. Er wordt aangenomen dat werkwoorden relationeel zijn en tenminste twee theta-clusters hebben. Nominale concepten zoals 'sister' zijn wederkerend en alleen op zichzelf van toepassing: de noodzakelijke en voldoende voorwaarde voor het 'sister' zijn is het 'female sibling' zijn. De concepten 'sister' en 'female sibling' hebben dezelfde toepassing (ze zijn coextensief). Omdat nominale concepten reflexief zijn, is het onmogelijk om hun causale relaties naar aparte theta-clusters (potentiële argumenten) te vertalen.

In tegenstelling tot nomina, zijn de concepten van bijvoeglijke naamwoorden zoals 'green' niet reflexief. Ze zijn van toepassing op dragers van de desbetreffende eigenschap (bijvoorbeeld, de kleur 'green'). De drager van de eigenschap vormt een noodzakelijke alhoewel niet een voldoende voorwaarde voor het bijvoeglijke concept. Deze causale relatie is vertaald naar een [-c-m] theta-bundel.

De theta-grid van een concept bepaalt hoe het concept gecategoriseerd zal worden als het eenmaal in de syntaxis is binnengetreden: een concept zonder een theta-grid wordt een naamwoord, een concept met één theta-cluster wordt een bijvoeglijk naamwoord en een concept met twee of meer theta-clusters wordt een werkwoord.

Een ander belangrijk kenmerk van TS is dat operaties op de argumentstructuur zowel in het lexicon als in de syntaxis kunnen plaatsvinden. Het tegenovergestelde principe wordt gehanteerd in het kader van *Distributed Morphology*, die het lexicon ontmantelt en tot een lijst woorden degradeert. Dit proefschrift levert echter een groot aantal argumenten ten gunste van het computationele lexicon. De belangrijkste argumenten tegen DM kunnen in twee groepen geordend worden: ten eerste is de categorisering door middel van functionele hoofden niet uitvoerbaar (hoofdstuk 2) en ten tweede kan argumentstructuur gemanipuleerd worden binnen het lexicon (hoofdstukken 5 en 6).

Het proefschrift bestaat uit 9 hoofdstukken en 5 appendixen.

Hoofdstuk 0 toont de geschiedenis van categorisering.

Hoofdstuk 1 biedt een overzicht van theoretische achtergronden van categorisering. De voor- en nadelen van verschillende theorieën en hypotheses betreffende categorisering worden tegen elkaar afgewogen. Het hoofdstuk geeft ook een inleiding in twee concurrerende opvattingen over de argumentstructuur – syntaxis-gericht en lexicon-gericht.

Hoofdstuk 2 houdt zich bezig met het inventariseren van wortels en suffixen in het Sakha. Als er drie categorieën bestaan, verwacht men de aanwezigheid van drieweg asymmetrieën in morfologische markering. Zulke asymmetrieën bestaan inderdaad en dat verleent steun aan de stelling dat er drie primaire (niet afgeleide) lexicale categorieën zijn. Aan de andere kant is het niet het geval dat als er drie categorieën zijn, er ook drie morfologische markers zijn – 'nominalizers', 'verbalizers' and

'adjectivizers'. Wegens de ambiguïteit van suffixen bestaan er geen vastomlijnde morfologische middelen die het bestaan van precies drie lexicale categorieën tot uitdrukking brengen . Het hoofdstuk brengt een aantal argumenten naar voren tegen de opvatting dat welke wortel dan ook naar willekeur in een naamwoord, werkwoord of adjectief omgevormd kan worden door te worden ingebed onder categorie-bepalende functionele hoofden.

Er worden ook argumenten aangevoerd tegen de stelling gehanteerd binnen Distributed Morphology dat afleiding alleen maar syntactisch kan zijn. Het hoofdstuk stelt vast dat er behalve primaire (niet-afgeleide) lexicale categorieën ook afgeleide (secundaire) nomina, werkwoorden en adjectieven bestaan en dat deze zowel in het lexicon als in de syntaxis afgeleid kunnen worden. Maar één criterium wordt vastgesteld voor het onderscheiden tussen lexicale derivatie en syntactische derivatie, namelijk betekeniswijziging. De keuze voor dit criterium wordt bepaald door de aanname dat de lexicale en niet de syntactische module de plaats is voor de vorming van nieuwe concepten.

Hoofdstuk 3 levert bewijs voor de bewering dat, enerzijds, nomina geen theta-grids hebben en, anderzijds, dat ze niet in argumenten omgezet hoeven te worden omdat ze van nature al argumenteel zijn. Verschillende soorten van 'bezitten' komen aan de orde en bezitters worden geanalyseerd als syntactisch geïntroduceerde argumenten.

Hoofdstuk 4 gaat over bijvoeglijke naamwoorden in het Sakha. Er wordt aangetoond dat adjectieven, in tegenstelling tot nomina, predicatief zijn; maar, anders dan werkwoorden, hebben ze maar één open positie in hun theta-grid. Om deze aanname hard te maken wordt het gedrag van adjectieven vergeleken met dat van nomina en werkwoorden in een aantal syntactische contexten. Zoals voorspeld door het huidige stelsel, komt een drieweg asymmetrie naar voren die een simpele verklaring in termen van onderliggende thematische eigenschappen heeft. De syntactische contexten die onder de loep genomen worden zijn *predicatie*, *tijd*, *complement-bijzinnen*, *betrekkelijke bijzinnen*, *bijvoeglijke bepalingen*, *bijwoordelijke bepalingen* en het gebruik van adjectieven als *argumenten*.

Hoofdstuk 5 verdedigt de TS-analyse van unaccusatieve werkwoorden als afgeleid van hun transitieve tegenhangers door middel van [+c]-reductie. Ook wordt de afleiding van nomina en adjectieven waarbij werkwoorden als grondwoorden fungeren in meer detail beschouwd.

In hoofdstuk 6 wordt het fenomeen van de accusatieve naamval benaderd. Het hoofdstuk ondersteunt en geeft meer empirische motivatie voor het bestaan van de "Accusative Case Parameter". Volgens de parameter kan accusatief in twee delen afgebroken worden: de universele thematische component en de taal-specifieke structurele component. De bewering met betrekking tot het Sakha is dat de taal geen structurele component heeft. Aan de hand van verschillende lexicale en syntactische operaties op de argumentstructuur van de werkwoorden worden de gevolgen behandeld van de werking van deze parameter. De operaties die onder de loep genomen worden zijn *reductie*, *reflexivisatie*, *passivisatie*, *lexicale en syntactische causativisatie* en *reciprocalisatie*.

Hoofdstuk 7 is gewijd aan denominale werkwoorden.

Hoofdstuk 8 geeft de conclusies van deze dissertatie weer..

CURRICULUM VITAE

Nadya Vinokurova was born in Yakutsk on August 12, 1974. She finished secondary school №2 in Yakutsk in 1991 with a silver medal.

In 1991 she began her studies at the Department of Foreign Languages of the Yakutsk State University graduating with honors in 1996 with the specialization "English language and literature".

During her undergraduate studies she received two grants: from the American Collegiate Consortium to study at Bowdoin College (Brunswick, Maine) during the academic year of 1994-1995 and from TEMPUS to study for four months in 1996 at l'Institut de Traducteurs, d'Interprètes et de Relations Internationales, Université des Sciences Humaines de Strasbourg.

In the fall of 1996 Nadya enrolled in a two-year postgraduate program at the Institute of Linguistics of the University of Tromsø from which she received her M.Phil. degree in 1998. Her Master's thesis was entitled "The internal structure of noun phrases in Sakha".

In September 1998 she started as a Ph.D. student at the Utrecht Institute of Linguistics OTS where she carried out the research that resulted in this dissertation.