

Reflexives

Eric Reuland

Online Publication Date: Dec 2014

Subject: Linguistics, Morphology and Syntax, Linguistic Typology
DOI: 10.1093/oxfordhb/9780199835345.013.9

[–] Abstract and Keywords

This article analyzes the factors determining the use of dedicated reflexives in natural language. It addresses the very diverse ways in which reflexivity is expressed and shows how to find the unity in this diversity. It takes as a starting point the fact that natural languages avoid expressions of the type *Subject Verb Pronominal* where the subject binds the object (and cases of co-argument binding in general) and then addresses the question of why this would be so. One factor concerns properties of predicates. A second factor concerns the syntactic representation of dependences between arguments. The article puts these factors into a general perspective and surveys a number of puzzling cases, such as languages with apparently locally bound pronominals. It then shows how superficially similar expressions may actually have rather different structures, putting them outside the scope of the factors discussed. Thus the observed diversity in fact reflects uniform principles.

Keywords: reflexives, reflexivity, binding, co-argument binding, IDI, reduction, bundling, feature chains

1. Introduction

In traditional grammars, reflexivity shows up as a relatively marginal phenomenon. Illustrative is the following quote from Jespersen (1933:111):

(1) "When the subject and object are identical, we use for the latter a so-called reflexive pronoun, formed by means of self e.g. I defend myself."

Jespersen subsequently states that it is natural to omit the reflexive in English where the meaning allows it, since it is "heavy and cumbersome, unlike *se* in French and *sich* in German." This is virtually all Jespersen says about reflexives and reflexivity in what is intended to cover the essentials of English grammar. Yet it already contains the ingredients for a puzzle, summarized in the question of why all this would be so. Why would we use a special form of the pronoun when subject and object are identical? When does the meaning allow us to omit the reflexive? Do we need properties such as being "heavy and cumbersome" in order to understand what is happening? Implicitly Jespersen acknowledges that the phenomenon involves more than just a quirk of English, but one would like to know how widespread this phenomenon is, and, if it turns out to be widespread, what underlies it.

Our perspective has considerably changed since Jespersen's times. The current goals of linguistics go beyond writing grammars. Rather, linguistics aims at understanding language at a more fundamental level. It aims at explaining what we observe in terms of properties of the language faculty, at times going beyond explanatory adequacy and explaining properties of language in terms of general properties of the human cognitive system ("third factors," Chomsky 2008). Interestingly, from this perspective, reflexivity turns out to be far from a marginal phenomenon. Consistently, languages turn out to use special means to express reflexivity. So far, in all cases studied in sufficient depth some special process turned out to be identifiable. In fact, reflexivity can be shown to provide a window in how language specific principles and general cognitive principles interact.

2. Some Preliminaries

In modern linguistic theory the effect of Jespersen's condition on "use" has been captured by conditions of the canonical binding theory (CBT; Chomsky 1981).

In natural language one expression may depend for its interpretation on another expression—its antecedent. CBT (the theory of A(argument)-binding) is concerned with such interpretive dependencies between expressions in argument positions, briefly *arguments*. Argument positions are positions for expressions to which a predicate assigns a semantic role (*agent, patient, beneficiary, etc.*), or of which a predicate governs the case such as nominative, accusative, and so on. Thus expressions like *the old baron, the driver, he, himself*, and so on, in (2) are all arguments in argument position. Note that in any language the interpretation of nominal expressions is subject to both grammatical and extragrammatical constraints. For instance, language doesn't tell us whether *the morning star is the evening star* is a true sentence. Thus by itself the values of the bold-faced expressions in (2) can be chosen freely and are not determined by principles of grammar. It is just a matter of the reader's imagination (or knowledge) whether they are construed as covalued. This is different for *him* and *himself* in the last sentence, as it will be easy to assess.

(2) **The old baron** was crossing the bridge at dusk with a ramshackle carriage. **The driver** was visibly tired. Suddenly, the carriage tipped over and **the man** fell into the swamp. When **he** had pulled *him/himself* out there came no end to his tall tales.

Arguments can be dislocated (by topicalization, question formation, etc.), as in (3); the argument position they are associated with is indicated by *t*:

- (3)
- a. *Him*, I never believed the baron to have pulled out *t*
 - b. *Which man* did he think *t* fell from the bridge
 - c. *Himself*, the driver pulled *t* out immediately

For purposes of CBT the italicized phrases are all treated as if they are in the position of *t*.

Following Chomsky (1981), arguments are standardly classified as *R-expressions, pronominals, or anaphors*. If the head of a phrase has lexical features this phrase is an *R-expression*. Thus *the old baron, the driver, the carriage, no one, everyone, which man*, and so on are all *R-expressions*.

R-expressions are interpretively independent. Pronominals (*I, you, he, etc.*) are elements that are only specified for *person, gender, and number* (the \emptyset -features). They may but need not depend on another argument for their interpretation. Anaphors are referentially defective nominal elements. In much of the literature the term "anaphor" has replaced the more traditional term "reflexive," as in the quote from Jespersen in (1). I come back to the terminological issue later.

Characteristic of anaphors is that they cannot be used deictically: whereas pronominals can be accompanied by a pointing gesture, anaphors never can. It is rather generally assumed that it is the binding relation that assigns them the content necessary for their interpretation. There are cases, though, where this is not entirely accurate, as will be discussed further on.

In the CBT, binding relations were annotated in the linguistic representations. To this end a system of *indexing* was used. In this system each argument is assigned a certain integer as its index. If two arguments are assigned the same integer they are coindexed. In practice one uses subscripts such as i, j, k , and so on as variable indices. If a and b are coindexed, this is indicated by an identical subscript. Thus in an expression $(a_i \dots b_i)$, a and b are coindexed. Since indices are linguistic annotations, it is still possible for two expressions to be assigned the same object in the outside world if they are not coindexed (*morning star* and *evening star* are not necessarily coindexed). Binding without coindexing is not possible though. In order for a and b to be coindexed (4) must be satisfied:

(4) a and b are nondistinct in features for person, number, and gender

Nondistinctness, rather than identity of features, is required for coindexing, since in many languages one anaphoric element is compatible with masculine or feminine, singular or plural antecedents. This property is illustrated by, for instance, Dutch *zich* and Icelandic *sig*. On the other hand, both are specified as third person, since they cannot have first- or second-person antecedents. In other languages (e.g., Slavic languages like Russian) a person specification is also lacking, and we find one anaphoric form for all persons and numbers, such as Russian *sebjä*.

In order for binding to be possible, the binder must *c-command* the element to be bound. The standard definition is given in (5).

(5) a c-commands b if and only if a does not contain b and the first branching (or maximal) projection dominating a also dominates b

A more transparent formulation is given by the structure in (6). That is, a c-commands b in the configuration of (6).

(6) a [$c \dots b \dots$], where a is the sister of the category c , which contains b

Thus, in words, a c-commands b iff a is a sister of c where c contains b .

Putting both conditions together yields (7) as the CBT definition of binding:

(7) a binds b iff a and b are coindexed and a c-commands b

As discussed in Reinhart (1983), coindexing alone is not sufficient for binding. C-command is a necessary ingredient. To see this, consider the patterns in (8) (Heim 1989) and (9).

(8)
a. The soldier_{*i*} has a gun. Will he_{*i*} shoot?
b. No soldier_{*i*} has a gun. *Will he_{*i*} shoot?

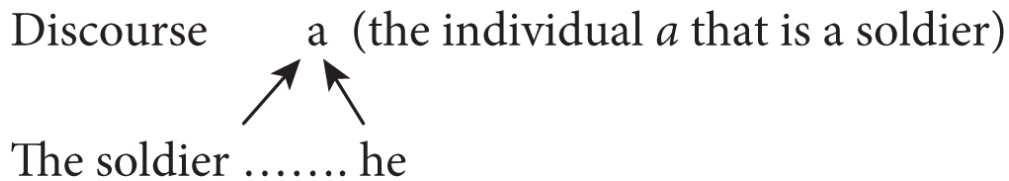
(9)
a. [No soldier_{*i*} who has a gun] thinks he_{*i*} will shoot.
b. *[The girl who discovered every soldier_{*i*}] thought he_{*i*} would shoot.
c. [The girl who discovered the soldier_{*i*}] thought he_{*i*} would shoot.

(8a) illustrates the same fact as (2): two referential expressions pick up an individual from the discourse as a referent, and this referent may happen to be the same. However, (8b) is different. *No soldier* does not denote an individual in the discourse. Hence *he* cannot pick that individual as a referent. Consequently, (8b) is an infelicitous (mini)text. However, as (9a) shows, an expression such as *no soldier* is not always excluded as an antecedent of *he*. It is allowed if it c-commands *he*. This motivates a fundamental distinction between two different types of anaphoric dependencies: **binding** and **coreference**. Although *no soldier* cannot corefer with *he no soldier who has a gun* can **bind** *he* as in (9a). The same effect is illustrated in (9b) and (9c). *Every soldier* is embedded in a constituent modifying *the girl*. Therefore, it does not c-command *he* and hence cannot bind it. Since it doesn't denote a (singular) individual, it cannot be coreferential with *he* either, and the sentence is ill formed with this indexation. In (9c) we have instead the referential expression *the soldier*. Coreference is possible, and the sentence is well formed under this indexation.

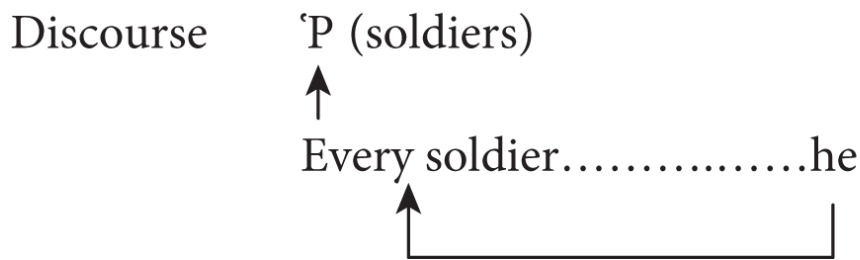
This contrast between coreference and binding is summarized in (10):

(10)

a. Coreference



b. Binding



As already hinted at in (2), anaphors and pronominals impose specific conditions on their binders. These conditions are summarized as follows: An anaphor *must* be bound by an antecedent that is sufficiently nearby; a pronominal *may* be bound, but its antecedent must be sufficiently far away. An R-expression cannot be bound at all; that is, it must be *free*. Of course one needs a precise measure for these locality conditions. In the more technical literature, the notion of a *governing category* provides a measure for the relevant distance. For current purposes we need not go into the technicalities; it suffices to say informally that the governing category of a pronominal or anaphor is *the domain of its nearest subject*. (10) presents the binding conditions of the CBT.

- (10) Binding conditions
- (A) An anaphor is bound in its governing category
 - (B) A pronominal is free (i.e., not bound) in its governing category
 - (C) An R-expression is free

In this overview we focus on conditions A and B. So condition A as a condition on anaphors is complemented by condition B on pronominals. From the perspective of the CBT, then, the form *I defend myself* in Jespersen's quote must be chosen since the alternative **I defend me* violates condition B.

The core pattern covered by the CBT is given in (11). Binding is indicated by italics; [GC.α stands for the *governing category* of α.

- (11)
- a. Max expected [GC-himself/him the queen to invite *him*/**himself* for a drink]
 - b. [GC-himself/him Max expected [C_{clause} *himself*/**him* to be able to invite the queen]]

In (11a), *Max* is outside the governing category of *him*, since the subject *the queen* intervenes. Hence it is fine for *Max* to bind *him*. For the same reason, *Max* is too far away from *himself*. In (11b), we see that *Max* is sufficiently nearby to serve as an antecedent for *himself* but too close to antecede *him*.

There is, however, a range of facts, some noted as early as Ross (1970) and Chomsky (1981), indicating that complementarity does not always obtain and that there are other factors that must be taken into account. I mention a few.

Consider, for instance, the following sentences:

- (12)
- a. Max expected the queen to invite [Lucie and *him*(self)] for a drink.
 - b. It angered *him* that she ... tried to attract a man like *him*(self). (Zribi-Hertz 1989)

In (12a), unexpectedly, *Max* is a possible antecedent for *himself*, and in (12b) *him* is. Sentences as in (13) show that pronominals in locative PPs may be bound by the local subject (while still allowing binding of *himself*, which is marked but not ill formed):

(13) *John saw a snake behind him* /??*himself*

What do such facts tell us? One rather popular line of thought is that expressions such as *himself* are in fact ambiguous between “being an anaphor” and “being an emphatic form of *him*” (see Hicks 2009 for a recent claim to this effect). This, however, doesn’t solve the problem, since one still has to ensure that the emphatic use of *himself* is blocked from occurring in positions where *himself* requires the locally bound interpretation as in (11a). Otherwise, *himself* in (11a) should not be ill formed, and one would not see condition A effects at all, contrary to fact.

As argued by Reinhart and Reuland (1993), facts like those in (12) and (13) indicate that in order to capture the binding conditions on *pronominals* and *anaphors*, their effects on the predicates of which they are arguments should be taken into account. Specifically, the question is whether, due to binding, a reflexive predicate is formed. For reasons to be discussed in detail later, reflexivity requires special marking, and that’s where reflexives come into play. In terms of Reinhart and Reuland, a reflexive predicate must be reflexive-marked. So, going back to the Jespersen case in (1), in *I defended me* the *defend*-predicate is reflexive, hence it must be *reflexive-marked*. This is what the *self* of *myself* contributes. Binding of *him* by *John* in (13) is allowed without further marking, since they are not co-arguments, and hence no reflexive predicate is formed. Thus attributing a crucial role to the formation of reflexive predicates immediately accounts for the local binding of *him* in (13).

Sensitivity of binding to properties of a predicate it may involve shows up in some typical restrictions. For instance, in the fact that English has *John washed, John shaved, John dressed* with a reflexive interpretation, but not **John defended, or *John hated*. In Russian we have *Ivan pomylsja* “John washed_{REFL}” next to *Ivan pomyl seb’a* “John washed himself” but not **Ivan nenavidelsja* “Ivan hated_{REFL}” next to *Ivan nenavidel seb’a* “Ivan hated himself”.

Interestingly, Dutch, like many other languages, has a richer system than English, with two “anaphors,” namely a simplex form *zich* and a complex form *zichzelf*. The distribution of these forms is also sensitive to properties of the predicate of which they are arguments. So we have both *Jan waste zich* and *Jan waste zichzelf*, but we don’t have **Jan haatte zich, only Jan haatte zichzelf*. Like Reinhart and Reuland (1993) I use the term SE-anaphor for simplex anaphors cross-linguistically and the term SELF-anaphor for anaphors of the X-self type. All this shows that language may use more “cumbersome” reflexives even if they have simpler ones. And, as we will see, taking the liberty to translate “cumbersome” by “complex,” there are indeed important issues behind the use of complex reflexives.

So far, I have couched the discussion in terms of the CBT and its definition of binding in terms of co-indexing. However, as discussed already in Reinhart (1983) and, subsequently, in Chomsky (1995) and Reinhart (2006; see also Reuland 2001, 2010), this notion of an index is problematic, specifically due to its hybrid syntactic/semantic nature. This hybrid character causes problems both for its syntax and its semantics. It is problematic for syntactic reasons, since although presumed to be part of the syntactic representations, indices are clearly not morpho-syntactic objects. No language has any morpheme that expresses what indices should express. It is also problematic for semantic reasons. It is impossible to give the notion of an index a coherent semantic interpretation, given the fact that two expressions may have the same referent, even if they don’t have the same index (witnessed, among others, by sentences such as *the morning star is the evening star*; see Reuland 2010 for a more detailed discussion). Consequently, Reinhart (2006) proposes a definition of linguistic binding that is directly related to the logical notion of binding, as in (7’):

(7’) *Definition of A-binding* (Reinhart 2006) (logical-syntax based definition)¹

α A-binds β iff α is the sister of a λ -predicate whose operator binds β

The definition in (7’) covers binding relations irrespective of whether they are syntactically encoded (though not dependencies that are only represented in discourse).² Although this system dispenses with the notion of a syntactic index, I may continue using them where convenient.

In the next section I discuss cross-linguistic variation in anaphoric systems in more detail.

3. Variation in Anaphoric Systems

Since the 1950s the English system has served as a standard model, providing a starting point for the study of binding in other languages. But, as already hinted at by the Dutch examples near the end of the previous section, there are systems with more distinctions than just the distinction between anaphor and pronominal.

Over the past few decades, the picture has emerged that anaphors come in two general types (with some further subdivision discussed later): *simplex anaphors* and *complex anaphors*. Simplex anaphors have the internal structure of pronominals, only they are underspecified; quite generally a specification for number is lacking. English lacks simplex anaphors, but cross-linguistically they abound. Some well-known examples are Dutch *zich*, Icelandic *sig*, Chinese *ziji*, and Japanese *zibun*. In many contexts their interpretation just corresponds to English *himself*. Complex anaphors generally consist of a pronominal or a simplex anaphor and some other element. These other elements may be of a quite varied provenance. Some are historically intensifiers and currently semantically rather empty, such as English *self* in *himself*, Dutch *zelf* (*zichzelf*), Icelandic *sjalfan* (*sjalfan sig*).³ A great number of languages use so-called body-part reflexives. Such reflexives are based on an element that occurs independently as a nominal head designating a part of a body such as *head, bones*, but also designations such as *soul, spirit, reflection* are found (see Faltz 1977, and, for a more recent overview, Schladt 2000). To give one example, in Basque *the father killed himself* is literally expressed as *the father killed his head*. The form *bere burua* “his head”, which is used here to denote *himself* is also used in a sentence as *he put the cap on his head*. Yet other languages double a pronominal form (Cachur, spoken in Daghestan; Malayalam, a Dravidian language; see Jayaseelan 1997), or put a special marker on the verb, for instance Kannada, another Dravidian language (see Lidz 1995 and Lust et al. 2000 for an extensive overview).

While Dutch has a three-way contrast (pronominal, SE-anaphor, and a SELF-anaphor), Icelandic and Norwegian, along with the other mainland Scandinavian languages have a four-way system: Pronominals, SE-anaphors, and complex anaphors both of the form SE-SELF and Pronominal-SELF (e.g., Vikner 1984, 1985, Everaert 1986, Hellan 1988).

Similarly, there is significant cross-linguistic variation in binding domains, especially of SE-anaphors. Whereas in Dutch and German binding of SE-anaphors is “relatively local,” in the Mainland Scandinavian languages the antecedent may be far beyond the local subject, as long as no finite clause boundary intervenes (see, e.g., Hellan 1988), as illustrated in (14):

(14) *Jon bad oss forsøke å få deg til å snakke pent om seg*

Jon asked us (to) try to get you to talk nicely about SE (Hellan 1988)

In Icelandic and Faroese (and certain Mainland Scandinavian dialects) an anaphoric dependency can be established even beyond this domain (see, e.g., Thráinsson 1976a, 1976b, 1991; Sigurðsson 1990; and, more recently, Lødrup 2009). Other canonical examples of languages allowing long-distance binding of anaphoric expressions are Mandarin (*ziji*) (e.g., Huang and Tang 1991; Cole, Hermon, and Sung 1990), and Japanese (*zibun*) (see e.g., Katada 1991; Aikawa 1993; Hara 2002). In the literature, this phenomenon is variably called *long-distance anaphora*, *long-distance binding*, and *long-distance reflexivization*, and the elements involved both *long-distance anaphors* and *long-distance reflexives*, all with no difference in meaning.

It is important to realize that it is not long-distance binding as such that is “special” but only long-distance binding of “anaphors,” since long-distance binding of pronominals is just an everyday phenomenon, as in (15).

(15) *Every actor* in the program left immediately [after the interviewer revealed [what *his* family had accused *him* of]]

One could try to account for this type of variation in the binding of anaphors by parametrizing binding domains (Manzini and Wexler 1987). However, this would not be enough to “save” the CBT. As shown in Reuland and Sigurjónsdóttir (1997; see Reuland 2011 for a summary), there is a significant contrast between the infinitival and subjunctive domains. Subjunctive in Icelandic licenses a logophoric interpretation of the SE-anaphor *sig*, as in (16) (Thráinsson 1991):

(16) [NP Alit Jóns_i] virdist [t_j vera [að ég hati_(subj) sig_i]]
Belief John's seems be that I hate SE
“John's belief seems to be that I hate SE”

Under a logophoric construal, the “antecedent” must meet discourse conditions that are irrelevant for canonical binding, such as representing a centre of consciousness, and there is no c-command requirement (see Clements 1975; Sells 1987 for the original discussion; and Reuland 2006 for an overview). In fact, in the subjunctive domain, Icelandic allows a SE-anaphor to be interpreted without a linguistically expressed antecedent at all, as in (17), showing that there is a qualitative difference associated with the conditions on anaphor interpretation in the subjunctive domain.

(17) María var alltaf svo andstyggileg. Þegar Olafur kaemi segdi hún sér_i áreidan lega að fara (Thráinsson 1991, citing Sigurðsson 1986, 1990)
“Mary was always so nasty. When Olaf would come, she would certainly tell herself [the person whose thoughts are being presented—not Olaf] to leave

And, expanding the observations about English anaphors in (12), even in English such a use of *himself* without a binder occurs, as in (18), from Pollard and Sag (1992), where the contrast between (18a) and (18b) illustrates the role of discourse factors:

(18)
a. John_i was going to get even with Mary. That picture of himself_i in the paper would really annoy her, as would the other stunts he had planned.
b. *Mary was quite taken aback by the publicity John_i was receiving. That picture of himself_i in the paper had really annoyed her, and there was not much she could do about it.

While the facts discussed so far show that there is a problem with condition A, the next type of facts shows a problem with condition B. Languages such as Frisian and Old English, allow locally bound third-person pronominals, as in (19) (see, e.g., Everaert 1986, 1991; Van Gelderen 2000; and Keenan 2001 for discussion):

(19)
a. Jan_i klaaide him_j oan
Jan dressed him up
Jan dressed himself
b. he_j cladde him_j
he dressed himself

And, in fact, these are not isolated cases. Also in languages as remote as Khanty (an Uralic language discussed in Volkova 2014 and Volkova and Reuland 2013), and Fijian (see Dixon 1988; Levinson 2000; Reuland and Everaert 2010; Schadler 2014) we find third-person pronominals that are, *prima facie*, locally bound. Since in the CBT *having to be (locally) bound* and *having to be locally free* are defining properties of anaphors and pronominals, respectively, such facts require a fundamental rethinking of the CBT. But note that, in fact, the ready availability of locally bound first- and second-person pronominals in Germanic and Romance languages with the exception of English (as in French *Je me lave* “I wash me”) already poses a challenge. Of course, one could say, as has been done in the past, that these pronominals are ambiguous between being anaphoric and being pronominal. However, this would amount to stipulating the problem away. And, in fact, already the contrast between -first- and second-person pronominals and third-person pronominals is remarkable. The fact that local binding of the first two is far more common than local binding of third-person pronominals, and that languages apparently treat these differently, calls for an explanation.

A further point of variation is the availability of dedicated possessive anaphors, as in Scandinavian and Slavic, as illustrated in (20) for Russian and Icelandic but not in, for instance, English, Dutch, or German and the Romance languages (although Latin, the predecessor of the Romance languages, did have the dedicated anaphor *suus*).

(20)
a. Ivan_i ljubit svoju/ego_i sobaku
Ivan loves his_{ANAPH}/his_{PRON} dog
b. Honum líkar bílinn sinni/*hans_i
her_{DAT} pleases car SE's/her
“She likes her car.”

The upshot at this point is that the conditions on binding reflect a complex of factors. Hence in order to achieve an understanding, it is necessary to unravel what these factors are and what each factor contributes. In view of this, Reinhart and Reuland (1993) develop a modular approach to binding that is elaborated in Reuland (2011). Central in the approach are two main factors, each with their own ramifications: (i) the fact that reflexivity of predicates must be licensed and (ii) the fact that binding must be syntactically encoded when the conditions for syntactic encoding are met. I review each of these in the next sections.

4. Reflexives in Dutch and Frisian

As discussed in Reinhart and Reuland (1991, 1993), the distribution of simple versus complex anaphors in Dutch depends on properties of the predicate of which the anaphor is an argument. As a first approximation, if the predicate is reflexive due to a particular lexical property it has—briefly, if it is lexically reflexive—we find the SE-anaphor *zich* as an object; if it is not lexically reflexive the complex anaphor *zichzelf* is required. A typical contrast is given in (21):

(21)

- a. *Alice gedraagt zich* (??zelf) goed
Alice behaves (herself) well
- b. *Alice wast zich/zichzelf*
Alice washes (herself)
- c. *Alice bewondert zich* *(zelf)
Alice admires herself

Gedragen is lexically reflexive, hence allows *zich* (and is not felicitous with *zichzelf*); *bewonderen* is not, hence requires *zichzelf*; *wassen* is both. As Reinhart and Reuland argue, the core principle is that reflexivity of predicates must be licensed. Licensing can happen in two ways: (i) by a lexical operation or (ii) by a SELF-anaphor. Hence, we find a SE-anaphor where a lexical reflexivization operation is available and where the SE-anaphor being bound by its antecedent does not by itself make a predicate reflexive. So we typically find a SE-anaphor also in locative and directional PPs, where the argument of the preposition is not an argument of the verb, as in (22a), and as the subject of small clauses, as in (22b), where it is not a (semantic) argument of the matrix verb.

(22)

- a. *Alice zette het flesje naast zich*
Alice put the bottle next to SE
- b. *Alice voelde* [zich wegglijden]
Alice felt [SE slip away]

As an argument of the verb the SE-anaphor does not only appear with verbs such as *gedragen* “behave” that are intrinsically reflexive—a subclass of the lexically reflexive verbs in the sense that they never allow an independent object (in fact such verbs are semantically always intransitive). It also occurs with grooming verbs such as *wassen* “wash”, *scheren* “shave”, and so on but not only with these. We find SE-anaphors also with a broader class of transitive verbs, such as *verdedigen* “defend”, *ontwapenen* “disarm”, and others, but never with verbs such as *haten* “hate”, *bewonderen* “admire”, or *kennen* “know”.

Such a pattern is not limited to Dutch. We see a very similar pattern in the Scandinavian languages, we see it in Russian in the contrast between verbs allowing reflexivization with the affixal element *sja* versus those requiring the full anaphor *sebjja*, and interestingly we also see it in Frisian, which as noted previously does allow local binding of pronominals but with restrictions. Frisian requires the complex anaphor *himsels* wherever Dutch requires *zichzelf*.

(23)

- a. *Diederik skammet him/?himsels*
Diederik shames him
- b. *Diederik wasket him/himsel*
Diederik washes him(self)
- c. *Diederik bewûnderet himsels/*him*
Diederik admires himself

(24)

- a. *Diederik sette it fleske neist him/?himsels*
Diederik put the bottle next to him
- b. *Diederik fiede* [him/himsels fuortgleden]
Diederik felt him slip away

In fact, even the contrast between such closely related languages such as Dutch and Frisian already gives us crucial information: local binding of pronominals varies independently of whatever requires licensing of reflexive predicates, and moreover, the latter appears to be more stable. The question is why this would be so. I first discuss the issue of reflexivity. In section 6 I come back to the Dutch-Frisian contrast and what it tells us.

5. Toward a General Theory of Reflexive Licensing

In order to start answering this question we must bring up an even more fundamental question that was hidden under the prima facie “obviousness” of the CBT.

(25) Why would there be dedicated binding conditions at all?

Why don't we simply just say *John admires him*, *Jan bewondert hem*, *Jan bewûnderet him*, allowing the interpretation of *John admires himself*? The answer cannot be that language avoids ambiguity, since Frisian (23b) is precisely that, namely ambiguous between an interpretation where *him* is locally bound and one in which it is free. In fact such a “disambiguation necessity” would have to be very limited. Beyond the clause, there is little trace of it. Across the board we find no distinction between pronominals as bound variables and as “free” variables (Elbourne 2008); moreover, in complex clauses with multiple possible antecedents for a pronominal, or even for an anaphor, in cases of long-distance anaphors, there may be pragmatic preferences but no choices enforced by the grammar.

5.1. An Earlier Line

The necessity to do something about a particular class of reflexive predicates seems to be no quirk of English, Dutch, or Indo-European languages in general. As is observed in Schladt (2000), languages go to great lengths to avoid simple reflexive instantiations of transitive predicates. Schladt gives

Reflexives

verb such as *dance* as in *Cindy dances* assigns an *agent* role to *Cindy*. A transitive verb will have to assign two different semantic roles to its arguments. In the case of *bewonderen* "admire" one of the arguments is interpreted as the experiencer and the other as the argument, giving rise to the experience (technically, the *theme*). If two arguments of such a verb are bound by the same λ -operator, they are identified, as in (29):

a. Alice λx [bewondert θ_{1, θ_2} x x] + zich



(29) b. Alice λx [bewondert θ_{1, θ_2} x] + zich

?

Role 1? Role 2?

If the two internal variables are identical, they are unified, as is already implied by the standard view that reflexivization turns a relation into a property.⁶ Hence, indeterminacy in assigning the two θ -roles ensues, leading to ill formedness. Thus what one may call *brute force reflexivization* (reflexivization by just having two variables on the same verbal grid bound by the same operator) is ruled out in natural language. This is, then, whatever is special in reflexives has to remedy, as reflected in Reinhart and Reuland's (1993) condition B given in (30):

(30) A reflexive predicate is reflexive-marked

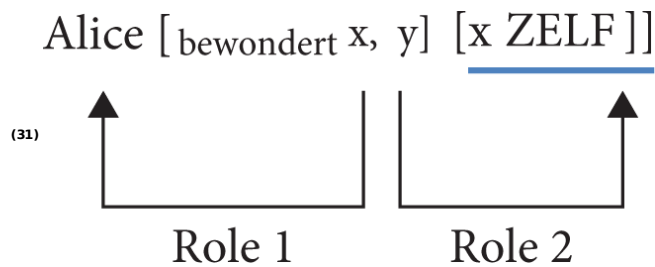
The *reflexive-marking* in (30) licenses the reflexive interpretation by remedying the effect of the IDI.

While (30) is expected to be universal and language independent, languages may vary in the means by which they license reflexivity. And these means are all specific to language.

Logically, there are two routes to achieve this. One is *protection*, the other *reduction of one argument with bundling of the theta-roles involved*. These are discussed in turn.

5.2.1. Protection

One way of licensing the reflexive is for the variable to be "protected" by a marker such as *self* or *head*. This is illustrated for Dutch in (31) and for Basque in (32).



a. aitak [bere burua] hil du

father his head kill has

“The father killed himself.”

(32)

b. aitak [killed x, y] [x HEAD]



Due to the presence of *self* or *head*, the arguments remain formally distinct at the level of logical syntax, since binding only identifies the subject variable with a variable properly contained in the object (*x* versus [*x*'s *head*] or [*x self*]). Hence the variables on the grid of the verb that are linked to these arguments are not identified by the binding process, and IDI does not come into play.

In (31) and (32) the arguments are formally distinct, but in fact they are also semantically distinct. As observed in Jackendoff (1992) and subsequently discussed in Safir (2004), Reuland and Winter (2009), and Reuland (2011), *himself* allows so-called “proxy-interpretations,” as illustrated in (33) for both English and Dutch.

- (33) (Upon a visit in a wax museum, with a wax figure of Ringo Starr:)
- a. All of a sudden Ringo started undressing himself. (=Ringo, statue)
 - b. Plotseling begon Ringo zichzelf te ontkleden (=Ringo, statue)

Himself and *zichzelf* are interpreted as proxies of the binders of *him* and *zich*, respectively. The same I would claim applies to *bere burua*. So the general picture is indicated in (34). In order to avoid the IDI violation resulting by brute force reflexivization in (34a), using a derivation with a morpheme inserted that contributes complexity yields a representation that can serve as an approximation of the reflexive relation intended.

- (34)
- a. DP. $\lambda x (V_{TR} (x, x))$
 - b. DP. $\lambda x (P (x, [\text{Morph } x]))$
 - c. DP. $\lambda x (P (x, f(x)))$

To remedy the effect of IDI, any morpheme adding the required complexity and whose effects are visible in the interpretation will do. Note that also any other means contributing a space that enables maintaining a distinction between the variable tokens will have the same effect. So realizing the one of the arguments in a PP, as in Zande works as well, since a PP is a term, hence visible to the semantics and retained after the erasure of uninterpretable material.

The claim is, therefore, that what is universal is not the specific linguistic means themselves—different languages clearly select different lexical items or even strategies in a broader sense (see Schladt 2000). What is universal is the particular effect to be obtained: avoiding two identical variables on one verbal grid. A simplex anaphor such as *zich*, then, is limited to positions where either no reflexive predicate is formed when it is bound by its antecedent or when reflexivity is licensed otherwise.

Interestingly, this proxy-interpretation is not possible if we have a reflexive interpretation and there is no complex anaphor, as in (35), with counterparts of (33):

- (35)
- a. All of a sudden Ringo started undressing (=Ringo, *statue)
 - b. Plotseling begon Ringo zich te ontkleden (=Ringo, *statue)

This brings us to the other way of licensing reflexivity.

5.2.2. Reduction and Bundling

The other way to license reflexivity is by an operation on argument structure, reducing the internal argument, and bundling the internal and external thematic roles into a composite role. If the roles are bundled, the indeterminacy is resolved as well, and the composite role can unequivocally be assigned to the one argument that is visible on the grid, the external one. This bundling operation is proposed and discussed in Reinhart (2002) and

Reinhart and Siloni (2005). They show that reduction of an argument and bundling of roles is one of a range of operations on verbal concepts that are independently needed to account for alternations (e.g., between transitive *open* in *Alice opened the door* and its one-place alternant in *The door opened*). Bundling often goes together with a special morpheme to trigger or license it, as *zich* in Dutch *Jan wast zich* or the clitic *se* in French *Jean se lave*, but not in English, as in *John washes*, where no special element shows up. The question is, then, why such an element may show up and how to account for the cross-linguistic variation.

As Reinhart and Siloni (2005) argue, this reduction operation may leave a residual accusative case, depending on the case system of the language concerned. If present, this residual case must be checked. This is, then, the role of the SE-anaphor *zich* and its cognates in Dutch and related languages. Facilitated by the impoverished case system in English, reduction does not leave a residual case there, hence nothing needs to be checked.⁷ The operation is stated as in (36) (where θ_1 and θ_2 stand for different θ -roles):

(36) Reduction of an internal role—Reflexivization
 $V_{acc}(\theta_1, \theta_2) \rightarrow Rs(V)(\theta_1 - \theta_2)$
 $V[Agent]_1 [Theme]_2 \rightarrow V[Agent-Theme]_1$

Reduction/bundling is restricted to agent-theme verbs. Specifically, lexical reflexivization does not occur with subject experiencer verbs such as the counterparts of *hate*, *admire*, *know*, and so on. In Dutch this restriction shows up in the distribution of the SE-anaphor *zich* discussed earlier. A similar restriction has been observed in a range of languages, varying from Germanic to Modern Greek or Russian and Sakha. Reinhart and Siloni don't offer an explanation for this restriction. They assume that this is a reflection of the fact that the lexicon may to a certain extent host idiosyncrasies. In the final section I briefly come back to this.

This second strategy to license reflexivity is in line with the observation in Levinson (2000) that many languages use detransitivized verbs form to express reflexive relations. IDI explains why this is so. (See Franssen 2010 for an overview of the use of this type of strategy in Australian and Austronesian languages.)

Note that in clitic languages like French or Italian, prima facie, no such restriction on the simple anaphoric clitic *se/si* is observed. So one finds *Jean se lave* "John washes", alongside *Jean s'adore* "John admires himself" or *Jean se hait* "John hates himself". This is due to the fact that clitics have a richer internal structure than meets the eye. For instance, clitics are able to project full arguments, since like anaphors such as *himself*, or *zichzelf*, clitics in French and Italian support proxy-readings, as in *Ringo washed himself*, where *himself* may be interpreted as Ringo's statue, a reading that is absent in the case of Dutch *Ringo waste zich*, or English *Ringo washed*. As is shown in Marelj and Reuland (in press), the syntactic properties of clitics can in fact provide the necessary protection. Due to the fact that clitics combine properties of heads and full phrases (technically, they have a mixed X^0/XP status, in line with Chomsky 1995 and Bošković, 1997), the argument variable they project stays formally distinct from the variable projected by their antecedent.⁸ For the details of the analysis and further references, see Marelj and Reuland.⁹

It should be clear now why proxy-readings are lacking in (35). Both represent the result of reduction + bundling, and no internal argument is projected. Since both θ -roles are assigned to one and the same argument, expressing a binary relation as that between an individual and its proxy is impossible.

In fact the availability of proxy-reading serves an important diagnostic to assess the status of a particular morpho-syntactic operation, since clearly no linguistic expression carries its analysis on its sleeve.¹⁰

As an example consider the following sentence from Bahasa Indonesia (Kartono 2013):

(37) **Lady Gaga melihat diri di museum.*
Lady Gaga see self in museum
"Lady Gaga saw herself in museum."

Bahasa Indonesia has a number of reflexive strategies, to be discussed in more detail in the next section. Two of these employ a full phrase (*dirinya* and *dirinya sendiri*). In (37), however, we only have *diri*. So the question is what status this element has. As already indicated in the example, unlike the other two, bare *diri* does not allow statue readings, indicating that it is more like Dutch *zich*, or the Russian affix *sja* (which doesn't allow statue reading either) than a full anaphor. (See Volkova and Reuland 2013 for similar contrasts in Khanty.)

5.2.3. Protecting and Enforcing

So far this overview focused on the licensing of reflexivity. But, as we know, and in fact, surprisingly, *self* in English not only licenses a reflexive interpretation but may also enforce it. That is, the locality condition on anaphor binding expressed by condition A of the CBT reflects the property of *self* that it enforces reflexivity, even if a reflexive interpretation is ruled out for reasons of a feature mismatch. For instance in (38a), *self* enforces reflexivity of the *invite*-predicate. However, since *the queen* cannot bind *himself* due to a mismatch in gender features, the sentence is ill formed. What about the case in (38b), where, clearly, *himself* does not enforce reflexivity? Under the assumption that reflexive-marking by *self* is a syntactic process, this follows without further stipulation. For the sake of concreteness, assume that reflexive-marking by *self* involves covert head-movement of *self* onto a verb *V*, creating a SELF-V, which is reflexive (see Reuland and Winter 2009 and Reuland 2011 for the semantics of SELF-marking). A general economy principle to the effect that expressing a dependency in syntax is preferred over postponing this to the interpretive system may serve as a trigger; see Reuland 2011 for discussion). If so, *self*-movement is expected to be subject to syntactic restrictions on movement: it should be impossible to move *self* from within a coordinate structure (the coordinate structure constraint), or from an adjunct (the condition of extraction domains; Huang 1982). Thus (38a, b), just like (12a, b), behave precisely as expected. In (38b, just like in (12a, b), movement of *self* onto the verb is blocked (by the CC and the condition of extraction domains). Hence the verb is not forced to be reflexive. That is, in both cases *himself* is in an exempt position (Pollard and Sag 1992), and it may be bound by a more remote antecedent. The configuration is illustrated in the following:

(38)

a. *Max boasted that the queen (self)-invited himself for a drink



b. Max boasted that the queen invited [Lucie and himself] for a drink



Given this dissociation between licensing and enforcing, one would expect there to be languages with licensors that don't enforce. A case discussed in Reuland (2001) is Malayalam (Jayaseelan 1997). Volkova and Reuland (2013) discuss a similar case in Khanty. Here I exemplify it by an example from Bahasa Indonesia (Kartono 2013). As Kartono shows, Bahasa Indonesia does not allow local binding of pronominals, but it has two other "pronominal" arguments that can be locally bound, *dirinya* and *dirinya sendiri*. The behavior of the latter is illustrated in (39), that of the former in (40):

(39)

- a. Budi_i membenci *diri-nya sendiri*_i.
Budi hate body-3SG.GEN self
"Budi hates himself."
- b. *Budi_i mengatakan mereka membenci *diri-nya sendiri*_i.
Budi think they hate body-3SG.GEN self
"Budi said that they hate himself."

(40)

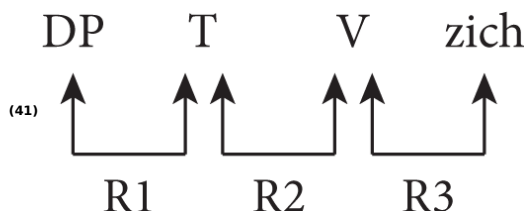
- a. Budi_i membenci *diri-nya*_i.
Budi hate body-3SG.GEN
"Budi hates himself."
- b. Budi_i mengatakan mereka membenci *diri-nya*_i.
Budi think they hate body-3SG.GEN
"Budi said that they hate himself."

That is, *dirinya sendiri* acts both as a licensor and an enforcer of reflexivity *dirinya* only licenses. As Kartono notes *dirinya* is composed of a body-part noun with a pronominal possessive. Hence it is complex and provides the protection IDI requires. However, its noun head is not in the canonical N-position but in a derived position to the left. From such a position it cannot undergo head-movement to SELF-mark the verb (due to a general syntactic condition on movement, the left branch condition). Hence, local binding is not enforced. In the case of *dirinya sendiri*, *sendiri* is in the canonical head position. Hence it can move and therefore has to move for reasons of economy.

6. Binding and Syntactic Chains

The discussion so far captures the distribution of simplex versus complex anaphors, among others but does not say anything about the distribution of simplex anaphors versus pronominals. Any such discussion must take into account the fact that languages such as Frisian and Old English do allow third-person pronominals to be locally bound. That is, any account must be sensitive to a morphosyntactic parameter. As shown in Reuland and Reinhart (1995) and further discussed in Reuland (2001, 2011), this factor is structural case.

Let's first review binding of *zich*. In Reuland (2001) and Reuland (2005a) it is shown that binding of simplex anaphors can be syntactically encoded by Agree, where Agree involves exchanging/copying of ϕ -feature bundles between the dependent element and its antecedent. These ϕ -feature bundles are subsequently interpreted as variables in the interpretive procedure. Feature sharing, then, creates identity of variables. This exchange of ϕ -feature values crucially takes place via the heads on the path between these elements, as illustrated in (41) (see Reuland 2005a; Chomsky 2008; Reuland 2011):



These dependencies are real syntactic dependencies. R1 is the canonical agreement relation between subject and finite Tense/Agreement, R2 reflects the relation between the verbal projection and the Tense/Agreement system. R3 is the case dependency between V and its object (glossing over the

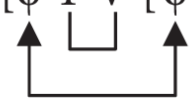
finer articulation of the functional system).

As in Reuland (2011), I am assuming that structural accusative case is visible to the Tense/Agreement system of the clause (Pesetsky and Torrego 2007). The *composition* of R1, R2, and R3, then links *zich* to the subject DP. This yields a syntactic encoding of the binding relation. An element like *zich* is feature deficient. Exchange of features between *zich* and its antecedent results in filling its feature matrix, identifying their ϕ -feature bundles. This identity of feature bundles is interpreted by the interpretation system as variable binding. This is illustrated in (42).

a. Alice voelde [zich wegglijden]

Alice felt [SE slip away]

(42) b. Alice [ϕ T V [ϕ VP]]



c. Alice λx (x voelde [x wegglijden])

Unlike SE-anaphors, the feature matrix of pronominals is not deficient. Specifically, they are specified for grammatical number. This number feature (or possibly a property dependent on number) entails that different occurrences in the numeration are not interpretively equivalent. Overwriting one occurrence by another deletes content that is not recoverable. Thus, as discussed in Reuland (2001), and (2011), overwriting its matrix would result in a violation of a principle of grammar, the principle of recoverability of deletions (PRD, see Chomsky 1995). Consequently, in (23) syntactic identification of ϕ_1 and ϕ_2 is impossible:


- (43)
- a. Alice voelde [haar wegglijden]
 - b. Alice [ϕ_1 T V [ϕ_2 VP]]
 - c. Alice λx (x voelde [x wegglijden])

Since different occurrences of a variable can be bound by the same operator, irrespective of from what it results, standard interpretation procedures could still map (43b) onto (43c). This however, is blocked by economy (see Reuland 2001 and, subsequently, Reuland 2010 and Reuland 2011). Briefly, the derivation goes as follows: (i) the syntactic configuration—modulo the choice of an anaphor or pronominal—allows encoding of the dependency by ϕ -feature identification; (ii) for the pronominal, encoding the dependency by ϕ -feature identification would violate the PRD; (iii) this leads to a cancelled derivation in the sense of Chomsky (1995); and (iv) economy forbids bypassing this grammatical prohibition by binding the pronominal anyway (rejection by the grammatical computation is final).

This analysis predicts that in a structural configuration where the conditions for feature identification/chain formation are not met, nothing prevents the pronominal to be locally bound. Hoekstra (1994) shows that Frisian has a pronominal paradigm without structural case.¹¹ This means that its case is inherent and will not be visible to the T-system. Consequently, the preconditions for chain formation are not met. This explains why the Frisian equivalent of (43) is fine:

a. Alice fielde [har fuortgleden]

(44) b. Alice [ϕ_1 T V [ϕ_2 VP]]



c. Alice λx (x fielde [x fuortgleden])

As we already saw, the fact that Frisian allows locally bound third-person pronominals does not mean that it has no anaphors. With respect to licensing, Frisian follows the general pattern, just like Dutch. Hence, with verbs not allowing lexical bundling the self-anaphor *himsels* is required.

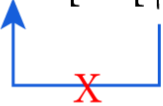
The existence of locally bound pronominals in Old English has the same explanation. Van Gelderen (2000) presents extensive evidence that in the

relevant period the object received inherent, rather than structural case. One of her important arguments is that Old-English lacked personal passives at that time. To what extent Old English has a different reflexivization pattern from Frisian or Dutch is an open issue. Prima facie it seems to show the same pattern as Frisian. I am not aware of any specific discussion of subject experiencer verbs showing that for such verbs it diverges from the Frisian pattern, but it would be important to check this. Other languages may allow locally bound pronominals for different reasons. Khanty, for instance, as discussed by Volkova and Reuland (2013), allows locally bound pronominals because of another property it has, namely a dedicated optional object agreement, distinct from subject agreement. Interestingly, Khanty allows local binding of pronominals only in the presence of this object agreement. If no object agreement is there, local binding is ruled out. Informally, it is this object agreement that intervenes between the object pronominal and the T-system, thus creating a configuration in which no A-chain between subject and object can be formed. Hence, PRD doesn't come into play, no derivation is cancelled, and hence binding is not ruled out and therefore allowed. And, as a "bonus," the same configuration also creates a protection environment. Thus IDI is satisfied as well.

Although under certain conditions, local binding of third-person pronominals can occur, we still face the question of why local binding of first- and second-person pronominals is so much less constrained. The answer resides in the nature of their features. That first- and second-person pronominals allow chain formation with their antecedents is the immediate effect of the way in which the PRD regulates chain formation. As we saw, the reason the PRD blocks chain formation with third-person pronominals is that different occurrences of the number feature in the numeration are not interpretively equivalent. Overwriting one occurrence by another deletes content that is not recoverable. First- and second-person pronominals, however, have a fixed interpretation within one reportive context, since they reflect the coordinates of the utterance. Moreover, as already observed by Benveniste (1966), number in first- and second-person has a different status of number in third person. "We" is not a plurality of "I"s. Thus replacing the features of one occurrence of *me* or *we* by the features of another occurrence changes nothing in the interpretation. No information gets lost: hence the PRD is not violated.

As discussed in more detail in Reuland (2011), we only have to take into consideration one additional factor to also account for the remaining issue mentioned in the beginning, namely the distribution of possessive reflexives.

Note that in principle a pronoun in the Poss position of a DP has a structural position that is similar to the subject of an infinitival clause as in (43). This is illustrated in (45).

- i. a. Alice V [Poss NP]
 b. Alice [ϕ_1 T V [ϕ_2 NP]]
 c. Alice λx (x V [x's NP])
- ⁽⁴⁵⁾ ii. a. Alice V [D [Poss NP]]
 b. Alice [ϕ_1 T V [D [ϕ_2 NP]]]

 c. Alice λx (x V [x's NP])

If so, also in this position the pronominal is visible to the Tense/Agreement system of the clause containing it, and local binding of the pronominal will be prohibited by the same mechanism as in (43). This is what we see in languages as varied as Latin, Slavic languages, and Scandinavian, which have dedicated Poss anaphors. However, in languages where a D-head is obligatorily projected within the DP, higher than the Poss-position, as in (45ii), this element intervenes, and the Poss position will not be accessible to the Tense/Agreement system. This happens in languages with obligatory pronominal definiteness marking in the form of articles. Thus in all the languages with obligatory pronominal definiteness making, such as Dutch, English, German, and the Romance descendants of Latin, the D-head "protects" the possessive, and no dedicated Possessive anaphor occurs.

7. Some Final Reflections

Reflecting on the interplay between IDI, reduction, and protection, some questions arise. We discuss three of them here.

One concerns the question of what counts as a predicate. What is the unit to which IDI applies, and what types of cross-linguistic variation can be envisioned? Is the notion stable throughout—let's say, intrinsically semantic—or are there grammatical factors that may cause variation? Interestingly, the answer to this question is positive. This can be shown on the basis of a comparison between Dutch and French with respect to binding into PPs.

The following contrast between French (Zribi-Hertz 1989) and Dutch illustrates how a small variation in grammar independent of binding may have a significant effect on the scope of IDI.

(46)

- a. Jean est fier de lui/lui-même
Jean is proud of him/himself[]
- b. Jean est jaloux de *lui/lui-même
Jean is jealous of him/himself
- c. Jean bavarde avec *lui/lui-même
Jean mocks (of) him/himself
- d. Jean parle de lui/lui-même Jean talks (of) him/himself

Configurally (46a) and (46b) are identical, and the same holds for (46c) and (46d). If so, how can a pronominal be allowed in the one case and not in the other? Clearly, these examples show that the selection of anaphoric expressions can be sensitive to semantic-pragmatic conditions. How “expected” or “normal” is the reflexivity of the relation expressed by the predicate? Let's assume the relevant factor in French is indeed semantic-pragmatic. Yet this cannot be all there is to it, since in the corresponding paradigm in Dutch all have the same status and in all cases a complex anaphor is required.

(47)

- a. Jan is trots op zichzelf/*zich
Jan is proud of himself[]
- b. Jan is jaloers op zichzelf/*zich
Jan is jealous of him/himself
- c. Jan spot met zichzelf/*zich
Jan mocks (of) him/himself
- d. Jan praat over zichzelf/*zich
Jan talks (of) him/himself

The question is why there is this contrast. Why is a simplex pronominal allowed in French (46a) but a SE-anaphor is not allowed in Dutch (47a)? That a complex anaphor is required in Dutch in all the examples should be made to follow from IDI, but, if so, why doesn't IDI require protection in French?

However, as is well known, Dutch has preposition stranding, whereas French does not. Whatever the precise implementation of preposition stranding, it must involve some relation between P and the selecting predicate head that obtains in stranding languages like Dutch and does not in French. I assume for concreteness sake that this relation is “allows reanalysis.” Thus P reanalyzes with the selecting head in Dutch, not in French (following Kayne 1981). Such reanalysis takes place in syntax, and the fact that V and P have reanalyzed carries over to logical syntax. If so, in all cases of (47) we have (48) as a logical syntax representation:

(48) DP [V [P pro]] → [V-P] → DP ($\lambda x ([V-P] x x)$)

We can see now that at logical syntax we have a formally reflexive predicate. Such a predicate must be licensed, which explains the presence of SELF in all cases. In French there is no V-P reanalysis. Hence, we obtain (49):

(49) DP [V [P pro]] → DP ($\lambda x (V x [P x])$)

That is, French PPs protect just like PPs in Zande. Due to reanalysis, Dutch PPs don't. In French, translating the PP into logical syntax does not result into a formally reflexive predicate. This entails that no further protection is required. This contrast has an interesting further implication. In functionally inspired approaches to binding of the type reviewed earlier, it is generally claimed that the choice of anaphors depends on prototypicality, expectations, and so on. The present contrast shows that such factors are indeed relevant—however, not in the sense that they determine the way the grammar works. Rather their influence shows up in those cases where grammar has nothing to say. Where grammar is silent, it is indeed expectations, or other nongrammatical factors that may determine whether a focus marker like *même* is required. In a nutshell, we see how in one language a grammatical computation may cover an interpretive contrast that shows up in another.

So, the French-Dutch contrast shows that in one language a particular argument may be on the verbal grid, whereas in another a very similar argument is not. Clearly the same may conceivably happen with other argument types. Consider “benefactives.” To the extent in which they are introduced by a head separate from the main verb, it is conceivable that this head does not integrate with the main projection line, and if so that a benefactive argument does not require licensing if bound by the subject. In fact such considerations motivate the hierarchy that is often observed (see, e.g., Tsetselets and Toldova 1998). If a language uses dedicated reflexives for, let's say, indirect objects, it uses them for direct objects but not vice versa. Given standard assumptions on the order of merge, if an indirect object is on the same grid as the subject, the direct object will necessarily be too, but again, not the other way round.

Going even further one may conceive of languages in which all equivalents of “our” canonical transitive verbs are in fact composite at the relevant level. If so, such languages would require no licensing of reflexivity, although they might still prohibit local binding of pronominals for reasons of chain formation, discussed in section 6.

While this introduces a space for variation, this does not make the current approach weak as a theory. In fact it makes strong predictions. IDI doesn't say that languages without special licensing don't occur, but it does specify strict conditions under which this can occur.

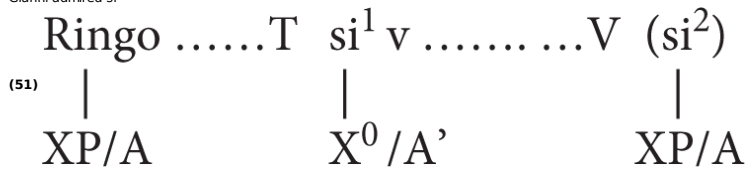
The second concerns the question of what may qualify as a licenser. Also licensers have a variation space. Informally speaking, in order to license a reflexive interpretation it is enough if an element induces sufficient structure to keep the arguments distinct. Overt morphemes such as SELF and body-

Reflexives

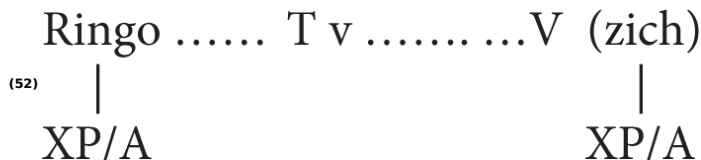
part expressions carry this property on their sleeves. Reflexive clitics have this effect more indirectly.

As discussed in Marelj and Reuland (in press), the crucial property responsible for the fact that clitics as in (50) allow IDI to be satisfied is represented in (50): in a clitic construction the dependency between the clitic and its antecedent does not form an A-chain. An A'-type link intervenes since the clitic has been head-moved into a position in the functional system. Consequently, there cannot be a uniform A-chain between the clitic and its antecedent. Hence, the clitic chain remains distinct from the antecedent, and no IDI violation obtains.

(50) Gianni si e ammirato
Gianni admired si

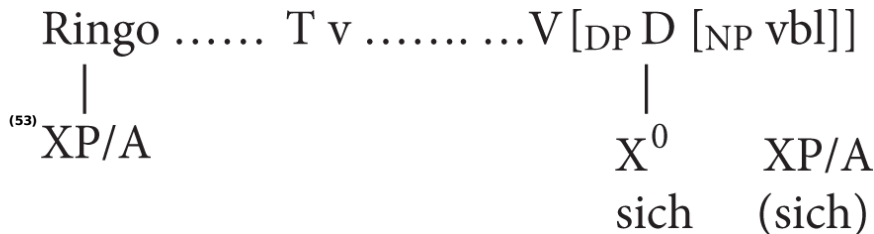


Since, prima facie clitics such as *se*, *si* are so similar to simplex anaphors such as Dutch *zich*, it is illustrative to compare (51) to its counterpart (52) in Dutch (and other languages with non-clitic simplex anaphors).



In the *zich*-case no A'-type link intervenes. There is a uniform chain between *zich* and its antecedent, and an IDI violation ensues.

In the case of clitics the protection resides in the X⁰/XP status of the clitic and in how this allows the clitic to move to an X⁰ position in the functional domain. Logically, further options can be conceived of. For instance, a dedicated object agreement morpheme on the path between a pronominal element in direct object position and the subject can have the same chain breaking effect (see Volkova and Reuland 2013 on Tegi Khanty). Conceivably, however, the relevant X⁰ position can also be internal to the anaphoric expression, as in (53), where *sich* moves from the NP-internal position to the D-position:



German *sich* can, unlike its Dutch and Scandinavian counterparts, be shown to have full DP structure, as reflected in its ability to bear stress, unlike, for instance, its Dutch counterpart. *Sich*, then, occupies both the head position of the DP and the D position, reflecting N-to-D movement (Longobardi 2001), with the D blocking A-chain formation. See Reuland (2011), for discussion based on Gast and Haas (2008).

Schadler (2014), elaborating this idea, shows how a small difference in the classifier system between Mashan Zhuang and Qinzhou Zhuang enables the former to carry out the licensing just in terms of the internal structure of the pronominal element whereas the latter requires special dedicated morphemes. Note again that as in the case of variation as to what arguments are on the same grid as the subject, in all cases independent evidence has been found about the structural factors involved.

The third question concerns the constraints on bundling + reduction. To what is it sensitive? Specifically, as discussed in Section 5.2.2, cross-linguistically, subject experiencer verbs do not allow bundling+reduction but require a complex anaphor or equivalent. What could this restriction against bundling of subject experiencer verbs be a consequence of? Reuland (2011) suggests that the fact that this operation is restricted to agent-theme verbs could follow from the feature specification of these roles in Reinhart's theta-theory. Agents are [+causation, +mental involvement], in this system, whereas themes are [-causation, -mental involvement]. Formally, these are the most clearly distinguished roles, which possibly could allow them to remain distinguishable also after bundling. Alternatively the contrast could be related to the syntactic frame in which they are projected. It is conceivable that eventivity plays a role and that eventive/agentive verbs are projected into a more richly structured syntactic frame than experiencer verbs, which are non-eventive. In order to resolve this issue it may be fruitful to investigate the relation between eventivity and type of reflexive licensing in languages in more detail, specifically in languages such as Bahasa Indonesia that explicitly mark eventivity (Nuriah 2004) and have a number of ways to license reflexivity, as described in Kartono (2013). This is then among the issues that must be left for further research.

I conclude with a final question, if it is one. What is an anaphor or a reflexive? In the CBT, anaphors and pronominals were defined on the basis of two binary features: [+ anaphoric], [+ pronominal]. The idea was that these features in turn could be defined in terms requiring or not allowing local binding. From the fact that some languages allow local binding of pronominals and that even the original core cases of anaphors in English need not always be locally bound, it becomes clear that an alternative is in order. Crucial is that whether an element is subject to some locality requirement does

not depend only on the element itself but also on the way its features interact with the environment. On the basis of this Reuland (2011) proposes the feature determinacy thesis:

(54) Syntactic binding of pronominal elements (including anaphors) in a particular environment is determined by their morphosyntactic features and the way these enter into the syntactic operations available in that environment.

Thus no binding specific features such as [+ anaphoric], [+ pronominal], but just standard morpho-syntactic features such as specification for ϕ -features, case, denoting a relation, and so on together with general principles of derivation determine whether an element will be bound. In fact, one may say that the notion of an anaphor loses its theoretical status. However, it is possible to define what it means to be used as an anaphor. An element is used as an anaphor if it establishes an interpretive dependency with an antecedent by a syntactic process, technically, *chain formation*. In this sense, Icelandic *sig*, Dutch *zich*, and so on deserve the qualification "anaphor" and can be used as such. English *himself* can be used as an anaphor, since head-movement of *self* onto the verb results in chain formation between the *self*-marked verb and *self*, whereas this in turn leads to the syntactic encoding of the dependency between *him* and the other relevant argument on the grid of the verb. In fact, there is an interesting corollary to this definition. Since anaphoric use of an element depends on chain formation (either directly or indirectly), and chains are necessarily uniquely headed, the traditional diagnostic that anaphors, unlike pronominals, do not allow split antecedents follows as a consequence of the analysis.

Coming back to the title of this entry, on the basis of all this it seems reasonable now to distinguish use as an anaphor from use as a reflexive. Use as an anaphor is based on chain formation. Use as a reflexive should come down to use as a licensor of reflexivity. As we have seen, these are not equivalent. Notably Bahasa Indonesia *dirinya* could be said to be a reflexive but not an anaphor.¹² But since it only licenses reflexivity but does not enforce it, it is more appropriate to classify it as a *semi-reflexive*, in contrast to elements such as *himself* or *dirinya sendiri* that license and enforce reflexivity. They are then appropriately called *anaphors* allowing use as *full reflexives*.

Acknowledgements

Many thanks to Anna Volkova for her careful reading of this manuscript and her insightful comments and to an anonymous reviewer for his or her effort. I would also like to gratefully acknowledge NWO's Grant 360-70-330 supporting the project Universals and the Typology of Reflexives and the great collaboration in this project with Martin Everaert, Alexis Dimitriadis, Dagmar Schadler, and Anna Volkova.

References

- Aikawa, Takako. 1993. Reflexivity in Japanese and LF-analysis of *zibun* binding. PhD diss., Ohio State University.
- Benveniste, Emile. 1966. *Problèmes de linguistique générale*. Paris: Gallimard.
- Bošković, Željko. 1997. *The Syntax of Nonfinite Complementation: An Economy Approach*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2005. Three factors in language design. *Linguistic Inquiry* 36.1: 1–22.
- Chomsky, Noam. 2008. On phases. In *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud*. Edited by Robert Freidin, Carlos Otero, and Maria Luisa Zubizarreta, 133–166. Cambridge, MA: MIT Press.
- Clements, G. N. 1975. The logophoric pronoun in Ewe: Its role in discourse. *Journal of West African Languages* 10: 141–177.
- Cole, Peter, Gabriella Hermon, and Li-May Sung. 1990. Principles and parameters of long-distance reflexives. *Linguistic Inquiry* 21: 1–22.
- Dixon, R. M. W. 1988. *A grammar of Boumaa Fijian*. Chicago: University of Chicago Press.
- Elbourne, Paul. 2008. The interpretation of pronouns. *Language and Linguistics Compass* 2(1): 119–150.
- Everaert, Martin. 1986. *The Syntax of Reflexivization*. Dordrecht: Foris.
- Everaert, Martin. 1991. Contextual determination of the anaphor/pronominal distinction. In *Long-Distance Anaphora*. Edited by Jan Koster and Eric Reuland 77–118. Cambridge: Cambridge University Press.
- Farmer, Ann, and Robert Hamish. 1987. Communicative reference with pronouns. In *The Pragmatic Perspective*. Edited by J. Verschueren and M. Berucelli, 547–565. Amsterdam: Benjamins.
- Franssen, Floris. 2010. Australian and Austronesian Anaphora: An archival approach. Master's thesis, Utrecht University.
- Gast, Volker, and Florian Haas. 2008. On reflexive and reciprocal readings of anaphors in German and other European languages. In *Reciprocals and Reflexives: Theoretical and Typological Explorations*. Edited by Ekkehard König and Volker Gast, 307–347. Berlin: Mouton de Gruyter.
- Gelderen, Elly van. 2000. *A History of English Reflexive Pronouns: Person, Self, and Interpretability*. Amsterdam: Benjamins.
- Hara, Takaaki. 2002. *Anaphoric Dependencies in Japanese*. Utrecht: LOT International Dissertation Series.
- Hellan, Lars. 1988. *Anaphora in Norwegian and the Theory of Grammar*. Dordrecht: Foris.
- Heim, Irene. 1989. *The Semantics of Definite and Indefinite Noun Phrases*. New York: Garland.
- Heine, Bernd, and Hiroyuki Miyashita. 2008. The intersection between reflexives and reciprocals: A grammaticalization perspective. In *Reciprocals and Reflexives: Theoretical and Typological Explorations*. Edited by Ekkehard König and Volker Gast, 169–225. Berlin: Mouton.
- Hicks, Glyn. 2009. *The Derivation of Anaphoric Relations*. Amsterdam: Benjamins.

- Hoekstra, Jarich. 1994. Pronouns and case: On the distribution of Frisian *harren* and *se* "them". *Leuvense Bijdragen* 83: 47–65.
- Huang, C.-T. James. 1982. Logical relations in Chinese and the theory of grammar. PhD diss., Massachusetts Institute of Technology, Cambridge.
- Jackendoff, Ray. 1992. Mme. Tussaud meets the binding theory. *Natural Language & Linguistic Theory* 10: 1–33.
- Jayaseelan, K. A. 1997. Anaphors as pronouns. *Studia Linguistica* 51.2: 186–234.
- Jespersen, Otto. 1933. *Essentials of English grammar*. London: Allen & Unwin. (Reprinted by University of Alabama Press, 1964)
- Kartono, Bambang. 2013. A puzzle in binding: Half reflexives and locally bound pronouns. A comparative study of anaphoric systems in Indonesian, Javanese, Palembangese, City Jambi and Village Jambi. Master's thesis, Utrecht University.
- Katada, Fusa. 1991. The LF representation of anaphors. *Linguistic Inquiry* 22.2: 287–314.
- Kayne, Richard. 1981. On certain differences between French and English. *Linguistic Inquiry* 12: 349–371
- Keenan, Edward. 1988. On semantics and the binding theory. In *Explaining Language Universals*. Edited by John Hawkins. Oxford: Blackwell.
- Keenan, Edward. 2001. *Creating Anaphors: An Historical Study of the English Reflexive Pronouns*. Cambridge, MA: MIT Press.
- König, Ekkehard, and Peter Siemund. 2000. Intensifiers and reflexives: A typological perspective. In *Reflexives: Forms and Functions*. Edited by Zygmunt Frajzyngier and Traci Curl. Amsterdam: Benjamins.
- Levinson, Stephen. 2000. *Presumptive Meanings*. Cambridge, MA: MIT Press.
- Lidz, Jeffrey. 1995. Morphological reflexive marking: Evidence from Kannada. *Linguistic Inquiry* 26.4: 705–710.
- Lødrup, Helge. 2009. Animacy and long distance binding in Norwegian. *Nordic Journal of Linguistics* 32: 111–136.
- Longobardi, Giuseppe. 2001. The structure of DP's. In *The Handbook of Contemporary Syntactic Theory*. Edited by Mark Baltin and Chris Collins, 562–603. Oxford: Blackwell.
- Lust, Barbara, Kashi Wali, James Gair, and K. V. Subbarao, eds. 2000. *Lexical Anaphors and Pronouns in Selected South Asian Languages: A Principled Typology*. Berlin: Mouton de Gruyter.
- Manzini, Maria Rita, and Kenneth Wexler. 1987. Parameters, binding theory, and learnability. *Linguistic Inquiry* 18: 413–444.
- Marelj, Marijana, and Eric Reuland. In press. Deriving reflexives—Deriving the lexicon syntax parameter. In *Concepts, Syntax, and Their Interface: The Theta System*. Edited by Martin Everaert, Marijnana Marelj, Eric Reuland, and Tali Siloni. Cambridge, MA: MIT Press.
- May, Robert. 1977. The grammar of quantification. PhD diss., Massachusetts Institute of Technology, Cambridge.
- Moysse-Faurie, Claire. 2008. Constructions expressing middle, reflexive and reciprocal situations in some Oceanic languages. In *Reciprocals and Reflexives: Theoretical and Typological Explorations*. Edited by Ekkehard Koenig and Volker Gast, 105–168. Berlin: Mouton.
- Nuriah, Zahroh. 2004. The relation of the verbal Indonesian affixes *meN-* and *-kan* with argument structure. Master's thesis, Utrecht University.
- Pesetsky, David, and Esther Torrego. 2007. The syntax of valuation and the interpretability of features. In *Phrasal and Clausal Architecture: Syntactic Derivation and Interpretation*. Edited by S. Karimi, V. Samian, and W. Wilkins. Amsterdam: Benjamins.
- Pollard, Carl, and Ivan Sag. 1992. Anaphors in English and the scope of the binding theory. *Linguistic Inquiry* 23: 261–305.
- Reinhart, Tanya. 1983. *Anaphora and Semantic Interpretation*. London: Croom Helm.
- Reinhart, Tanya. 2002. The Theta System—An overview. *Theoretical Linguistics* 28.3: s 229–290.
- Reinhart, Tanya. 2006. *Interface Strategies: Optimal and Costly Computations*. Cambridge, MA: MIT Press.
- Reinhart, Tanya, and Eric Reuland. 1991. Anaphors and logophors: An argument structure perspective. In *Long Distance Anaphora*. Edited by Jan Koster and Eric. Reuland, 283–321. Cambridge, MA: Cambridge University Press.
- Reinhart, Tanya and Eric Reuland. 1993. Reflexivity. *Linguistic Inquiry* 24.4: 657–720.
- Reinhart, Tanya, and Tali Siloni. 2005. Thematic arity operations and parametric variations. *Linguistic Inquiry* 36.3: 389–436.
- Reuland, Eric. 2001. Primitives of binding. *Linguistic Inquiry* 32.2: 439–492
- Reuland, Eric. 2005a. Agreeing to Bind. In *Organizing Grammar: Linguistic Studies in Honor of Henk van Riemsdijk*. Edited by Hans Broekhuis, Norbert Corver, Riny Huybregts, Ursula Kleinhenz, and Jan Koster, 505–513. Berlin: Walter de Gruyter.
- Reuland, Eric. 2005b. Binding conditions: How are they derived? In *Proceedings of the 12th International Conference on Head-Driven Phrase Structure Grammar*. Edited by Stefan Müller. Stanford, CA: CSLI Publications.
- <http://web.stanford.edu/group/cslipublications/cslipublications/HP5G/2005/reuland.pdf>
- Reuland, Eric. 2006. Logophoricity. In *The Blackwell Companion to Syntax*, Vol. 3. Edited by Martin Everaert and Henk Van Riemsdijk, 1–20. Oxford: Blackwell.
- Reuland, Eric. 2010. Syntax and interpretation systems: How is their labour divided? In *Handbook of Linguistic Minimalism*. Edited by Cedric Boeckx. Oxford: Oxford University Press.
- Reuland, Eric. 2011. *Anaphora and Language Design*. Cambridge, MA: MIT Press.

- Reuland, Eric. In press. Universals and variation: Encoding anaphoric dependencies. In *Proceedings of Finiteness Fest*. Edited by Kirstin Melum Eide. Amsterdam: Benjamins.
- Reuland, Eric, and Martin Everaert. 2010. Reaction to: "The Myth of Language Universals and Cognitive Science"—Evans and Levinson's cabinet of curiosities: Should we pay the fee? *Lingua* 120: 2713–2716.
- Reuland, Eric, and Tanya Reinhart. 1995. Pronouns, anaphors and case. In *Studies in Comparative Germanic Syntax*. Edited by Hubert Haider, Susan Olsen, and Sten Vikner, 241–269. Dordrecht: Kluwer.
- Reuland, Eric, and Sigríður Sigurjónsdóttir. 1997. Long distance binding in Icelandic: Syntax or discourse? In *Atomism in Binding*. Edited by Hans Bennis, Pierre Pica, and Johan Rooryck, 323–334. Dordrecht: Foris.
- Reuland, Eric, and Yoav Winter. 2009. Binding without identity: Towards a unified semantics for bound and exempt anaphors. In *Anaphora Processing and Applications*. Edited by Sobha Devi, Antonio Branco, and Ruslan Mitkov, 69–80. Lecture Notes in Artificial Intelligence. Berlin: Springer.
- Ross, John R. 1970. On declarative sentences. In *Readings in English Transformational Grammar*. Edited by Roderick A. Jacobs and Peter S. Rosenbaum. Waltham, MA: Ginn.
- Safir, Kenneth. 2004. *The Syntax of Anaphora*. Oxford: Oxford University Press.
- Schadler, Dagmar. 2014. *Reflexivity: Licensing or Enforcing*. Utrecht: LOT International Dissertation Series.
- Schladt, Mathias. 2000. The typology and grammaticalization of reflexives. In *Reflexives: Forms and Functions*. Edited by Zygmunt Frajzyngier and Traci Curl. Amsterdam: Benjamins.
- Sells, Peter. 1987. Aspects of logophoricity. *Linguistic Inquiry* 18: 445–479.
- Sigurðsson, Halldór Ármann. 1986. *Moods and (Long-distance) Reflexives in Icelandic*. Working Papers in Scandinavian Syntax 25. Dragvoll: University of Trondheim.
- Sigurðsson, Halldór Ármann. 1990. Long distance reflexives and moods in Icelandic. In *Modern Icelandic Syntax*. Edited by Joan Maling and Annie Zaenen, 309–346. New York: Academic Press.
- Testeleets, Yakov G., and Svetlana Yu. Toldova. 1998. Refleksivnyje mestoimenija v dagestanskikh jazykakh i tipologija refleksiva [Reflexive pronouns in the Daghestanian languages and the typology of reflexive]. *Voprosy Jazykoznanija* 4: 35–57.
- Thráinsson, Höskuldur. 1976a. Reflexives and subjunctives in Icelandic. *NELS* 6: 225–239.
- Thráinsson, Höskuldur. 1976b. Some arguments against the interpretive theory of pronouns and reflexives. In *Harvard Studies in Syntax and Semantics*. Edited by Jorge Hankamer and Judith Aissen, 573–624. Cambridge, MA: Harvard University.
- Thráinsson, Höskuldur. 1991. Long distance reflexives and the typology of NPs. In *Long Distance Anaphora*. Edited by Jan Koster and Eric. Reuland, 49–75. Cambridge, MA: Cambridge University Press.
- Vikner, Sten. 1984. Anaphors in Danish as compared to English seen from the point of view of the government-binding theory. Master's thesis, University of London.
- Vikner, Sten. 1985. *Parameters of Binder and of Binding Category in Danish*. Working Papers in Scandinavian Syntax 23. Trondheim: University of Trondheim.
- Volkova, Anna. 2014. *Licensing Reflexivity: Unity and Variation Among Selected Uralic Languages*. Utrecht: LOT International Dissertation Series.
- Volkova, Anna, and Eric Reuland. 2013. Reflexivity without reflexives. Ms. Utrecht Institute of Linguistics OTS. Paper presented at GLOW 2013.
- Zribi-Hertz, Anne. 1989. A-type binding and narrative point of view. *Language* 65.4: 695–727.

Notes:

⁽¹⁾ "Logical syntax" is a representation of linguistic structure that is sufficiently fine grained to feed the inference system. For instance, from *we voted for me* one may infer that *I voted for me* but from *we elected me* one cannot infer that *I elected me*. Hence the collective distributive distinction must be represented at that level.

In order to see how logical syntax binding works in a concrete case, consider (i):

(i) *Every banker* went bust after the crash destroyed *his* assets.

Its logical syntax representation is as in (ii):

(ii) Every banker λx (x went bust [after the crash destroyed x 's assets])

The process relating (ii) to (i) can be characterized as in Reinhart (2006:171): Move the subject *Every banker* from its argument position, adjoining it higher up in the structure (by Quantifier Raising, May 1977) substitute a variable for its original position and prefix the minimal category containing the subject and the pronominal to be bound (here *his*) with λx . If the variable translating *his* and the variable resulting from QR are chosen identically—which is just an option but not enforced, since *his* may refer to someone else—both will be bound by the prefixed λ -operator and end up being λ -bound by the original argument in its adjoined position. It is important to see that this "machinery" is just what is needed to make linguistic binding precise.

⁽²⁾ Note that the canonical c-command requirement on binding follows from compositional interpretation procedures.

⁽³⁾ As noted by an anonymous reviewer, English self is etymologically 'soul'

(4) See (i) for illustration:

(i) Mi-imi ti-ré. [Zande, Niger-Congo]
I-kill on-me
'I kill myself' lit. 'I kill on me'. (Tucker and Bryan 1966: 50)

(5) Thus IDI reflects a 'third factor' in the sense of Chomsky (2005).

(6) For instance, Keenan (1988) defines (*him*)*self* as an operator that applies to a two-place predicate and yields a one-place predicate.

(7) Note, though, that an impoverished case system may well be a necessary condition but is not sufficient, as is shown by the fact that Mainland Scandinavian languages despite having a highly impoverished case system, require a simplex anaphor here just like Dutch. Thanks to a reader of Reuland (in press) for prompting me to clarify this. How to relate this contrast to other differences between these languages is a matter for further research.

(8) See Section 7 for some more discussion.

(9) Reinhart and Siloni concluded that bundling can take place either in the lexicon (as in languages like English, Dutch, Russian, etc.) or in the syntax (as in French, Italian, Serbo-Croatian, etc.). However, as shown in Marelj and Reuland (in press), bundling is in fact a lexical operation throughout. What appears to be bundling in syntax can be shown to reflect a standard local binding of clitics, coupled with their protecting structure indicated in the previous footnote, and the global parameter they propose can be reduced to more standard parameterization patterns, such as having or not having syntactic clitics.

(10) The availability of object comparison is another useful diagnostic, but see Marelj and Reuland (in press) for a limitation.

(11) In fact, Frisian has also a form *se*, which is limited to structural case positions and indeed does not allow local binding.

(12) The same holds true of Malayalam *taan tanne* (Jayaseelan 1997); see also Reuland (2001).

Eric Reuland

Eric Reuland (Ph.D. Groningen University, 1979), is currently Faculty Professor of Language and Cognition at Utrecht University, and carries out his research in the Utrecht Institute of Linguistics OTS. His research focuses on the relation between the syntactic system of human language and the interpretive and processing systems, with a special focus on the domain of anaphora. He recently became intrigued by the origin of language. His publications include 'Reflexivity', *Linguistic Inquiry* (with Tanya Reinhart), 'Primitives of Binding', *Linguistic Inquiry*, and 'Language, Symbolization and Beyond', in Rudy Botha and Chris Knight, (eds.), *The Prehistory of Language* (OUP, 2009). His most recent work, *Anaphora and Language Design*, is soon to be published by MIT Press.

