CHAPTER 3

Temporal, Modal and Aspectual Denotation

In 1917, Van Ginneken observed that Dutch children use RIs to express wishes and desires. Almost a century later, Krämer (1993) and Wijnen (1997) confirmed the observation that RIs in Dutch child language predominantly express unrealised events. Around the same time, Ingram & Thompson (1996) and Ferdinand (1996) reported similar observations for German and French speaking children. The impossibility to generalise the specific meaning of RIs to English child language lead Hoekstra & Hyams (1998) and Hyams (2001a, b) to the proposal that infinitival morphology, which is present in Dutch, German and French but not in English, carries the modal meaning that is assigned to RIs.¹ The present chapter addresses the issue of the temporal, modal and/or aspectual properties of RIs. It provides more insight into the way in which Dutch-speaking children use RIs. Throughout this chapter, I will analyse and re-analyse both naturalistic and experimental data in order to clarify the nature of differences between the meaning that is assigned to two different types of RIs, those represented by RIs in Dutch and English child language, respectively. The topic of this chapter gives rise to various methodological questions. Therefore, I will pay a considerable amount of attention to research strategies.

¹ Henceforth, I refer only to Hoekstra & Hyams (1998) with regard to this claim. In Hyams (2001a, b), the claim is worked out in more detail, but the basic claim regarding differences between Dutch and English remained similar.
3.1 Outline of this chapter

Let me start by warning the reader that this chapter is fairly long. For keeping the overview, it may be helpful to make a three-way division. In the first part, that is, section 3.2, definitions are given and the relevant hypotheses are repeated. The second part discusses corpus results from early child Dutch are discussed (§ 3.3). In the third part, differences between the meaning of RIs in early child Dutch and early child English are examined in-depth (sections 3.4 to 3.7). This includes the presentation of experimental results as well as re-analyses of the Dutch corpus results. Section 3.8 contains a summary of the chapter.

3.2 Three hypotheses

The claims that have been made about the meaning of RIs in child Dutch can be divided into hypotheses about the temporal, modal or aspectual properties of RIs, respectively: the No Tense Hypothesis (Behrens, 1993; Wijnen, 1997), the Modal Hypothesis (Ferdinand, 1996; Ingram & Thompson, 1996; Hoekstra & Hyams, 1998) and the hypothesis that states that RIs obey a Non-Completedness Constraint (Lasser, 1997).

The notions tense, modality and aspect are well known for their complexity. The terminology becomes particularly confusing in studies about young children's speech since all terms originated as labels for various fine-grained semantic distinctions that adult speakers make and that children between the two and three - commonly the age in which they use RIs - cannot make (at least, not in the language they use).

3.2.1 Tense

Tense is the grammatical expression of a relation between speech time and event time, with present tense (e.g. speech time) as the unmarked tense. The absolute tenses - i.e. past, present and future - denote a relation between speech time and event time (Reichenbach, 1947). They do not make a claim about the length or span of the event. Comrie (1985: 38) wrote:
"Present tense refers only to a situation holding at the present moment, even where that situation is part of a larger situation that occupies more than just the present moment."

while past tense

"only locates the situation in the past, without saying anything about whether that situation continues to the present or in the future, although there is often a conversational implicature that it does not continue to or beyond the present." (p. 41)

Following the common strategy in research on RIs, I do not make a distinction between tense and finiteness.\(^2\) Note that this idea about the relation between finiteness and tense may be a simplification, however. A number of studies that concentrate on finiteness in adult language suggest a more complex relation. Non-finite constructions that have their own temporal domain are possible, as pointed out by Erb (2001). This suggests that finiteness and tense are dissociated. Other linguists identify finiteness as a prerequisite for tense (and also mood) marking: the functional finiteness head, which is claimed to be part of the C-domain, provides a sentence's anchoring point to speech time (Holmberg & Platzack, 1995; Rizzi, 1997; Rousseau, 1998). Klein (1994) defines finiteness as a complex notion that contains tense and assertion information.\(^3\)

\(^2\) The observation that finite verbs contain tense and agreement features, could lead to the hypothesis that finiteness also includes agreement. There are various reasons to exclude agreement from finiteness, however. Finiteness is a semantic concept, while agreement describes a relation between two words (subject and verb) and is syntactic in nature rather than semantic. The exclusion of agreement from the concept of finiteness is corroborated by the occurrence of inflected infinitives that are marked for agreement in Hungarian (Tóth, 2001) and Portuguese (Raposo, 1994).

\(^3\) More specifically, finiteness is associated with topic time, i.e. 'the time span to which the speaker's claim on this occasion is confined' (Klein, 1994: 4) and with assertion. Both topic time and assertion can be emphasised by contrastive focus (marked with capitals in the examples below); see (i) and (ii), respectively. In both cases contrastive focus lies on the finite verb. In example (i) the topic time is emphasised, while in (ii) the positive claim that Peter was at the party is emphasised:
Amongst others, Wexler (1992, 1994), Rizzi (1992, 1994) and Hyams (1996) argued that the absence of a finite verb in RIs is one of the indications that RIs lack tense. Wijnen (1997) tested this hypothesis and argued that if tense is absent, RIs must have a free temporal reference. He interpreted the existence of RIs with past, present and future tense interpretations in the data of four Dutch-speaking children as support for the claim that RIs are untensed, irrespective of the uneven proportions of the temporal interpretations and the strong preference for a future or intentional usage. Wijnen's Dutch findings resembled the findings for German child RIs that were reported by Behrens (1993) and Lasser (1997).

(1) *No Tense Hypothesis*

RIs lack tense. Hence, they can be used to denote past, present and future tense (Behrens, 1993; Wijnen, 1997; Lasser, 1997).

### 3.2.2 Modality

Modality has to do with possibility and necessity (Kratzer, 1981: 39). The prototypical examples of modal expressions are the modal verbs *can* and *must*, the former denoting possibility and the latter necessity. There are many different modalities (see Palmer, 1986, for an overview). One of the most well known distinctions is that between *epistemic* and *deontic* (also: *root* or *circumstantial*) modality. In (2) and (3), this distinction is illustrated with the verbs *can* and *must*; in (2), epistemic examples are given while the examples in (3) exemplify deontic modality:

(i) A: The book is on the table  
B: No, the book WAS on the table

(ii) A: Peter was not at the party yesterday  
B: Sure, he WAS at the party (at some point). He came late and left early.

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4 Behrens' (1993) observation that German children that omit finite verbs are able to use temporal adverbials corroborates the conclusion that RIs need a grammatical explanation. Absence of tense is not the effect of children's inability to understand tense. A similar observation holds for Dutch children in the RI-age. The children I have examined use adverbials and particles to introduce topic time or refer to a future action like *nu 'now', even 'just', straks 'later on'.
Obligation, requirement and permission are deontic modal notions. According to Lyons (1977), these modal notions always involve a morally responsible agent that acts necessarily or possibly. Epistemic modality is speaker-oriented and refers to a speaker’s beliefs or judgements. Often, reasoning is involved. Palmer (1986) makes a distinction between deontic and dynamic modality (both can be considered as root or circumstantial modalities). Dynamic modality is subject-oriented, as opposed to deontic modality. Palmer uses the label ‘dynamic modality’ for wishes or abilities, which refer to a necessity that is somehow internal to the subject (also: volition or boulemaic modality) or possibility, respectively. The distinction between dynamic and deontic modality can be illustrated with the sentence in (4):

(4) I can play the trombone, but I cannot play the trombone now

‘I know how to play the trombone, but I am not allowed to play the trombone now’

The first clause of (4) expresses dynamic modality. The subject tells us that he has learned to play the trombone, hence (s)he is able to play the trombone. The second clause expresses deontic modality. The subject announces that he is not allowed to play the trombone at the time he utters (4), because he is not permitted to do so, maybe because he is in a place where silence is required. Note that the paraphrase in (4) is not the only accessible interpretation. Other possible interpretations are: ‘I am allowed to play the trombone, but I am not in the physical condition to play the trombone’ or ‘I know how to play the trombone, but I am not in the
physical condition to play the trombone’, etc. Kratzer (1981: 42) emphasised the influence of the context for the assignment a modal interpretation:

"Modals are context-dependent expressions since their interpretation depends on a conversational background which usually has to be provided by the utterance situation."

Confusingly, the terms 'modality' and 'mood' are sometimes used as synonyms. I will make a clear distinction and take mood as a grammatical category (unlike modality, which is a semantic category) that surfaces in verbal inflection and/or verb placement. Though the formal properties of mood seem quite clear, it is less easy to describe what mood actually is, especially since there are different mood classifications. Most well known are the two-way mood distinction between indicative and subjunctive mood (verbal mood) and the three-way mood distinction between declarative, interrogative and imperative sentences (sentence mood). In Indo-European languages, indicative and subjunctive mood are marked with inflection on the verb. The indicative is used to express perceived reality whereas the subjunctive is used to express doubt, probability, certainty, etc. The Spanish examples in (5) illustrate the distinction. In (5a), the speaker knows that his car is not working, whereas in (5b), the speaker does not know whether his car is defect or not.

(5) a. Llegaré aunque mi carro no funciona
   I will arrive even though my car is not running
b. Llegaré aunque mi carro no funcione
   I will arrive even if my car is not running

The indicative/subjunctive distinction can be seen as the grammaticalisation of epistemic modality, as a speaker's certainty or belief is marked on the verb through inflection (Lyons, 1977; Palmer, 1986; Bybee & Fleischman, 1995). The three-way distinction between the sentence-types declarative, interrogative and imperative can also be described as a mood distinction. Like verbal mood, sentence mood is closely related to modality, although the relation has an entirely different character. Imperative mood and deontic modality are closely related as imperatives are prototypically interpreted as

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5 In a clarifying overview article, Portner (1998) discussed various different classifications.
deontic modal expressions. In (6a), an imperative sentence is given, while (6b) contains a deontic declarative sentence:

(6)  
   a. Ga nu!  
       leave now  
       'Leave now!'  
   b. Je moet nu gaan  
       you must now go  
       'You have to leave now'

In the debate on the semantic properties of RIs, the claim that RIs are modal is most clearly put forward in the work of Ferdinand (1996), Ingram & Thompson (1996) and Hoekstra & Hyams (1998). In these studies, the term 'modality' does not only collapse intentions and various, more specific, modal interpretations, such as volition and deontic modality, but also includes temporal and mood properties of RIs. I will turn to the relation between tense and modality in the following paragraph.

In future tense, modality/mood and tense meet. It is commonly assumed that future tense is modal, because it is impossible to make a claim about our knowledge of the future (Lyons, 1977; Palmer, 1986). As we can make a claim about our knowledge of the past and the present, there is in this respect a distinction between past and present tense, on the one hand, and future tense, on the other. In various languages, future tense is expressed as a mood distinction with verbal inflection. In other languages, auxiliaries express both modality and future tense (cf. Chung & Timberlake, 1985; Palmer, 1986). For the present discussion, the relevant implication of the overlap between the notions of tense and modality is that RIs that are assigned a future tense interpretation count as modal. In fact, the only formulation of the Modal Hypothesis that captures all more specific formulations that have been given, defines the modality in RIs in terms of tense:

(7)  
    Modal Hypothesis  
    RIs denote modal events and do not denote past and present events  
    (Ferdinand, 1996; Ingram & Thompson, 1996; Hoekstra & Hyams, 1998)
According to Ingram & Thompson (1996: 102), modal RIs express that "some activity will, can or should occur". According to Ferdinand (1996), modal RIs denote deontic modality and inchoative aspect. Hoekstra & Hyams (1998) include deontic modal RIs and volitional RIs in the set of modal RIs. According to them, modal RIs denote events that are not yet realised, because the verb form in RIs, i.e. the infinitive, contains the feature [-realised]. Note that the Modal Hypothesis proposed by Hoekstra & Hyams has a cross-linguistic dimension and, according to this theory, the modal meaning of RIs cannot be generalised to English child language. I will take up this issue in sections 3.4 and 3.5. The (working) definitions of Ingram & Thompson (1996), Ferdinand (1996) and Hoekstra & Hyams (1998) all exclude RIs that denote events that took place prior to speech time (past) or events that are taking place at speech time (present) from the set of modal RIs. Hence, (7) adequately summarises these proposals. Apart from studies that explicitly deal with the modality of RIs in terms of one or the other variant of the Modal Hypothesis above, there are some studies in which the modality of RIs is assumed to be an effect of the No Tense Hypothesis (Schönenberger, Pierce, Wexler & Wijnen, 1995; Schütze, 1997; Wijnen, 1997). In these studies, the idea that the modal interpretation is the reading that follows if tense cannot be grammatically bound, that is, the unanchored reading.

I will conclude this section with a brief note on sentence mood that serves as an additional illustration of how modality is interpreted in this thesis. With regard to their function, imperatives and deontic modal declarative sentences overlap: both (6a) and (6b) are used to order or request something. Grammatically, they differ, however, as different verb forms are used and the main verb is placed in different positions in imperative and deontic modal declarative sentences. Lasser (1997) divided RIs in German child language into declaratives, interrogatives and imperatives. In her study,

6 A similar claim is made by Fries (1999).
7 Following Levinson (1983), I make a distinction between sentences and utterances. Levinson (p. 243) writes:

"[...] we must be careful to distinguish the set of terms imperative, interrogative and declarative from the set of terms order (or request), question and assertion (or statement). The first set are linguistic categories that pertain to sentences, the second set are categories that pertain only to the use of sentences (i.e. to utterances and utterance-types)."
these labels do not refer to types of sentences or sentence mood, but to three different illocutionary forces (making a claim, soliciting information from an addressee, and soliciting actions from an addressee, respectively). Hence, Lasser uses the notions declarative, interrogative and imperative to describe properties of the content of RIs and not to describe formal grammatical properties. From this functional perspective, imperative RIs are necessarily modal. I will not address the question whether RIs are declarative, interrogative or imperative in this thesis. I take the formal perspective on these sentence types, which leads to the conclusion that RIs can be used, theoretically, in all three moods. Verb form (i.e. infinitive) and verb placement (i.e. sentence-final) in RIs is compatible with all three sentence-types. This is illustrated in (8): declarative, interrogative and imperative sentences can all contain a sentence-final infinitive in adult Dutch:

(8) a. Ga je je nu aankleden?
   go-fin you yourself now dress-inf
   'Do you get dressed now?'

b. Je gaat je nu aankleden
   you go-fin yourself now dress-inf
   'You are going to get dressed now'

c. Ga je nu aankleden!
   go-fin you now dressed-inf
   'Get dressed now!'

The examples in (8) show that sentence mood can be morpho-syntactically marked in adult Dutch by placing the finite verb in first or second position. However, the infinitive does not give any information about sentence-mood, since it is placed in final position, irrespective of a particular mood. As RIs only contain a sentence-final infinitival main verb, I conclude that

In both imperatives and interrogatives, the finite verb is inverted (in the first sentence-position), whereas in declaratives, it is in second position. The examples in (8) do not show a morphological difference between imperatives and interrogatives. However, the finite verb in a Dutch imperative is always a bare verb form. The finite verb form in interrogatives is normally inflected, with the only exception being second person singular. In declarative sentences, the finite verb inflected for second person singular has a suffix [-t], while in interrogative sentences, there is no suffix.
morpho-syntactic properties do not suffice as a criterion for determining the sentence mood of RIs.⁹

### 3.2.3 Aspect

Comrie (1985) called aspect the *internal temporal structure of an event*. Notions like ‘ongoing’, ‘progressive’, ‘inchoative’, ‘progressive’, ‘perfective’, ‘telic’ or ‘punctual’ describe aspectual properties. Although there is resemblance between aspect and tense, the two notions are distinct.¹⁰ A syntactic difference is that that tense (like modality and mood) is located in at a high position in the syntactic structure, that is, the C-domain. Tense takes scope over the entire proposition expressed in a sentence, that is, subject as well as predicate. Aspect is related to the VP level, however.

In the discussion about semantic properties of RIs, aspect plays a twofold role. In this chapter, I will investigate whether or not there is evidence for claim that RIs contain structural features, either phonetically realised or not, that determine their aspectual meaning. This investigation is motivated by Lasser’s (1997: 64) Non-Completedness Constraint, which states that the denotation of RIs is aspectually restricted:

(9) **Non-Completedness Constraint**

The predicate of an RI cannot refer to a completed event

Although Lasser formulates the constraint in aspectual terms, she makes no distinction between past tense RIs and completed aspect RIs in the interpretation of child RIs, presumably because this distinction cannot be made on the basis of the available information. In fact, Lasser (1997: 197-198) takes completion at speech time as a criterion for past interpretation. One could infer that Hoekstra & Hyams’ (1998) feature [-realised] (cf. § 3.2.2) makes a prediction similar to the constraint in (9). The feature applies to events that are not finished or that have not yet been completed. On closer inspection, this conclusion is incorrect. If [-realised] had the

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⁹ Prosodic information would be very helpful in this respect: questions, for instance, are prosodically marked by a rising intonation.

¹⁰ See Klein (1994) for the relation between tense and aspect.
same effect as (9), the prediction would be that [-realised] RIs allow for a present tense reading, because an event that takes place at speech time is not completed at speech time. Hence, provided that this feature is understood as [-completed], present tense and [-realised] are compatible. From their analyses - a definition of the feature is lacking - , however, it becomes clear that Hoekstra & Hyams exclude present tense from [-realised]. Therefore, I conclude that [-realised] does not mean 'not yet realised', but rather 'not yet started'. Excluding past as well as present tense, it makes as different prediction as Lasser’s Non-Completedness Constraint: it falls under the Modal Hypothesis in (7) and not under the constraint in (9).

In the following chapter, I will turn to a second kind of aspect, that is, aspectual properties of RIs that are due to the lexical meaning of the selected verb. Earlier findings indicate that children do not use all types of verbs in their RIs and the constraints seem to be linked to lexical aspect. The issues discussed in the chapter on verb type are closely related to the issues discussed in the present chapter, as several scholars have argued that constraints on verb selection in RIs follow from the absence of tense or from the predominance of modal meanings in RIs.

3.2.4 Tense, modality and aspect in adult Dutch

On the surface, children’s RIs lack words for tense, modality and aspect. Nevertheless, or maybe because of this, the meaning assigned to RIs is described in terms of temporal reference, modal and aspectual interpretation, as we just have seen. One of the issues in the debate on the semantic properties of RIs is how and at which level the meaning (that is obviously assigned to RIs) is represented. In order to understand the claims that have been made by others and that will be made in this thesis, some insight in the Dutch system of tense, modality and aspect marking is a prerequisite.

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11 See Blom (2002) for more discussion of this issue.
In adult Dutch, tense distinctions surface as inflection on the verb.\textsuperscript{12} Present tense, notated in (10) as an empty suffix, is the unmarked tense (speech time), whereas past tense is marked by a suffix (regular) or changes in the stem of the verb (irregular).

\begin{align*}
\text{(10)} & \quad \text{sneeuw-} & \text{sneeuw-de} \\
& \quad \text{pres-sg} & \quad \text{past-sg} \\
\text{(11)} & \quad \text{zoek-} & \text{zocht} \\
& \quad \text{pres-sg} & \quad \text{past-sg}
\end{align*}

Auxiliaries that take an infinitival complement mark future tense and modality. In Dutch, there are two types of future tense, exemplified in (12a) and (12b).\textsuperscript{13} Semantically, there is a distinction between the two future forms: (12a) tends to be used for the expression of epistemic modality whereas (12b) expresses near future. In (13), some examples of Dutch modal markers are given:

\begin{align*}
\text{(12)} & \quad \text{a. zal sneeuwen} \\
& \quad \text{fut-snow-inf} \\
& \quad \text{‘will snow’} \\
& \quad \text{b. gaat sneeuwen} \\
& \quad \text{fut-snow-inf} \\
& \quad \text{‘is going to snow’} \\
\text{(13)} & \quad \text{a. moet zoeken} \\
& \quad \text{mod-search-inf} \\
& \quad \text{‘have/has to search’} \\
& \quad \text{b. wil weten} \\
& \quad \text{mod-know-inf} \\
& \quad \text{‘want/s to search’}
\end{align*}

\textsuperscript{12} Note that inflection does not only encode tense, but also carries agreement features. Agreement will not play a role in the discussion until Chapter 5, therefore I will not discuss the properties of agreement here. More information about agreement inflection can be found in section 5.4.5.

\textsuperscript{13} In addition, simple present tense forms can also be used with a future denotation in Dutch.
The (deontic) modal markers bear past, present or future tense features. As present tense is not overtly marked (as opposed to past tense), it is the unmarked tense in Dutch that receives the default value of speech time. Present tense is lexically marked by an auxiliary if the verbal predicate expresses (im)perfective aspect, however. In the examples below, the event expressed by the verbal predicate is completed at speech time. The link to speech time is made by the auxiliaries hebben 'have' and zijn 'be'. Both tense auxiliaries take a past participle as their complement:

(14) a. **heeft gesneeuwd**
pre snow-part-past
'has snowed'

b. **is gebeurd**
pre happen-part-past
'has happened'

In sentences that contain a so-called **prepositional infinitival complement** (prepositional infinitival constructions or PICs), the auxiliary zijn 'be' seems to have a similar function to the example given in (14b). In this case, the verbal predicate is marked for ongoing aspect and zijn links the event expressed by the verbal predicate to speech time:

(15) **is aan het sneeuwen**
pre on the snow
'is snowing'

In adult Dutch, finite (tensed) verbs move to first or second position, whereas infinitives remain in sentence-final base position. See (16):

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14 Felser (2000) analyses the preposition aan 'on' as the aspectual marker.
More details on verb movement in Dutch can be found in Chapter 1 (§ 1.2). I conclude this section with a form that plays a very important role throughout this thesis: the infinitive. In adult Dutch, the infinitive is a form that is morphologically marked with the suffix [-en]. Syntactically, the infinitive is distinguishable from finite verbs as the infinitive is placed in final position, whereas finite verbs are moved; see example (16c) with the sentence-final infinitival form *springen* 'jump'.

### 3.3 RIs in early child Dutch: a corpus study

Having introduced the relevant hypotheses and definitions, I will turn to the data of Abel, Daan, Josse, Laura, Matthijs and Peter. What do their RIs have to say about the claims that have been made? Recall that there were three hypotheses, that is: (i) the No Tense Hypothesis according to which RIs lack tense and hence, they can be used to denote past, present and future tense (Behrens, 1993; Wijnen, 1997; Lasser, 1997), (ii) the Modal Hypothesis stating that RIs denote modal events and do not denote past and present events (Ferdinand, 1996; Ingram & Thompson, 1996; Hoekstra & Hyams, 1998), and, finally, (iii) the Non-Completedness Constraint that bans RIs that denote completed events (Lasser, 1997). In this section, I put these hypotheses to the test. The assignment of a specific interpretation to RIs could indicate that the construction contains structural features that determine the denotation and hence, could be used as an argument for early linguistic knowledge. In order to carry out this investigation, it must first be decided what counts as an RI (§ 3.3.1), and what counts as a modal, present, past or completed RI (§ 3.3.2).
3.3.1 The selection of RIs

In Dutch, there are two cues to distinguish RIs from finite sentences: the infinitive is morphologically marked and is placed in a distinct position. Nevertheless, when I analysed the child data it was not always unambiguously clear whether or not a child utterance was really finite. The Dutch infinitive is similar to the present plural form and therefore ambiguities arise, as in the case of *wij eten* 'we eat'. I excluded such utterances. A problem was posed by one-word-utterances, since these are ambiguous: a bare *eten* 'eat' can either be an RI with a dropped subject or a present plural with dropped subject. I decided to count these examples as RIs, for the following reasons: in finite sentences with overt subjects, the children used few plurals. The subject nearly always referred to the speaker or the addressee (respectively first and second person singular). Given this observation, I concluded that the likelihood that one-word-utterances with a verb form ending on [*-en*] were present plurals, was low and that in this case a conservative strategy would lead to the unnecessary exclusion of valuable data. Parasitic RIs that are used to give an answer to a question were excluded, as they are not syntactically independent.\(^{15}\) This dependency is illustrated in (17) and (18). The question in (17) would yield a non-modal use of the infinitive, while in (18) the infinitive would be modal.

(17) Q: Wat ben je aan het doen?
   'What are you doing?'
A: Fietsen
   'Cycling'

(18) Q: Wat wil je vandaag doen?
   'What do you want to do today?'
A: Eten
   'Eat'

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\(^{15}\) With this exclusion, I follow other studies on RIs (e.g. Lasser, 1997).
3.3.2 The criteria for assigning interpretations

In the transcripts, utterances of Abel, Daan, Josse, Laura, Matthijs and Peter have been annotated with codes for verb forms that appear in the child utterances.\(^\text{16}\) Two people assigned modal/temporal and aspectual interpretations independently. Recall that according to the definition I used, the modal and temporal interpretation can be derived from each other. First of all, an utterance is marked as being modal or non-modal. Utterances that received a non-modal interpretation were provided with more precise aspectual codes for events that were completed, ongoing or prospective at speech time. The coding-system is represented in the diagram on the opposite page. The system is based on Palmer’s (1986) division into epistemic, deontic and dynamic modality.

The schema is applied to utterances with verbs. The available information from the transcripts was used in order to determine the interpretation of an utterance; this was mainly linguistic information and to a lesser degree circumstantial or contextual information. Utterances labelled 'modal' had to meet one of the following criteria: preceding or subsequent parental utterances suggested a modal interpretation, or the contexts suggested a modal interpretation. In Appendix 3.1 (p. 240) some examples from the transcripts are given that illustrate the codes and show how the interpretations were assigned. The specific modal labels in schema 3.1 are irrelevant in section 3.3 (because only a distinction between modal and non-modal use of an utterance will be made), but they will play a role in section 3.4, particularly, the observation that modal RIs are used to express *I want* (dynamic necessity or volition) or *You must* (deontic necessity) becomes important later on in this chapter. These two modal expressions correspond with two usages: the 'dynamic necessity' RIs are used by the children to express a wish, while the 'deontic necessity' RIs are used for commands.

Modal distinctions are relevant in Chapter 4, as different modalities appear with different verb types.

\(^{16}\) The codes follow the CHAT conventions (MacWhinney, 1995). The CHILDES tools could be used for various searches and counts. This facilitated the analysis of the data.
As for a definition of modality, I will use the definition in (7): RIs denote modal events and do not denote past and present events. This is a working definition that does not state what modality is but rather what modality does or does not do: modal utterances do not describe an event that occurs simultaneous to speech time or happened prior to speech time. In modal utterances, the predicate denotes an event that (possibly) takes place after speech time. Core modal notions such as possibility and necessity do not play an important role in theories on the modal denotation of RIs; modality is basically defined in temporal terms, which is directly reflected in the
working definition. The definition is based on previous work on the interpretation of RIs. It captures future tense, and more specific usages, such as commands, desires and intentions. Epistemic modality is excluded, which might seem inappropriate from a theoretical point of view as it implies an adjustment of the notion modality. However, it suffices for a concise description of the meaning of RIs, as children in the RI age - roughly between the two and three years old - do not yet use epistemic modality. In Chapter 4, I will expand on the issue of cognitive immaturity of children in the RI age, the role it plays in their language production, and particularly, on how cognitive factors influence the verb types that appear in RIs (see § 4.4.5).

The implication of my definition of modality is that RIs that were coded as 'non-modal prospective' are included in the set of modal RIs. Under the strict interpretation of modality on which the coding system was based, these RIs are not modal as modality is about possibility and necessity. According to the working definition, prospective RIs denote an event that (probably) takes place after speech time. Hence, these RIs are counted as modal. Unclear cases, i.e. the RIs that could not be assigned an unambiguous interpretation, were not included in the analysis. The application of a conservative strategy lead to the exclusion of 317 RIs out of a total number of 1565.

3.3.3 The denotation of RIs

Figure 3.2 gives the percentage of RIs that received a modal interpretation; this is the percentage out of the total number of interpretable RIs. Table 3.1 gives the corresponding numbers. For all children, modal RIs are more frequently used than non-modal RIs.

17 These RIs can be said to express an intention. With respect to the interpretation of RIs, it was often impossible to decide whether an RI expressed a wish or an intention. As both are included in the set of modal RIs, this distinction (or the impossibility to make this distinction) is irrelevant for the counting of modal RIs. The distinction does become relevant in the next chapter, though, as sentences that express a wish or an intention behave differently with regard to the selection of verb types.
Figure 3.2: Percentage of modal RIs, data from all six children and average percentage

Table 3.1: Number of interpretable RIs, number of modal RIs and percentage of modal RIs, data from all six children

<table>
<thead>
<tr>
<th></th>
<th>NRI</th>
<th>N_MODAL</th>
<th>% MODAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abel</td>
<td>120</td>
<td>91</td>
<td>76</td>
</tr>
<tr>
<td>Daan</td>
<td>157</td>
<td>115</td>
<td>73</td>
</tr>
<tr>
<td>Josse</td>
<td>206</td>
<td>150</td>
<td>73</td>
</tr>
<tr>
<td>Laura</td>
<td>314</td>
<td>200</td>
<td>64</td>
</tr>
<tr>
<td>Matthijs</td>
<td>254</td>
<td>199</td>
<td>78</td>
</tr>
<tr>
<td>Peter</td>
<td>197</td>
<td>157</td>
<td>80</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>1248</strong></td>
<td><strong>912</strong></td>
<td><strong>-</strong></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>-</td>
<td>-</td>
<td>73</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
</tbody>
</table>

Examples of modal RIs and non-modal RIs are given in (19) and (20), respectively:
3.3.4 A closer look at the non-modal RIs

The non-modal RIs represented in Figure 3.2 and Table 3.1 nearly always, i.e. in 95% of the cases, refer to events that are simultaneous to speech time: they are ongoing and denote present tense. In the files of all six children, I found only 17 RIs that denoted an event that took place prior to speech time and that was completed at speech time (which is the only criterion that can be used for past/completed interpretations). These 17 RIs are included in the non-modal RIs of the preceding section, and cover 5% of the non-modal RIs and 1% of all interpretable RIs. Some examples are given in (21) and (22):

(21) *MAT:  Ieke spugen!  Matthijs 1;11.24
    Ieke [= baby sister] throw-inf up
*MOT:  ging Ieke spugen?
    went Ieke throw up

(19) a. Peter bal pakken  Peter 2;01.27
    Peter ball get-inf
    context: Peter wants to get the ball
b. vrachtwagen emmer doen  Matthijs 2;04.24
    truck basket do-inf
    context: Matthijs wants the investigator to put the truck in the basket
c. op kist zitten  Josse 2;08.04
    on box sit-inf
    context: Josse wants his mother to sit on the box

(20) a. ah, mij bril vallen [= mijn bril valt]  Abel 2;05.27
    ah, my glasses fall-inf
    context: his glasses are falling
b. poffie ginke [= koffie drinken]!  Daan 2;01.21
    coffee drink-inf
    context: people on television are drinking coffee
c. boot svaje [= varen]  Laura 2;04.01
    boat sail-inf
    context: refers to a picture with a sailing boat
Thus, the nonmodal RIs of the Dutch children are predominantly present/ongoing events and hardly ever denote past/completed events.

3.3.5 Comparison with other studies

The findings confirm various previously reported results from Dutch and German child language. My findings strongly resemble those of Lasser (1997) for German in the sense that there are only very few past/completed RIs. With regard to the temporal and modal interpretation of RIs, the results indicate a free temporal/modal reference, as RIs are not restricted modal usage. Although there is a preponderance of modal RIs - a Modal Reference Effect or MRE as Hoekstra & Hyams (1998) called it - RIs are also used for non-modal events taking place at speech time or took place before speech time. Haegeman (1995) and Wijnen (1997) reported similar observations for Dutch child language, Behrens (1993) and Lasser (1997) found similar results in German child language.

Haegeman’s (1995) case study of the Dutch child, Hein (2;4-3;1), shows that 56 % (50/89) of his RIs have a modal interpretation, 7 % (6/89) are non-modal and the rest is ambiguous. Wijnen (1997) reports a higher percentage of modal RIs in the data of four Dutch children. His results are given below:

---

18 In addition, 7% (6/89) are elliptical answers of the type Wat ben je aan doen? lopen ('What are you doing? walking?). In Dutch, the elliptical answer contains an infinitive and does not contain a finite form. Such an utterance could count as an RI. However, these elliptical answers should be distinguished from RIs because they do not occur as independent utterances (unlike RIs).
Table 3.2: The modal/temporal interpretation of RIs in the spontaneous speech data of four Dutch-speaking children, data Wijnen (1997)

<table>
<thead>
<tr>
<th>Child</th>
<th>NRI</th>
<th>% MODAL/FUTURE</th>
<th>% PRESENT</th>
<th>% PAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Josse</td>
<td>272</td>
<td>73</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>Matthijs</td>
<td>677</td>
<td>86</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Niek</td>
<td>348</td>
<td>94.3</td>
<td>4.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Peter</td>
<td>493</td>
<td>87</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>85</td>
<td>11</td>
<td>4</td>
</tr>
</tbody>
</table>

The data Wijnen analysed partially overlap with my data; we both examined utterances from Josse, Matthijs and Peter. For Josse, we found the same percentage of modal RIs, but for Matthijs and Peter, my percentages of modal RIs are lower: 79 % (Wijnen: 86 %) and 76 % (Wijnen: 87 %), respectively. In § 3.4.1, I will argue that such differences may easily occur due to the methodology that is used, i.e. the interpretation of transcriptions of spontaneous speech data.

The findings for German child RIs are similar to the Dutch findings. In her study of the temporal reference in early German, Behrens (1993) studied six German children. She found that the temporal reference of RIs was free. Behrens provided quantitative data from only one child, Simone, since only this corpus was extensive enough for a quantitative analysis. Lasser analysed data from the German children, Simone and Andreas, and found that respectively 73 % (N = 130) and 69 % (N = 108) of all interpretable RIs in

---

19 Below, the age ranges of the children Wijnen examined, are given:

<table>
<thead>
<tr>
<th>Child</th>
<th>Age range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Josse</td>
<td>2;0.7 - 2;06.22</td>
</tr>
<tr>
<td>Matthijs</td>
<td>1;11.10 - 2;8.5</td>
</tr>
<tr>
<td>Niek</td>
<td>2;7 - 3;2.13</td>
</tr>
<tr>
<td>Peter</td>
<td>1;9.6 - 2;1.26</td>
</tr>
</tbody>
</table>
these data were modal. The rest received a present (predominant) or past (rare) interpretation.

3.3.6 The denotation of finite sentences

Is the temporal, modal or aspectual interpretation of RIs a specific property that relates to the absence of a finite verb? If this is the case, then it is expected that sentences that are entirely comparable with RIs but that are finite instead of non-finite, receive a different interpretation. In the files of the six children, an abundant number of finite sentences is available that can be compared. There are two types of finite sentences that differ from RIs only with respect to finiteness: simple finite sentences (SFs) and sentences with periphrastic verbs (PVs). The two constructions are illustrated in (23a) and (23b):

(23)  

(a) **Simple finite verb (SF)**

    a. Lola rent de hele dag
       Lola run-fin the whole day
       'Lola is running the whole day'

    (Periphrastic verb (PV))

    b. Agent Cooper moet de wet volgen
       Agent Cooper must-fin the law follow-inf
       'Agent Cooper has to follow the law'

Copula and auxiliaries do not appear in RIs (De Haan, 1987; Jordens, 1990; Wijnen, 1997). Therefore, I excluded SFs with copula and auxiliaries and narrowed the set of SFs down to sentences with a thematic verb. Henceforth, this subset of the set of SFs will be referred to as SFθ, because thematic verbs assign theta-roles (θ). As the main verb in PVs is thematic, this selection does not apply to PVs. I furthermore restricted the set of PVs to PVs that stand in close relation to RIs, hence the PVs with an infinitival complement; clauses containing auxiliary + past participle are excluded. Note that with the label 'PVs with infinitival complements' I generalise over genuine PVs and PICs, i.e. prepositional infinitival complements. Although these are clearly a different kind of construction in adult Dutch, Dutch children initially do not seem to make a distinction between the two. I will give some examples to illustrate this point. In adult Dutch, PICs contain the
preposition *aan* 'on'. *Aan* selects a nominal infinitive; the infinitive in this construction is preceded by the definite determine *het*.

(24) De poppen zijn aan het dansen

the puppets are on the dance-inf

'The puppets are dancing'

In my sample, all children omitted the determiner and nearly always the preposition:

(25) a. nee, die s een boek leese papa

no, that is-fin a book read-inf daddy

'No, daddy is reading a book'

b. is takelen

is-fin hoist-inf

'The machine is hoisting'

c. zijn put openmaken

are-fin ditch open make-inf

'They are opening the ditch'

The surface structures of the sentences in (25) do not show whether or not the children distinguish between PVs and the precursors of PICs in (25) in their underlying representation: the children say *wil lezen* 'wants read-inf' next to *is lezen* 'is read-inf', with the auxiliaries denoting modality and present tense, respectively. The preposition and nominal infinitive that characterise PICs in adult Dutch appear only later in child Dutch.\(^{20,21}\)

\(^{20}\) Only Peter, in the final files I examined from him, used the preposition *aan* 'on', exemplified in (i):

(i) varken is trui aan breien

pig is-fin pullover on knit-inf

'The pig is knitting a pullover'

\(^{21}\) Note that in adult Dutch, it is possible to use constructions like the ones in (ii). These constructions have the specific connotation that the agent is absent from the current setting:

(ii) Jan is lezen

Jan is read-inf

'John is away to read'
meaning could indicate a formal distinction. However, as will be shown shortly, not all PVs in early Dutch child language are modal: *is + inf* 'is + inf' (which I interpret as a precursor of PICs, a pre-PIC) and PVs, like *gaat + inf* 'goes + inf' or *doet + inf* 'does + inf', are all used by children for events that are ongoing at speech time. It is unclear if the children use the pre-PIC to describe the ongoingness (and mark aspect) and the PVs to denote present tense.\(^{22}\) Before I turn to the quantitative results on the children's interpretation of PVs, I will first describe their use of the other finite sentence type: SF\(_0\).

![Modal SF\(_0\)](image)

Figure 3.3: Percentage of modal SF\(_0\), data from all six children and average percentage

Young children do not use the construction with this specific meaning, though, e.g. the action described in (ii) is performed in the presence of the speaker.\(^{22}\) According to Felser (2000), the preposition *aan* 'on' is the aspectual marker in this construction. The implication of the early omission of *aan* may be the aspectual meaning of PICs is specified later on and that the precursors of PICs denote only present tense. This would imply that Dutch children make a 'tense-before-aspect' distinction, though considering that there are various observations in support of the 'aspect-before-tense' hypothesis (cf. Bronckart & Sinclair, 1973; Antinucci & Miller, 1976; Wagner, 1998), this hypothesis may be unlikely. In general, there is not much known about the development of PICs in child Dutch, as far as I know. It would be an interesting subject for future research.
A comparison between Figures 3.2 and 3.3 reveals a major contrast between RIs and SFθ with respect to modality: RIs occur most frequently in modal contexts, while SFθ are most often non-modal. The average percentage of modal use of RIs is 73 % (SD = 6) while on average only 8 % of the SFθ is used modally (SD = 5). Thus, the difference is highly significant: the modal use of RIs is approximately 9 standard deviations larger than the modal use of SFθ.

Table 3.3 gives the exact numbers and percentages that correspond to Figure 3.3.

<table>
<thead>
<tr>
<th></th>
<th>N_{SFθ}</th>
<th>N_{MODAL}</th>
<th>% MODAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abel</td>
<td>119</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Daan</td>
<td>289</td>
<td>43</td>
<td>15</td>
</tr>
<tr>
<td>Josse</td>
<td>137</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Laura</td>
<td>157</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>Matthijs</td>
<td>95</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Peter</td>
<td>424</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>1221</strong></td>
<td><strong>93</strong></td>
<td>-</td>
</tr>
<tr>
<td>Average</td>
<td>-</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>SD</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
</tbody>
</table>

(26) and (27) give examples of modal and non-modal SFθ, respectively:

(26)  a. oh, valt bijna om Abel
      oh, fall-*fin* almost down
      'Oh, it almost falls down'

      b. ik ga ook naar de dok, of niet?
      I go-*fin* also to the doctor, or not
      'I will go to the doctor too, don't I?'
(27) a. ik hoor paatje niet Laura 2;04.15
I hear-*fin horse-*dim not
'I do not hear the little horse'
b. Daan ligt in de wieg Daan 2;04.14
Daan lie-*fin in the crib
'Daan is lying in the crib'

If we now turn to the PVs, and do not consider the deviating results from Peter, a picture emerges that is the opposite from Figure 3.3. In (28), some examples of PVs used by the children, are given.

![Modal PVs](image)

Figure 3.4: Percentage of modal PVs, data from all six children and average percentage
Table 3.4: Number of interpretable PVs, number of modal PVs and percentage of modal PVs, data from all six children

<table>
<thead>
<tr>
<th></th>
<th>N PV</th>
<th>N MODAL</th>
<th>% MODAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abel</td>
<td>79</td>
<td>68</td>
<td>86</td>
</tr>
<tr>
<td>Daan</td>
<td>108</td>
<td>92</td>
<td>85</td>
</tr>
<tr>
<td>Josse</td>
<td>108</td>
<td>90</td>
<td>83</td>
</tr>
<tr>
<td>Laura</td>
<td>156</td>
<td>102</td>
<td>65</td>
</tr>
<tr>
<td>Matthijs</td>
<td>149</td>
<td>128</td>
<td>86</td>
</tr>
<tr>
<td>Peter</td>
<td>91</td>
<td>32</td>
<td>35</td>
</tr>
<tr>
<td>Sum</td>
<td>691</td>
<td>512</td>
<td>-</td>
</tr>
<tr>
<td>Average</td>
<td>-</td>
<td>-</td>
<td>73</td>
</tr>
<tr>
<td>SD</td>
<td>-</td>
<td>-</td>
<td>20</td>
</tr>
</tbody>
</table>

(28)  

a. Ik moet daar zitten he  
     I must-fin there sit-inf huh  
     'I have to sit there, haven't I?'  
     Matthijs 2;10.22  

b. mag ik grote blok bouwen?  
     may-fin I big block build-inf  
     'May I build the big block?'  
     Abel 2;07.15  

The difference between SFθ ‘s and RIs with regard to modal use is highly significant. For PVs and RIs, this is less clear, partially because the average of the six children is affected by Peter’s strikingly low proportion of modal PVs: when Peter is excluded the average percentage of modal PVs goes up from 73% to 81%. When we use a permutation test to see whether or not there is a difference between RIs and PVs with regard to modality, it turns out that inclusion of Peter leads to no difference between RIs and PVs (p = 0.518). When Peter is excluded and we compare the PVs and RIs of the other five children, there is a significant difference and PVs are more often modally used (p = 0.02). As to the question why Peter deviates, it turns out that there are two factors that contribute to his high number of non-modal PVs. Firstly, Peter uses *gaat + inf ‘goes + inf’* more than any of the other children to denote ongoing events. Secondly, he uses many
precursors of PICs that have the format is (aan) + inf 'is (on) + inf'. This is especially true for the last files that I examined from him (i.e. 2;03.21) where he is describing pictures in a booklet. In (29), two examples are given from the ongoing use of the auxiliary gaan 'go' and the precursors of PICs, respectively:

(29) a. hij gaat zo hoepla doen
    he go-fin so hoopla do-inf
    'He is now doing hoopla'

b. kikker is aan lopen
    frog is-fin on walk-inf
    'Frog is walking'

Summarising the observations so far, we can say that Dutch-speaking children use RIs for modal as well as non-modal events. They use RIs more frequently to denote modal events than non-modal events. In this respect, there is a Modal Reference Effect (MRE) in early child Dutch. Non-modal RIs are nearly always used to denote activities that are ongoing at speech time and hence, have a present tense reference. The denotation of RIs contrasts with the denotation of children's early finite sentences: SFs are restricted to present tense while PVs are predominantly modal. In general, PVs are slightly more frequently modal than RIs, although there is variation per child. In my sample of six children, Peter uses many non-modal PVs.

3.3.7 Evaluating hypotheses

Even though the RIs of the six Dutch-speaking children appear more often in modal than in non-modal contexts, the Modal Hypothesis is not confirmed because there is no restriction to modal usage. The theories underlying the Modal Hypothesis assume that the modal meaning assigned to RIs is structurally represented. The modal meaning is encoded by either a covert modal auxiliary (Ferdinand, 1996; Ingram & Thompson, 1996) or an infinitival suffix (Hoekstra & Hyams, 1998). In particular, the strong claim made by the second proposal, which I will dub the Infinitival Morphology Hypothesis or simply IMH, is not confirmed. According to the IMH, infinitival morphology yields a modal meaning. Hence, as each RI contains
infinitival morphology, the prediction is that each RI must be modal.\textsuperscript{23} Even a low percentage of non-modal RIs in a language in which the infinitive has infinitival morphology provide evidence against this hypothesis. Behrens (1993) addressed the issue of what counts as 'restricted to a certain meaning' and proposed a 90\% criterion.\textsuperscript{24} I will apply a somewhat lower threshold and assume that Hoekstra & Hyams (1998) own "criterion" of 85\% modal use suffices.\textsuperscript{25} The rate of modal RIs in my data differs per child; it ranges from 64\% to 78\%. A calculation of the average rate shows that approximately one quarter of the RIs in Dutch child language is non-modal, which is 10\% below the percentage that is required to conclude that the IMH hypothesis is confirmed and even 15\% below the 90\% criterion. The No Tense Hypothesis, on the other hand, is confirmed since children use RIs with different temporal denotations. The percentage of past/completed RIs is so low (less than 5\%) that the Non-Completedness Constraint (NCC) is confirmed.

\textsuperscript{23} Ferdinand (1996) argued that RIs contain a null modal. However, in the original AUX drop proposal of Boser et al. (1992), the dropped auxiliary could either be a null modal or a dummy \textit{do} or \textit{go}. These dummy verbs would give rise to a non-modal interpretation, thus, non-modal use of RIs is not per se excluded in the AUX drop account. Recall that Ferdinand needed the modal drop hypothesis to explain the eventivity constraint. An interesting question would be whether she could maintain her claim if the matrix verb is a dummy or light verb instead of a modal. Thus, unlike the IMH, the AUX drop hypothesis does not necessarily predict a modal meaning. In this respect, the AUX drop hypothesis explains the range of interpretations assigned to RIs more adequately than the IMH. However, as has already been pointed out in Chapter 1, I think that the AUX drop hypothesis faces methodological problems: in Chapter 5, it will be shown that when children start to use RIs, they do not use any combinations of auxiliary and infinitive. Hence, there is no indication whatsoever that the auxiliary is dropped in RIs.

\textsuperscript{24} An independent criterion is needed. Modal use in RIs could be compared to modal use in the set of all finite sentences or FINs (collapsed SFs and PVs). The modal use of FINs could give an indication of whether or not RIs are disproportionately often modal. In Chapter 5, however, I will argue that modality in RIs and FINs is not independent: the more specified modal FINs there are, the less modal RIs there will be. To decide whether or not RIs are relatively often modal, the modal RIs have to be calculated as a proportion from modal RIs and FINs (all utterances with verbs that children use to talk about events). In § 3.4.9, I come back to this issue.

\textsuperscript{25} Although Hoekstra & Hyams (1998) do not use any explicit criteria for what counts as modal, they take Wijnen's (1997) average of 85\% modal use in the data of Dutch children as evidence for the MRE. Thus, according to them, the predicate 'modal' can be applied to RIs even though 15\% of the RIs are not modal.
3.3.8 Towards a new hypothesis

By putting interpretations of RIs into broad categories (like modal vs. non-modal), one abstracts away from the more specific interpretations that are actually assigned to RIs. Based on close examination of the RIs produced by the six children, I conclude that Dutch child RIs receive at least six different interpretations. Consider Daan’s RIs in (30):

(30) boekje lezen
    book-dim read-inf

Daan utters (30) with a neutral intonation; there is no prosodic cue that marks a particular illocutionary force, such as a rise, which would suggest that Daan is asking a question. As explained before, the morpho-syntactic properties of RIs exclude that RIs are imperatives. Hence, I (as an interpreter) take (30) to be a declarative sentence. A first possible interpretation of (30) is paraphrased in (31):

(31) You have to read a book  DEONTIC NECESSITY (modal)

The deontic necessity interpretation arises from cues given by (i) the context (Daan walks to somebody and hands her the book, for instance), (ii) from what I know of Daan (he cannot read himself) and (iii) from the shared history of Daan and the other person (she always reads books to him). Based on the same cues, (30) can also receive a slightly different, volitional, interpretation:

(32) I want to read a book  VOLITION (modal)

Note that it can be hazardous or even impossible to decide between (31) and (32). Commands and desires are closely related and Daan can use (30) not to make a statement but also as an indirect command. According to Lyons (1977: 826):

---

26 In the CHILDES corpora I studied, utterances that have a question intonation are marked with a question mark.
"It seems clear that these two functions are ontogenetically basic, in the sense that they are associated with language from the very earliest stage of its development in the child. It is equally clear that they are very closely connected. It is a small step from a desiderative utterance meaning “I want the book” to an instrumental utterance meaning “Give me the book”; parents will commonly interpret the child’s early desiderative utterances and mands, thereby reinforcing, if not actually creating, the child’s developing awareness that he can use language in order to get others to satisfy his wants and desires."

Daan’s behaviour leads me to a third interpretation. If he is taking steps to start reading a book (and he is not reading yet), I may infer that (30) denotes an intention:

(33) I am going to read a book INTENTION (modal)

According to the definition of modality that I apply, (31), (32) and (33) are modal. However, when Daan utters (30) while he himself or someone else in the room is reading a book, one of the two non-modal interpretations in (34) or (35) can be assigned:

(34) X is reading a book DESCRIPTION (non-modal)

(35) This is 'reading a book' PRESENTATIONAL (non-modal)

In the interpretation of (34), the predicate *boekje lezen* is used to denote the event 'read book'. In the interpretation of (35), Daan performs a metalinguistic act and modifies the predicate *boekje lezen* 'read book'. Note that 'modification' does not only mean that information is added and the content of the predicate changes; 'modification' can also mean that the content of a predicate is confirmed. An interpretation as in (35) is assigned when Daan utters (30) in the middle of a labelling game, for instance. Although the difference between (34) and (35) is interesting and may even be crucial to our understanding of RIs, I do not see how they can be distinguished systematically. Therefore, I did not distinguish between the
two readings. Finally, I encountered RIs in the corpus data that were assigned a past interpretation (when Daan is telling a story about a past event):

(36) X was reading a book NARRATION (non-modal)

The examples above indicate that Dutch child RIs allow for a wide range of interpretations and that the interpretations assigned to children’s RIs are based on a complex of extra-linguistic factors such as contextual information, shared history, knowledge of the world, etc. In this respect, the example in (37) is illustrative. In (37), Laura says *pakke* 'glue'. With this utterance, she refers to the event of gluing. The sequence of questions that follows shows how her mother tries to understand what Laura exactly wants to express. Her attempt shows that RIs allow for various different interpretations.

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27 In Blom (2002), I argue that one possible strategy to circumvent the problem of the existence of non-modal RIs is to assume that the non-modal RIs differ fundamentally from the modal RIs. One way in which they could differ is with respect to their syntactic category. In adult Dutch, infinitives can be verbal as well as nominal. It could be hypothesised that this difference is reflected in the RIs of Dutch children: modal RIs are verbal and non-modal RIs, depicting an ongoing activity, are used as labels and hence, are nominal. I hypothesised that the nominal infinitives appear less often with subjects/objects than the verbal RIs. However, although I found that non-modal RIs contained less subjects than modal RIs, there were various non-modal RIs with subjects. It was argued that the difference in subject use could be a developmental effect as most non-modal RIs were used in the earliest stages (see Chapter 5) and studies on subject drop (Haegeman, 1995) show that subject drop is also a property of Dutch child language that is related to the earliest stages. However, the developmental observations that will be presented in Chapter 5 shed a different light on this problem, because the development of subject drop in RIs differs from the development of subject drop in general. Between stages III and IV, subject drop in RIs shows an increase, which implies that the appearance of fewer overt subjects in non-modal RIs than in modal RIs cannot be explained as a developmental effect.
Example (37) exemplifies the semantic unspecificity of RIs and the result of this, namely how we (as interpreters) are guessing what children intend to say when they use an RI.

However, suppose that the meaning of RIs is intrinsically free. Considering the results presented in this chapter, two questions arise: how is it that (i) completed RIs hardly occur and obey the NCC, and (ii) that modal RIs are predominant and that RIs display a MRE? I will take up these two questions in Chapter 5 (§ 5.3).

### 3.4 Differences across languages: experimental data

As a follow-up on the corpus study, I decided to conduct an experiment. An important motivation for an experiment was the difficulties that arose when interpretations were assigned to the RIs in the corpus data. In § 3.4.1, these difficulties will be explained. Secondly, I was struck by a difference in the interpretation of Dutch and English RIs discussed in the work of

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28 The experiment was conducted in collaboration with Evelien Krikhaar (Groningen University). We carried out the pilot studies together. After this, Evelien Krikhaar took care of the execution of the final experimental design with Dutch-speaking children while I tested the English-speaking children.
3.4.1 More reliable interpretations

Recall that Wijnen (1997) reported more modal use in RIs in the data of two Dutch-speaking children than I did, even though we examined data from the same children (§ 3.3.5). In this section, I will illustrate that such differences can easily occur with the methodology we used, i.e. assigning interpretations to corpus data. The difference between our studies illustrates the severe methodological difficulties of corpus analysis and the limitations of the analysis of corpus data with regard to semantic questions. Results that are based on interpretations of corpus data may show quite some variation due to (i) too little information, (ii) subjective interpretations, and (iii) the situation and the activities that were carried out when the children were taped (yielding variation over sessions and children).

Corpus data that are transcriptions of audiotapes often provide little extra-linguistic information.\(^{29}\) Especially circumstantial information is necessary to interpret elliptic utterances such as RIs (§ 3.3.8). A simple example will illustrate this problem. Assume that a child says *bal gooien* ('ball throw'). As long as the interpreter does not know anything about the state or position of the ball, this utterance can be modal as well as non-modal: the ball could be going to be thrown, could have to be thrown, would be thrown or could have been thrown (when the child tells a story).\(^{30}\) To minimise the risk of assigning a wrong interpretation, more than one researcher must interpret the utterance (and the interpreting must be done independently), and the application of a conservative strategy ('exclude the utterance from the analysis in case of uncertainty or ambiguity') is advisable. Nevertheless, even if the risk of interpretation mistakes is minimised,

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\(^{29}\) Video recordings are, for instance, much more informative than audio-tapes as they show the surrounding space, direction of the gaze and gestures, which are all useful sources of information.

\(^{30}\) In paraphrase, the modal version could be 'you have to throw the ball' or 'I am going to throw the ball'. The non-modal version would either be 'You are throwing the ball' or 'I am throwing the ball'.

problems still remain. The researcher’s interpretation is often deduced from an adult response to the child’s utterance. This response is based on the adult’s interpretation and may be incorrect. Other disadvantages are that studies are difficult to compare as researchers use their own criteria and definitions (the subjectivity factor). Second, the data are not only influenced by the interpreter but also by the circumstances in which the data are collected. Not every situation yields a similar amount of modality (the situation factor). For example, a play situation elicits much modality as the child expresses wishes and gives commands to the adult while playing. When adult and child read a booklet or look at pictures, there is less modality. Presumably, the distribution of situations over transcripts differs when different files are studied. As a consequence, the number of modal utterances may be different per file. Coming back to the discrepancy between Wijnen’s results and mine (§ 3.3.5), the subjectivity factor may play a role here. But also the situation factor, since we did not study exactly the same files of these two children.

Many of the problems signalled above can be circumvented in an experiment. With an elicitation task in which the context, i.e. the interpretation that is to be encoded, is given, it is possible to test which verb forms children use to express modal or non-modal meanings (under the assumption that the child interprets the depicted situation in an adult-like way). Doing a corpus study, the researcher assigns the interpretation afterwards to a given verb form. In an experiment, this situation can be turned around: the interpretation is given and a specific verb form is triggered.

3.4.2 Valid cross-linguistic comparisons

In their study on the meaning of RIs, Hoekstra & Hyams (1998) compared Dutch/German RIs with English RIs and concluded that the data showed a significant cross-linguistic difference. Their conclusion was that RIs in Dutch and German child language are modal while English RIs are not. They related the difference to a morphological difference between Dutch

31 This implies that a meta-analysis is required that compares datasets with regard to the amount of modality that is used.
and German RIs, on the one hand, and English RIs on the other. The former contain infinitival morphology, whereas the latter contain bare stems. As their claim is that infinitival morphology denotes a modal meaning, the cross-linguistic predictions of the *Infinitival Morphology Hypothesis* (IMH) are:

(38) The IMH cross-linguistically
    (i) Dutch RIs are restricted to modal use
    (ii) English RIs are not restricted to modal use and have a free reference

The empirical fundament for (38) comes from a comparison of data reported in various studies.\(^32\) This comparison focuses on percentages reported by others and only little is known about the data behind the percentages. As discussed before, this is a risky method with a number of uncontrolled factors that possibly influence the results.\(^33\) The use of the same experimental design for different languages, however, enables a methodologically valid cross-linguistic comparison. In this way, it can be tested in a relatively controlled and principled fashion whether or not there is a difference between the meaning of Dutch and English RIs. Previously, Schönenerberger, Pierce, Wexler & Wijnen (1995) attempted to compare the interpretation of RIs in Dutch and English child language through an experiment. In § 3.4.13, I will discuss this study and compare the obtained results with my results.

Before I turn to the experimental design, the protocol, the subjects and the results, I want to comment on the relation between the IMH, its predictions in (38) and my conclusions earlier in this chapter with regard to Dutch child language. Earlier in this chapter, it was concluded that (38i) is not borne out: Dutch corpus data show that there is no restriction to modal use. This means that there is no explanation for the size of the MRE, because the theories we have available predict an MRE that is larger than the observed

\(^32\) Wijnen (1997) and Behrens (1993) for Dutch and German, respectively, Deen (1997) and Madsen & Gilkerson, (1999) for English.

\(^33\) Especially about the English data only marginal information is available. It is not clear which utterances are included, what criteria have been applied for interpretations and whether or not more than one interpreter assigned an interpretation, for instance.
MRE. In the fifth chapter, I will propose an alternative account that captures the corpus results reported in this chapter as well as other data that will be presented in Chapter 5. The implication of rejecting the IMH account is that if the experiment reveals differences in meaning between Dutch and English RIs, an alternative explanation must be given for this cross-linguistic difference. If the experiments do not suggest any difference, it must be explained why the corpus and experimental results are deviant.

3.4.3 Pilots

To test the children, we used a design to elicit verb forms: a controlled elicitation task. For an experiment, this design is fairly unconstrained, as will be explained later on. The major difference between the experiment and the corpus method is that in the experiment the meaning is controlled. The design we ultimately settled on followed a series of pilot studies. This section provides a summary of the most important conclusions from the pilot studies.

Assigning an interpretation to naturalistic corpus data is problematic. However, testing two- and three-year-olds to find out more about the semantics of the forms they use, is difficult for other reasons. During the pilots we observed (i) that a completion task may lead to imitation, (ii) that a comprehension task was often not correctly understood, (iii) that dynamic movies are preferred to static pictures for the present topic, and (iv) that a condition intended to depict modality requires more explanation than a condition expressing an ongoing activity. Most of these problems relate to the young age group we tried to test. In this section, I will discuss these points one by one.

In the pilots, we tested whether a completion task qualified as a pre-test. The aim of the pre-test was to pick out the children in the RI-period. We showed the children two contrasting pictures in two conditions, i.e. ongoing and modal, described the first picture and stimulated the children to complete the description of the second picture. For instance, in the ongoing condition we presented the children a picture with an eating man and a drinking man. The experimenter said: *Deze man eet en deze man …?* ("This man is eating and this man …?"). The sentence was uttered with a rising intonation so that the child was stimulated to fill in the event in the second
clause. The children we aimed to select, had to insert an infinitive in at least one of the items that were offered. As various children that used RIs when they talked spontaneously produced no RIs in this test (which may be an effect of the finite triggering sentence), we decided that this test was not an adequate pre-test to select subjects for the experiment.\(^\text{34}\)

According to the first set-up, a production as well as a comprehension task was carried out to investigate the meaning properties of RIs. Even though I am still convinced that this combination of tests gives optimal results, we did not include comprehension in the final experiments. Subjects who were able to do the production task were often incapable of doing the comprehension task and there were few subjects that understood both tasks. Most misunderstandings were of the following type: the children that were asked to pick out the picture that matched a sentence (either ongoing or modal) selected the picture that simply matched the event. This means that the ongoing picture (showing the event) was the preferred picture, for both the ongoing as well as the modal sentence. The picture showing the modal event (hence, that did not show the event) did not match any sentence. Therefore, it was less often chosen. For instance, the triggering sentence in the modal condition was *Peter wil eten* 'Peter wants to eat'. The ongoing variant was *Peter eet* 'Peter eats'. In both cases, the children tended to select the picture that showed Peter eating and not the picture that showed Peter's intention or desire to eat. This tendency indicated that the children concentrated on the event and the picture that represented the event; the children neglected the ongoingness or modality that distinguished the two conditions from each other. More discussion on this issue can be found in § 3.4.13.

It turned out to be difficult to make young children understand the modal condition. Two things were helpful in this respect: the use of movies and the implementation of causality in the modal condition. Movies were preferred to pictures, as the children we examined tended to interpret describing pictures as a labelling task: they did not pay attention to the modal-ongoing contrast. Instead, they interpreted the modal action as a ‘not-action’ or a different action instead of a ‘going to be action’. Thus,

\(^{34}\) We decided not to use RIs to elicit child completions, because this lead to unnatural triggering sentences.
many responses were of the type: *walks* - *not walks/stands* and not from the type *walks - wants to walk*. Movies elicited less labelling utterances and relatively more multi-word sentences. To emphasise modality, we built in causality: the necessity to act was stressed because the agent had a reason to act. For instance, a dirty hungry dog had to wash himself because he was only allowed to enter the house (where the food was) if he was clean. In this case, the washing was motivated by the dog's filthiness and hunger. Another illustration of a compelling reason to act (more specifically to run away) was the approaching of a car while a boy played on the street. Although this strategy helped the children to understand the modality involved, it required insight in causal relations between events. This requirement excluded children of the youngest age group.

Our initial idea was to create a controlled procedure in which we would collect an equal number of responses for each subject as well as an equal number of responses in each condition. In the elicitation task that we finally carried out, we gave this kind of control up as it led to the exclusion of many informative responses. The movies represented activities in an ongoing and a modal condition. In the former condition, the action was shown. In the latter condition, the desire or necessity to perform the action was stressed through causality; the action itself was not shown. However, the children did not always talk about the specific actions that we primed on. When we were focussing on washing, the children talked about swimming, taking a bath, becoming clean or splashing. Therefore, the decision was made to allow a fairly broad interpretation of the actions depicted in the movies, and hence to include utterances about swimming, taking a bath, becoming clean and splashing as descriptions for the 'washing' movies. Furthermore, a movie contained often more than one action, especially the movies in the modal condition. For instance, in the modal 'running' movie, a moving car was to be seen. In the modal 'drinking' movie, a girl walks to her mother. When the children talked about what happened in the movies, they mentioned such side-activities as well. We decided that it was important to collect as many verb forms as possible that denoted an activity of which we were certain that, at speech time, it was either ongoing or modal, irrespective of whether it was the action we initially focussed on.
3.4.4 Pre-test

Before the experimental task started, each child was shown a big picture on a laptop computer with lots of things to talk about. In this picture, three subsequent actions or movements could be animated: a bird flew away, a ball rolled on the grass and someone was driving a car. Presenting this picture served several purposes. For us it served to elicit spontaneous speech from a child. On the basis of this sample, we decided whether or not the child was in the RI-phase. Children that only used finite sentences in the pre-test were not selected for the actual experiment. Apart from being representative of the children's linguistic behaviour, other advantages of this pre-test were that it made the children familiar with the laptop computer, the setting and the task.

3.4.5 Test items

We designed eight animated movies that concentrate on four actions. Each action was shown in a modal and a non-modal condition. In the modal condition, only the intention or wish to act was shown, whereas in the non-modal condition the ongoing action was shown. I will describe the test items below. The choice of verbs denoting particular actions was based on (i) frequent use of the verbs in Dutch corpus data, and (ii) appropriateness of the denoted actions for short movies. This lead to the selection of **wassen** (washing), **rennen** (running), **drinken** (drinking), and **bellen** (calling).

Table 3.5: Description of the test items, used in the controlled elicitation task to test the denotation of verb forms in Dutch and English child language

<table>
<thead>
<tr>
<th>Action</th>
<th>Ongoing Condition</th>
<th>Modal Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washing</td>
<td>A dirty pig, covered with mud, stands next to a bathtub that is filled with water and foam. The pig jumps in the tub. He is washing himself: he turns around several times, is splashing water and the dirt</td>
<td>A dirty dog, covered with mud, stands on a road that leads to a house, which can be seen on the background. A bathtub is in front of the house. The dog walks in</td>
</tr>
</tbody>
</table>
We made the movies simple in order to reduce the chance that the children misunderstood the purpose of the movie. Occasionally, however, the children drew their own conclusions from what they saw. An anecdote illustrates the unforeseen interpretations of young children: one boy insisted that getting clean did not help the dog to enter the house. When we asked him why, he answered that the dog first had to become smaller (because of the perspective the house in the background was much smaller than the dog in the foreground).

3.4.6 Protocol

The experiments were run with two experimenters. While one experimenter talked to the child and told the story of the movie, the other observed and took notes. In addition, the sessions were audio-taped, to be transcribed in CHAT-format (MacWhinney, 1995) afterwards and expanded with semantic information. We used the following protocol. First, the experimenter intro-
duced the characters. The human beings were given common names like Peter or Lisa. The movie was shown while the experimenter told the child what happened. Then, the movie was shown a second time and the child was asked some questions to test whether the movie was understood (Can you tell me what you see? What does Peter want? What is the doggy going to do? Etc.).

If so, the experimenter showed the movie again and asked the child to say what happened. The experimenter interfered as little as possible. Note that the story telling was especially important in the modal condition, as the intended meaning (i.e. wish or requirement) could not be derived from the movie alone. Below are two examples, washing in the modal and the non-modal condition respectively. The rest of the stories are in Appendix 3.2 (p. 243).

**DIRTY DOG** (modal)

*This is the story of the dirty hungry dog that wants to go into the house to eat. He is so hungry and his food is in the house. But he is much too dirty to go into the house. Look how dirty he is! The doggy really has to wash himself. Look! Next to the house is a bathtub, where he can go and wash himself.*

**WASHING PIG** (non-modal)

*This is the story about the dirty pig. The pig is waiting to get in the bath. See, now he jumps into the bathtub. He is washing and washing. He washes himself until he is completely clean. You see?*

### 3.4.7 Subjects

Table 3.6 gives information about the number of subjects that participated, their ages and MLU scores. All subjects produced RIs in the pre-test, and were selected on the basis of this pre-test. As our analyses concentrated on RIs, we excluded subjects that did produce RIs in the pre-test but used no RIs at all in the test itself. The subjects in Table 3.6 used at least one RI. Subjects that did not seem to respond on modal contexts were excluded.
Table 3.6: Numbers, ages, MLU of the Dutch and English-speaking subjects in the experiment

<table>
<thead>
<tr>
<th></th>
<th>Dutch subjects</th>
<th>English subjects(^{35,36})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>Age range</td>
<td>1;11 - 3;10</td>
<td>1;11 - 3;6</td>
</tr>
<tr>
<td>Mean age</td>
<td>2;10</td>
<td>2;7</td>
</tr>
<tr>
<td>MLU range</td>
<td>1.57 - 4.9</td>
<td>2 - 5.62</td>
</tr>
<tr>
<td>Mean MLU</td>
<td>2.63</td>
<td>3.44</td>
</tr>
</tbody>
</table>

Given that (Dutch) children start to produce RIs around the age of two (see Chapter 5 of this thesis), the subjects in the experiment are fairly old: the mean age of the Dutch subjects is 2 years and 10 months.

3.4.8 Analysed data

To be included in the analysis, RIs had to meet the following criteria: (i) they had to be part of a multi-word utterance in order to exclude nominative infinitives that are used to label actions, and (ii) they were not parasitic or elliptic. Thus, infinitives that were answers to a question asked by the experimenter, such as in the examples (17) and (18) in §3.3.1, were excluded. In English, the elicited utterance must have a third person singular subject, as this requires the only finite verb form that is morphologically distinct from the bare verb form with either the suffix \[-s\] in the present tense or \[-ed\] for past tense. In the experiment, this criterion was easily met, as the characters in the movie were all third person singular subjects. A total number of 198 and 158 RIs have been excluded in the English and Dutch results. Additionally, 91 root participles (i.e. non-finite clauses like RIs,

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\(^{35}\) The subjects were English-speaking American toddlers, predominantly monolinguals. The bi-lingual subjects that were included did not show any deficiencies in their English. Before the children were tested, we asked the children’s caregivers to fill out a questionnaire about the language situation at home (languages of the caregivers, languages spoken at home, etc.).

\(^{36}\) In Blom & Krikhaar (2002), there are 30 English subjects. However, I later excluded one subject when it became clear on closer inspection that it used no modal utterances at all.
containing a past participle instead of an RI) have been left out from the English data. Very few finite sentences, i.e. less than 10, were excluded.

### 3.4.9 Two different questions

The experimental data can be approached in two ways, dependent on the question that is asked. Both meaning and form can be taken as constants or variables. When meaning is taken as a constant and form is the variable, the question follows: Given a meaning, what is the probability that a child uses an RI? I will call this the **semantic approach**, for this approach isolates a meaning, say modal meanings, and the probability is calculated that a particular form (e.g. RIs, SFs or PVs) is used to denote this meaning. This is turned around in the second approach, i.e. the **syntactic approach**. In the syntactic approach, forms, say RIs, are isolated and the probability is calculated that this form is used with a certain denotation (e.g. modal or ongoing).

The syntactic approach is applied to the corpus results. Thus, in order to compare the experimental results with the previously reported corpus results, the syntactic approach is preferred, even though it seems counter-intuitive at first sight. The semantic approach has other advantages, however, and is preferred for reasons other than just being comparable to the corpus results. The first advantage of the semantic approach is that modality within RIs is calculated as a proportion of the total amount of modal utterances that a child produces (the same applies to the proportion of ongoing RIs). Thus, the percentages of modal RIs and ongoing RIs are independently calculated. This analysis controls for the effect that either a high or low percentage of modal RIs is the effect of much or little modal talk in general (this method controls for the situation factor discussed in §3.4.1). Secondly, the first analysis provides insight in the full range of verb forms that a child has available. It relates the properties of RIs to other forms and hence, gives additional valuable information. Therefore, I will reconsider the corpus data and apply the semantic approach. The results based on this method will be presented in the fifth chapter (§5.3).
The question may arise why the semantic approach is not applied to the corpus data. As far as I may judge, the main reason for application of the syntactic approach is a focus on RIs as a construction. Researchers that examined semantic properties of RIs were interested in discovering and defining properties of this specific form that is frequent in child language but rare in adult speech. Given the syntactic point of view, the question 'What is the meaning of an RI?' is more obvious than the question 'What is the proportion of RIs in the set of utterances that denote modal events?'.

### 3.4.10 The semantic approach to the results

The semantic approach takes the whole range of verb forms that children use into account. In the experiment, the Dutch subjects used four different forms: RIs, simple finite sentences (SFs), periphrastic verbs (PVs) and prepositional infinitival complements (PICs):

(40) a. Het meisje rennen
    the girl run-inf
    'The girl is running'

b. Het meisje rent
    the girl run-fin
    'The girl is running'

c. Het meisje moet/wil/gaat rennen
    the girl must/wants to/goes run-inf
    'The girl must/wants to/is going to run'

d. Het meisje is aan het rennen
    the girl is on the run-inf
    'The girl is running'

The English subjects used five different forms: RIs, SFs, PVs and two forms that contain a present participle, namely 'normal' finite sentences (abbreviated as FPs 'finite participles') and root participles (RPs). Examples of the five forms are given in (41):

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37 This question mainly concerns Hoekstra & Hyams' study (and the studies that Hoekstra & Hyams refer to), because they make a strong claim about the meaning of RIs but only use the contrast between RIs and SFs to show that RIs are modal. RIs are not compared to PVs. There is no information about the proportion of RIs in the sets of modal and ongoing utterances, and, hence no evidence showing that the modality in RIs is disproportional.
TEMPORAL, MODAL AND ASPECTUAL DENOTATION

(41)  a. The girl run \(_{RI}\)
    b. The girl runs \(_{SF}\)
    c. The girl has to/wants to/is going to run \(_{PV}\)
    d. The girl is running \(_{FP}\)
    e. The girl running \(_{RP}\)

The Tables 3.7 and 3.8 show the distribution of these forms over the modal and ongoing condition in the Dutch and English data:

Table 3.7: Distribution of forms in the modal and ongoing condition, Dutch subjects (N = 26)

<table>
<thead>
<tr>
<th>Form</th>
<th>N</th>
<th>Modal condition (N = 298)</th>
<th>Ongoing condition (N = 562)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>RI</td>
<td>149</td>
<td>101</td>
<td>48</td>
</tr>
<tr>
<td>SF</td>
<td>487</td>
<td>42</td>
<td>445</td>
</tr>
<tr>
<td>PV</td>
<td>216</td>
<td>155</td>
<td>61</td>
</tr>
<tr>
<td>PIC</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 3.8: Distribution of forms in the modal and ongoing condition, English subjects (N = 29)

<table>
<thead>
<tr>
<th>Form</th>
<th>N</th>
<th>Modal condition (N = 243)</th>
<th>Ongoing condition (N = 440)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>RI</td>
<td>162</td>
<td>71</td>
<td>91</td>
</tr>
<tr>
<td>SF</td>
<td>79</td>
<td>14</td>
<td>65</td>
</tr>
<tr>
<td>PV</td>
<td>153</td>
<td>134</td>
<td>19</td>
</tr>
<tr>
<td>FP</td>
<td>201</td>
<td>13</td>
<td>188</td>
</tr>
<tr>
<td>RP</td>
<td>87</td>
<td>11</td>
<td>76</td>
</tr>
</tbody>
</table>
What do these distributions show? Let us start with the forms that show a rather clear usage. In the Dutch results, these are SFs and PVs. The first are very likely to appear in the ongoing condition, whereas the latter prefer the modal condition. In the English results, FPs and PVs show a clear usage. The first are likely to appear in the ongoing condition, whereas PVs prefer the modal condition (like in Dutch). PICs in early Dutch child language are marginal, SFs are less frequently used by English children than by Dutch children and the English children use a variant of RIs, namely RPs. A closer look at the class of PVs in Dutch indicates that PVs with a modal auxiliary like *moet* 'must' or *wil* 'want' have to be distinguished from PVs that contain the auxiliary *gaat* 'goes'. In adult Dutch, *gaat* is used to denote (near) future but the children use this auxiliary in a different way. Recall that this was mentioned before, in § 3.3.6, with regard to the interpretation of the PVs of one of the six Dutch-speaking children that I examined, Peter. In the experiment, all PVs used in the ongoing condition were instances of *'go'. In the literature on Dutch child language, this non-adultlike use of *gaat* is often reported (Schaerlakens & Gillis, 1987; Verhulst-Schlichting, 1985; Jordens, 1990; Evers & Van Kampen, 1995; Hollebrandse & Roeper, 1996; van Kampen, 1997; Zuckerman, 2001). In Chapter 5, I will discuss this ongoing, or present tense, use of *gaat* as an effect of development.

Compared to these clear forms, the behaviour of RIs looks diffuse, especially in the English results. Recall that the predictions generated by the hypothesis with which I started this section, i.e. the IMH, were that Dutch RIs are restricted to a modal meaning whereas English RIs are unrestricted with regard to modality. Translating this into predictions that are consistent with the semantic approach, I arrive at the following three predictions: it is expected that (i) in Dutch, the likelihood that RIs appear in the modal condition is larger than in the ongoing condition, (ii) in English, there is no difference between the two conditions, and (iii) it is more likely in Dutch that RIs appear in the modal condition than in English. At first blush, it seems more likely that Dutch RIs appear in the modal condition than in the ongoing condition, because 34% of the modal forms are RIs, whereas only

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38 Note that the comparison between the different verb forms serves a methodological purpose. The clear differences between the forms indicate that the experimental results are reliable. If the subjects did not understand the experimental conditions (for instance the modal condition), less clear-cut differences between the forms would have been expected.
9% of the ongoing forms are RIs. In English, there is less of a difference between the two conditions: 29% of the modal forms are RIs, whereas 21% of the ongoing forms are RIs. With regard to the cross-linguistic difference, the results suggest a difference between the probability that RIs appear in the modal condition, although the difference is small: 34% of the modal forms in the Dutch data are RIs, whereas 29% of the modal forms in the English data are RIs.

Are the differences and similarities as they present themselves in the percentages statistically reliable? Table 3.9 gives an overview over the probabilities that the various H0's (which follow from the three predictions that I formulated) are confirmed. The permutation test is used to calculate the p-values:

Table 3.9: Probabilities that there is no difference between the Dutch and English results in the modal and ongoing condition and that there is no difference between the modal and ongoing condition in Dutch and English

<table>
<thead>
<tr>
<th>H0</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no difference between the conditions in Dutch</td>
<td>0.001</td>
</tr>
<tr>
<td>There is no difference between the conditions in English</td>
<td>0.03</td>
</tr>
<tr>
<td>There is no difference between Dutch and English in the modal condition</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Given the probabilities in Table 3.9, it can be concluded that statistical analyses confirm the first impressions. In Dutch, there is a difference between the two conditions. As the p-value is small, i.e. \( p = 0.001 < p = 0.05 \), it can be concluded that it is more likely that an RI appears in the modal condition than in the ongoing condition. The same applies to the English results: there is a difference between the two conditions (\( p = 0.03 < p = 0.05 \)). The larger probability that RIs show up in the modal condition in both languages is the result of the children using relatively more forms (other than RIs) in the ongoing condition than in the modal condition. In

\[39\] Proportions RIs in the modal and ongoing condition are calculated for each subject. I have taken the average of these proportions and difference between languages/conditions.
the Dutch data, these productive ongoing forms are predominantly SFs. In the English data, progressives, i.e. FPs and RPs, are responsible. When the two languages are compared, it turns out that there is a difference: in Dutch, it is more likely that an RI occurs in the modal condition than in English (p = 0.001 < p = 0.05).

3.4.11 The syntactic approach to the results

In this section, RIs are isolated (as is done with the corpus results) and the number of modal RIs is calculated as a proportion of the total number of interpretable RIs. This is done for both languages, Dutch as well as English. The results are plotted in a box-plot. The percentiles provide information about the distribution of the results. When the box is small, the results are very similar and the standard deviation will be low. When the box is large, the children’s responses diverge clearly and the standard deviation will be high. The box-plot in Figure 3.5 depicts the percentiles 0.05, 0.25, 0.5, 0.75 and 0.95. The percentiles 0.05 and 0.95 are the two borders of the 90% interval; in the figure, this interval is marked with two horizontal stripes. The percentiles 0.25 and 0.75 are the two borders of the 50% interval; this interval is marked with the two small open circles. The percentile 0.5 is the exact middle of the distribution, or the median; this is marked with the black square. The big open circle is the average proportion of modally used RIs.
RIs in Dutch and English child language: percentile 0.05-0.25-0.5-0.75-0.95 and average

Figure 3.5: Use of RIs in the modal condition, results of Dutch and English-speaking children that used at least 1 RI, percentile 0.05-0.25-0.5-0.75-0.95 and average

Table 3.10 gives the total number of interpretable RIs, the proportion of RIs used in the modal condition (with the number of modally used RIs in parenthesis), the average modal proportion over the total sample of children and the standard deviation.

Table 3.10: Use of RIs in modal condition, results of Dutch and English-speaking children that produced at least 1 RI, number of interpretable RIs, percentage of modally used RIs (number), and standard deviation

<table>
<thead>
<tr>
<th></th>
<th>N_{RI}</th>
<th>N_{SUBJECTS}</th>
<th>%_{MODAL.(N)}</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutch</td>
<td>149</td>
<td>26</td>
<td>68 % (101)</td>
<td>29</td>
</tr>
<tr>
<td>English</td>
<td>162</td>
<td>29</td>
<td>44 % (71)</td>
<td>31</td>
</tr>
</tbody>
</table>

With the aid of the permutation test, I calculated (i) whether the Dutch children show a preference with regard to the use of RIs in the modal
condition, (ii) whether the English children prefer to use RIs in one of the two conditions, and (iii) whether there is a difference between the Dutch and the English results. The Dutch children show a preference for using RIs to denote modal events. When a chance distribution is simulated and the observations are shuffled per subject, it turns out to be unlikely that the observed distribution and the chance distribution are drawn from a single distribution \( p = 0.013 \). The English subjects do not show a preference \( p = 0.62 \). The English p-value is not extremely high (smaller than 0.95). Hence, I conclude that there is no support for the claim that English RIs show a preference to denote ongoing events with RIs. If we compare the Dutch and English results and estimate the probability that the distributions in the two languages are drawn from one single distribution, a p-value of 0.024 is obtained, which is below the criterion value of 0.05. This indicates that there is a difference between the usages of RIs in two languages: RIs in child Dutch are more often modal than RIs in child English.

If, in the experiment, a child used only one RI and this RI was used in the modal condition, 100% of the RIs of this particular child were classified as modal. Many of such subjects may affect the results. Therefore, I carried out an additional post hoc selection that includes only children that used 5 or more RIs and 5 or more finite sentences, i.e. FINs, (to be sure that the children are also able to use forms other than infinitives or bare stems).  

Although the sample of subjects after this selection is much smaller, the data may be more reliable than the data just described: the effect of children that use only one RI (and this one RI is either 100% modal or 100% non-modal/ongoing) no longer occurs.

Considering Figure 3.6 and Table 3.12, it seems that the distributions in both languages are indeed affected by the exclusion of children who used very few RIs/FINs. The 90% and the 50% intervals are smaller than before and the standard deviation is lower. In general, the results are less spread out than before.

---

40 Although this number remains rather arbitrary, gives some idea of the effect.
Table 3.11: Numbers, ages, MLU of Dutch and English-speaking subjects in the experiment that produced 5 or more RIs and 5 or more FINs

<table>
<thead>
<tr>
<th></th>
<th>Dutch subjects</th>
<th>English subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Age range</td>
<td>1;11 - 3;10</td>
<td>2;1 - 3;5</td>
</tr>
<tr>
<td>Mean age</td>
<td>2;09</td>
<td>2;06</td>
</tr>
<tr>
<td>MLU range</td>
<td>1.57 - 4.25</td>
<td>2.74 - 5.62</td>
</tr>
<tr>
<td>Mean MLU</td>
<td>2.68</td>
<td>4.08</td>
</tr>
</tbody>
</table>

Figure 3.6: Use of RIs in modal condition, results of Dutch and English-speaking children that used at least 5 RIs and 5 FINs, percentile 0.05-0.25-0.5-0.75-0.95 and average
Table 3.12: Use of RIs in the modal condition, results of Dutch and English-speaking children that produced at least 5 RIs and 5 FINs, number of interpretable RIs, percentage of RIs used in modal condition (number), and standard deviation

<table>
<thead>
<tr>
<th></th>
<th>N&lt;sub&gt;RI&lt;/sub&gt;</th>
<th>N&lt;sub&gt;SUBJECTS&lt;/sub&gt;</th>
<th>%&lt;sub&gt;MODAL (N)&lt;/sub&gt;</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutch</td>
<td>87</td>
<td>9</td>
<td>61 % (53)</td>
<td>22</td>
</tr>
<tr>
<td>English</td>
<td>90</td>
<td>12</td>
<td>36 % (32)</td>
<td>17</td>
</tr>
</tbody>
</table>

Statistical tests confirm the first informal observations in so far as that the results for each language have changed in comparison to the first analysis that included all children. The difference between the two languages remains statistically significant (p = 0.006). What is the difference between the two analyses? For the Dutch subjects, the probability that the observed distribution and a chance distribution are drawn from the same distribution is large (p = 0.22). They do not show a preference for the modal condition anymore. The p-value is smaller than 0.95, which suggests that there is no support for the claim the Dutch subjects show a preference for the ongoing condition. For the English subjects, the probability that the children show a modal preference is small: p = 0.005. This p-value is smaller than 0.05. Hence, I conclude that these data show a preference to use RIs to denote ongoing events.

In sum, according to both tests, there is a difference between the two languages:
Table 3.13: Probabilities that there is no difference between the use of Dutch and English RIs in the modal condition (i.e. null hypothesis), for all children (that used at least one RI) and for the productive children (i.e. the children that used at least 5 RIs and 5 FINs).

<table>
<thead>
<tr>
<th>H0</th>
<th>P-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No difference between the use of Dutch and English RIs in the modal condition</td>
<td>p = 0.024</td>
<td>p = 0.006</td>
</tr>
</tbody>
</table>

The outcome of the two analyses is similar: Dutch RIs are more often modal than English RIs. With regard to the question whether Dutch RIs show a preference for modal events or English RIs show a preference for ongoing events, the results are ambiguous. When the larger sample of children is taken and all subjects are included, there is a modal preference in the Dutch RIs and no preference for either modal or ongoing events in the English RIs. When results of a small sample of productive children are analysed, there is an ongoing preference in the English RIs and no modal or ongoing preference in the Dutch RIs.

3.4.12 Discussion

I approached the experimental data in two ways. The question that underlies the semantic approach is which form(s) the children use when they talk about either a modal or an ongoing event. More specifically, how probable is it that Dutch and English-speaking children in the RI-age use an RI in the modal condition given a set of various different verb forms? It turned out that in both languages, it was more likely that RIs appeared in the modal condition than in the ongoing condition. A comparison between the two languages showed that the probability that Dutch children used RIs in the modal condition was significantly larger than that the English children used RIs in this condition. In the syntactic approach, I collapsed the RIs produced in the two conditions in order to determine the proportion of modal versus ongoing RIs within the set of RIs in the two languages. Like the
results from the semantic approach, the results from the syntactic approach confirm cross-linguistic differences. On the basis of the experimental results, it is unclear if the difference should be formulated as 'Dutch RIs show a modal preference and English RIs do not' or 'English RIs show an ongoing preference and Dutch RIs do not'. The direction of the difference is similar in both formulations, however.

According to Hoekstra & Hyams's (1998) theory, the IMH, the proportion of modal RIs in Dutch child language is insensitive to the frequencies of other forms that children use besides RIs. In the semantic approach, the proportions of RIs are relative to the other forms that the children used in the experiment, however. Because of this discrepancy, I am reluctant to draw any conclusions on the basis of the outcome of the semantic analysis with regard to the study that motivated me to do the experiment in the first place. Nevertheless, an observation that is in line with the IMH is that there is a difference in meaning between Dutch and English RIs, more specifically that Dutch RIs are more frequently modal than English RIs. Taking a look at the data in the Tables 3.7 and 3.8, I conclude that the experimental results do not seem to support the IMH unequivocally, in spite of this cross-linguistic difference. The tests that I applied tested differences, which I translated as preferences. The IMH, however, makes a prediction with a more absolute character for Dutch: it is expected that the Dutch children use RIs in the modal condition, but do not use RIs in the ongoing condition (§ 3.3.7). This prediction is not borne out as the Dutch subjects use RIs in both conditions: in the modal condition 34 % of the responses are RIs, in the ongoing condition 9 % are RIs.

3.4.13 Comparison with other studies

How do the cross-linguistic experimental results relate to other and earlier findings? As far as I know, there is only one other experimental study in which the use of verb forms in child Dutch and English has been compared. Schönenberger, Pierce, Wexler & Wijnen (1995) report data from a sentence-picture-matching task carried out with Dutch and English-speaking children. Despite the fact that the design of the experiment causes a non-modal bias - I will discuss this bias later on in this section - and that the number of English children that is tested is too low (N = 5) to draw any far-reaching conclusions, it is interesting to take a look at their results.
The aim of the Schönenberger et al. study was to investigate the interpretation that children assign to RIs (modal vs. ongoing). In the task, the child functions as an intermediary between puppet Kermit the Frog and the experimenter. The experimenter tells a story involving two pictures: one depicting an ongoing event, the other depicting a modal event. A puppet (Kermit the Frog) is listening to the story as well. After the story has finished, the experimenter asks Kermit which picture he likes best. However, Kermit cannot point. Therefore, he has to explain with a descriptive sentence. The experimenter does not understand Kermit and so the child, who can understand him, has to make Kermit's choice clear to the experimenter by pointing at the picture that fits Kermit's description. In the experiment, Kermit uses three kinds of sentences: either with a finite main verb, a modal auxiliary or an RI. In the English version, the present progressive is used instead of a simple finite main verb as this sounds much more natural. In this way, this experiment elicited the interpretation (i.e. modal or ongoing) of three kinds of constructions. Table 3.14 below contains the percentages of selection of the picture that depicted the ongoing event for three different sentences:

<table>
<thead>
<tr>
<th></th>
<th>% FIN.VERB</th>
<th>% NON-FIN.VERB (RI)</th>
<th>% MODAL VERB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutch</td>
<td>91</td>
<td>62</td>
<td>43</td>
</tr>
<tr>
<td>English</td>
<td>95</td>
<td>95</td>
<td>40</td>
</tr>
</tbody>
</table>

Eight English-speaking children joined the experiment. However, only results of five children could be retained. The age-range holds for all eight children though.

Table 3.14: Results from Dutch-English experiment on the interpretation of RIs, Schönenberger et al. (1995), the percentages of selections of pictures that depicted ongoing events for respectively finite verbs, non-finite verbs (RIs) and modal verbs

<table>
<thead>
<tr>
<th></th>
<th>Number of subjects</th>
<th>Age range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutch</td>
<td>18</td>
<td>1; 11 - 3; 4</td>
</tr>
<tr>
<td>English</td>
<td>5</td>
<td>2; 8 - 3; 5</td>
</tr>
</tbody>
</table>

41 Eight English-speaking children joined the experiment. However, only results of five children could be retained. The age-range holds for all eight children though.
These results show the ongoing bias that we also noticed in our pilots when we asked the children to point to the picture that matched a sentence (§ 3.4.3). Various children tended to ignore the modality and focused on the action. This action is expressed in all stimuli, but it is only shown in the picture that depicts the ongoing action. The picture that depicts the modal action does not show the action itself. Hence, for all stimuli the ongoing picture is the best match. The results in Table 3.14 illustrate this effect: even for the stimulus sentence with a modal verb (e.g. Koekiemonster wil de koekjes hebben/Cookie Monster wants to have the cookies), both Dutch and English-speaking children point to the picture that shows the ongoing event (thus, to the picture in which Cookie Monster has cookies) in approximately 40% of the cases. Despite this non-modal bias, the results in Table 3.14 do show an effect. Finite verbs (simple present tense in Dutch and present progressive in English) and modal verbs are interpreted similarly in Dutch and English: finite verbs are nearly always ongoing, while for modal verbs, the modal ongoing picture is chosen approximately 60% of the time. Interestingly, non-finite verbs (i.e. the infinitive in Dutch and bare stem in English) yield a different interpretation in the two languages. English children tend to point more often to the ongoing picture if the stimulus sentence is an RI than the Dutch children do (95% vs. 62%).

In Table 3.15, an overview of the results from various studies is given. I do not aim to compare the different studies in detail, as there are too many differences between these studies. In each study a different methodology is applied, and, as pointed out before, each methodology has its own problems that may affect the results. The size of these effects is unknown, and, therefore, a detailed comparison is meaningless. In spite of these methodological differences and problems, across studies a similar difference is measured. In all studies, it is found that Dutch RIs are less often ongoing/more often modal than English RIs. In the overview below, I informally corrected Schönenberger et al.'s results and subtracted 40% (which may approach the size of the non-modal bias, given the children’s responses on stimuli that contained a modal auxiliary):

42 At least three factors may influence the interpretation of corpus RIs: the information factor, subjectivity factor and situation factor (§ 3.4.1). The comprehension experiment suffers from a bias for the ongoing condition.
Table 3.15: Modal RIs in Dutch and English child language, corpus data (present study for Dutch data; the English percentage is the average of the results from Deen, 1997 and Madsen & Gilkerson, 1999), experimental results from a production task (present study) and experimental results from a comprehension task (Schönenberger et al., 1995)

<table>
<thead>
<tr>
<th></th>
<th>% ONGOING</th>
<th>% ONGOING</th>
<th>% ONGOING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>corpus study</td>
<td>experimental study</td>
<td>experimental study</td>
</tr>
<tr>
<td>Dutch</td>
<td>26</td>
<td>32 - 39</td>
<td>22</td>
</tr>
<tr>
<td>English</td>
<td>89</td>
<td>56 - 64</td>
<td>55</td>
</tr>
</tbody>
</table>

Besides the cross-linguistic difference, there is another observation that catches the eye: the asymmetry between the two experimental studies, on the one hand, and the corpus study, on the other hand, with regard to the preponderance of ongoing RIs in the English data. In the corpus data, the percentage of RIs with an ongoing reading is strikingly high. A similar high proportion of ongoing RIs, also based on analysis of corpus data, is reported by Harris & Wexler (1996). Harris & Wexler interpreted the bare stems of English children and compared their temporal reference to forms ending with an [-s] suffix. They found a clearly dominant present tense ('ongoing') use of the bare stems of 82%.

In § 3.5.1, I will give an answer to the question why specifically English corpus RIs are more frequently ongoing than the experimental results. In § 3.5.2, an alternative explanation for differences between the interpretation of RIs in Dutch and English child language will be given that does not restrict RIs in Dutch child language to a modal meaning (and that, therefore, accounts more successfully for the results than the IMH in this respect).

3.4.14 Summary

In this section, I discussed experimental results of a cross-linguistic experiment carried out with Dutch and English subjects in the RI-age. The motivation for this experiment were the predictions that follow from a theory developed by Hoekstra & Hyams' (1998), the IMH, and naturalistic
child data Hoekstra & Hyams discuss in order to support the IMH. Basically, the idea is that RIs in Dutch child language are modal because they contain a morphologically marked infinitival verb form, whereas RIs in English child language (lacking infinitival morphology) have a free modal usage. I argued that the empirical foundation of this claim, which is provided by a comparison between data from various different studies, is unstable and that it is therefore desirable to conduct an experiment. In an attempt to design a suitable experiment, I encountered a number of difficulties, which led to a fairly uncontrolled final experimental design. The most important advantages of the experimental data are that the denotation of a child utterance is more controlled and that a valid comparison can be made between Dutch and English. The results confirm a difference in meaning between RIs in Dutch and English child language: Dutch RIs are more often modal than English RIs. This observation is compatible with the IMH. Given the IMH, it is not expected that Dutch children use RIs for ongoing events. The Dutch subjects, however, used ongoing RIs and hence, the prediction from the IMH is not borne out (as concluded before with regard to the Dutch corpus data).

3.5 The ongoingness of English RIs

In the remainder of this chapter, Dutch and English RIs will be discussed in greater detail in order to explain the large variation between the observations reported in the studies that concentrate on this topic and to gain more insight into cross-linguistic differences and similarities. I first address differences between corpus studies and experimental studies. In the following section, I will argue that differences between the meaning of RIs in Dutch and English child language are expected, given certain morphological and syntactic properties of the two languages.

3.6 A methodological artefact

Why are English corpus RIs so often non-modal? The answer to this question follows from the fact that the English corpus RIs are restricted to utterances with third person singular subjects while Dutch corpus RIs are
utterances with all kind of subjects. Exclusion of utterances with first and second person singular subjects leads to a considerable decrease of, particularly, modal utterances. What is the reason for the asymmetry between the Dutch and English corpus data? Before I turn to a reanalysis of the Dutch data, I will explain why it is perfectly well understandable that the set of English RIs contrasts to the set of Dutch RIs.

English has a very poor inflectional paradigm. In the present tense there is only one suffix, which is the third person singular [-s] as in *walks or drinks*. All other forms in the paradigm are bare. Thus, except for utterances with third person singular subjects, RIs cannot be distinguished from finite utterances:

(42) a. Peter get ball RI
    b. Peter gets ball FIN
    c. I/you/we/they get ball ??

In Dutch, the inflectional paradigm is not only richer, but the position of finite verb and infinitive is distinct as well. Recall that finite forms are placed in sentence-initial position while infinitives are placed sentence-finally. Even if morphology is not sufficient (as in the plural), syntax provides a cue to decide whether an utterance is finite or non-finite. Present tense plural is marked by a morpheme that is equivalent to the infinitival morpheme: [-en]. However, if present tense plural is used, the verb is moved to sentence-initial position and precedes the object, while in RIs the verb follows the object:

(43) a. Peter bal pakken RI
    Peter ball get-inf
    b. Peter/jij pakt bal FIN
    Peter/you get-fin-2/3sg ball
    c. Ik pak de bal FIN
    I get-fin-1sg the ball
    d. Wij/zij pakken de bal FIN
    we/they get-fin-pl the ball

There seems to be no methodological reason to exclude RIs with specific subjects from the Dutch dataset, as long as it is unambiguously clear that the utterance is a RI and no finite utterance. And, indeed RIs with different
subjects are included, in all the Dutch data reported so far while in the English samples, only RIs with third person singular subjects are analysed. As soon as the interpretation of RIs is involved, and especially a modal interpretation, subjects in RIs become important however. The modality children use in RIs is strongly connected to discourse subjects, that is, to first and second person subjects or 'I' and 'you'. The specific interpretation that have been assigned to the RIs in my database, showed that the children used modal RIs nearly always to express desires/intentions or commands: they expressed either I want + inf or You must + inf. Thus, the modal RIs were either of the type 'dynamic necessity' and expressed a wish of the child, i.e. the speaker, ('volition') or were of the type 'deontic necessity' and expressed a command to an addressee. In addition, the children used prospective RIs for intentions (see § 3.3.1 for more information about the interpretations). I grouped the volitional and intentional RIs under the 'I want to + inf-RIs'. These were often difficult to distinguish from each other, and for the present purpose, the distinction is irrelevant since the children connect them both to first person singular subjects. To conclude, the exclusion of first and second person subjects may lead to a dramatic decrease in the proportion of modal RIs.

In an attempt to give an idea of the size of this effect, I will re-analyse the Dutch corpus data presented earlier this chapter (section 3.3). My expectation is that when the Dutch RIs are made more comparable to the English RIs, the two languages do no longer exhibit such differences as suggested by the previously reported corpus data. Moreover, the corpus data will be more like the experimental data, as the experimental data do not suffer from the methodological artefact: all characters are third person singular subjects. I want to emphasise that this reanalysis serves as an illustration. A re-analysis of the Dutch corpus data cannot provide a valid estimation of the actual size of the effect in the English corpus data.

\[43\] In addition to my attempt to make the Dutch and English RIs more comparable by re-analysing the Dutch data, further research has to point out what happens if the English data are re-analysed and modal use within all utterances with bare stems is calculated.
3.6.1 The corpus results re-analysed

To make the Dutch data comparable to the English data, the set of Dutch RIs must be narrowed down to RIs with third person singular subjects only. To facilitate this selection, subject use in RIs has been coded. In Appendix 3.1 (p. 240), some examples of these codes can be found. Null subjects whose interpretation was unclear, are excluded from the analysis. Table 3.16 gives the ‘old’ and ‘new’, i.e. re-analysed, data:

Table 3.16: Modal use of RIs, reanalysed Dutch corpus data on the basis of exclusion of first and second person subjects, data from all six children

<table>
<thead>
<tr>
<th></th>
<th>'Old data' Incl. first and second person subjects</th>
<th>'New' data Excl. first and second person subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abel</td>
<td>NRI 120, NMOD 91, %MOD 76</td>
<td>NRI 16, NMOD 7, %MOD 44</td>
</tr>
<tr>
<td>Daan</td>
<td>NRI 157, NMOD 115, %MOD 73</td>
<td>NRI 27, NMOD 13, %MOD 48</td>
</tr>
<tr>
<td>Josse</td>
<td>NRI 206, NMOD 150, %MOD 73</td>
<td>NRI 26, NMOD 18, %MOD 69</td>
</tr>
<tr>
<td>Laura</td>
<td>NRI 314, NMOD 200, %MOD 64</td>
<td>NRI 82, NMOD 28, %MOD 34</td>
</tr>
<tr>
<td>Matthijs</td>
<td>NRI 254, NMOD 199, %MOD 78</td>
<td>NRI 76, NMOD 34, %MOD 45</td>
</tr>
<tr>
<td>Peter</td>
<td>NRI 197, NMOD 157, %MOD 80</td>
<td>NRI 93, NMOD 67, %MOD 72</td>
</tr>
<tr>
<td>Sum</td>
<td>NRI 1248, NMOD 912, %MOD -</td>
<td>NRI 320, NMOD 167, %MOD -</td>
</tr>
<tr>
<td>Average</td>
<td>-</td>
<td>74</td>
</tr>
<tr>
<td>SD</td>
<td>-</td>
<td>6</td>
</tr>
</tbody>
</table>

Re-analysis shows that the number of RIs dramatically decreases when first and second person subjects are excluded: the total number of RIs goes down from 1248 to 320. And, more importantly for our purposes: for four out of six children (Abel, Daan, Laura and Matthijs), there is no predominant modal use anymore. Their modal ratio is below the 50% level. Two children still show a preference for modal use. However, for Josse there are relatively few data available. The average modal ratio for the six
children goes down from 74 % to 52 %. Peter's case is peculiar in another way. He very often tends to use a proper name where adults would use discourse pronouns. In (44) two examples are given where an adult would use *I* and *you*:

(44) a. **Peter** pakken
    Peter get-\textit{inf}
    Peter 1;11.13

b. **mamma** doen
    mama do-\textit{inf}

Table 3.17 illustrates how often Peter uses a proper name, his own name, instead of the pronoun *I*. The other children hardly ever do this, but Peter does so in 44 out of 93 RIs. The first column contains the number of interpretable RIs.

Table 3.17: Use of proper name instead of first person singular subjects in RIs, data from all six children

<table>
<thead>
<tr>
<th></th>
<th>N\textsubscript{RI}</th>
<th>RIs with proper name instead of first pers. sg. pronoun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abel</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Daan</td>
<td>27</td>
<td>0</td>
</tr>
<tr>
<td>Josse</td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td>Laura</td>
<td>82</td>
<td>0</td>
</tr>
<tr>
<td>Matthijs</td>
<td>76</td>
<td>4</td>
</tr>
<tr>
<td>Peter</td>
<td>93</td>
<td>44</td>
</tr>
</tbody>
</table>

If Peter's data are modified and the 44 cases where a proper name is used instead of a first person singular pronoun are excluded, Peter's percentage of modal RIs goes down to 62 % (32/52). The average of all six children goes down from 52 % to 50 % modal use of RIs (SD = 13). Presumably, this percentage decreases even more if Peter's frequent use of *mama* 'mama' instead of second person singular *you* is excluded (there are 29 examples). However, due to the fact that corpus data do not provide any insight into the speech situation, one can never be sure if the proper name is really used
instead of you. Since most often a third adult is present as well, Peter may also be speaking to this adult and not directly addressing his mother. Therefore, I will not make this second modification. I assume that the first modification illustrated the described effect already very clearly.

### 3.6.2 Conclusion

In this section, I argued that the methodology used in corpus studies on RIs in English child language distorts the comparison between the interpretations assigned to Dutch and English (corpus) RIs. RIs in the studies on English RIs do not include RIs with first and second person singular subjects. This selection is not made in the studies on RIs in Dutch child language. The modality that children use in RIs, however, is closely related to first and second person singular subjects. Therefore, it is expected that the English RIs are less modal than the Dutch RIs. A modification of the Dutch results confirmed this hypothesis. The exclusion of first and second person singular subjects in the Dutch corpus data had a significant effect: the average modal use of RIs went down from 74% to exactly 50%. Recall that this problem occurred in corpus studies, but not in the experiments: all RIs in the Dutch as well as English experimental results have third person singular subjects. This explains why a comparison between the meaning of Dutch and English corpus RIs (as made by Hoekstra & Hyams, 1998) shows a considerable larger difference than the experimental results (Schönenberger et al., 1995; results presented in this chapter).

### 3.7 The Heterogeneous Set Effect

In Blom & Krikhaar (2002), it was argued that the Fuzzy Set Effect is responsible for differences in meaning between Dutch and English RIs. Our proposal was that the set of RIs in English is heterogeneous and contains different forms, as opposed to the set of Dutch RIs. More specifically, English RIs are a collection of 'real' untensed RIs in the sense of Wexler (1994) and Harris & Wexler (1996) and of forms with randomly dropped
Inflection. By implication, English RIs are relatively frequently ongoing: apart from the expected proportion of ongoing RIs in a prototypical RI-language such as Dutch or German, English RIs contain finite forms that have an ongoing or present tense denotation. In the present study, I use the more appropriate name Heterogeneous Set Effect (HSE) for this phenomenon. 'Fuzzy' relates to the border of a set whereas 'heterogeneous' is about the content of a set. As the effect I am aiming at is dependent on the content and not the borders of the set of RIs, the term 'heterogeneous' is more adequate.

Why are English RIs a heterogeneous set of utterances? In brief, if English-speaking children use a finite sentence but, for some reason, drop inflection, an RI remains:

(45) Peter catch-es the ball

In Dutch, this does not happen. A finite sentence with dropped inflection would look like (46):

(46) Peter vang-t de bal

There are two reasons to exclude (46) from the set of RIs. First, the verb is placed in front of the object. Second, the verb does not have infinitival morphology. The RI-variant of (46) would look like (47):

(47) Peter de bal vangen

Unlike Dutch, English is not a Verb Second language. Thus, English finite and non-finite verbs are placed in the same position. Morphologically, the verb form that is used in RIs, a bare stem, is hardly distinguishable from finite verbs (only in third person singular contexts, see previous section). These two properties of the verb in English RIs, make it impossible to

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44 This is what Harris & Wexler (1996) call 'Hypothesis I'; a hypothesis stating that children randomly use the [-s] morpheme: "...inflectional marking is optionally added or deleted, subject to interference from processing-load demands." (Harris & Wexler 1996:9). Such a proposal would be in the spirit of Bloom (1990).

45 Frank Wijnen pointed this out to me.
distinguish between an RI and an utterance that contains a verb form with dropped inflection.

### 3.7.1 Support from Dutch for the HSE

Do children drop inflection randomly? This question cannot be answered for English, but it can be answered for Dutch. It turns out that Dutch children do use forms that are moved and that are syntactically marked for tense, but that lack inflection. These forms can count as 'stripped' forms when agreement inflection is dropped. Note that they can also be first person singular forms, since in the Dutch agreement paradigm first person singular is marked with a bare stem. For the present purpose, this distinction is not relevant: it is relevant, however, that both the dropped inflection form as well as the overused first person singular forms are finite. I will refer to the bare forms that appear in inappropriate contexts as "overused bare stems". An exhaustive list of these items is given in Appendix 3.3, p. 245. I have excluded one-word utterances from this list and bare stems that are the result of dropped infinitival morphology. On the basis of relative placement of object/particle and verb, I decided whether the child dropped (non-finite) infinitival/participial or finite morphology. When object or particle precede the bare stem, infinitival morphology is dropped. When object or particle follow the bare stem, finite morphology is dropped. In (48) some examples are given:

(48) a. jij bouw trein
    you build-ø train
    Abel 2;05.27

b. die heef snor
    that has-ø moustache
    Daan 2;04.28

c. Audrey slaap nog een tijdje
    Audrey sleep-ø still for a while
    Josse 2;07.20

d. dese hoor niet daar
    that belong-ø not there
    Laura 3;03

e. zit ook pitten in
    sit-ø also pits in
    Matthijs 2;10.21

f. hij zeg toettoet
    he say-ø toettoet
    Peter 2;03.07
If the overused bare forms are finite, it is expected that utterances that contain forms with and without inflection have a similar use. More precisely, it is expected that all utterances in (48a-f) - and all other examples in Appendix 3.3 - denote present tense, just like their equivalents in which the verb carries a suffix [-t]. This prediction is borne out: the bare stems in Dutch do not display the free use of RIs, but they pattern like the inflected present tense forms. Additional motivation for the claim that the overused bare stems in Dutch child language are finite comes from the observation that the percentage of states in the bare stem forms clearly exceeds the percentage of states in RIs. There are 37 stative bare stems (i.e. approximately 40 %), whereas states hardly appear in RIs (Wijnen, 1997; see Chapter 4). Based on these observations, it can be concluded that it is very plausible to assume that the set of English RIs contains finite utterances (i.e. overused bare stems that are either the result from inflection drop or from wrong inflection), and, that these utterances affect the overall interpretation assigned to the English RIs. To get some idea of the effect that the HSE may take, I calculated the average percentage of modal use in a set of utterances that contains RIs and utterances with overused-bare stems (BS). Again I want to stress that the aim of these counts is merely to illustrate the likelihood that the HSE has a noticeable effect that may even cause a statistically significant difference between the meaning assigned to RIs in Dutch and English child language. The result of the counts is not necessarily representative for the size that the HSE has on the interpretation of English RIs.

46 Theoretically, past tense interpretations are also expected. However, children at this age use in these cases hardly any past tense forms. If they use past tense form, they use irregular forms. Past tense is not marked by inflection but it is expressed by vowel change. I will deal with this issue in Chapter 5.

47 De Jong (1999) reports that overuse of bare stems is found in the speech of Dutch SLI children. He attributes this drop of the inflectional ending to a lack of processing resources. Extending this to the data from the normally developing, but clearly younger children, it can be hypothesised that the children in my sample drop inflection because of a lack of processing resources. An explanation along these lines is compatible with the random character of inflection drop. If there was an underlying grammatical deficit, it were expected that inflection is dropped across the board. However, children drop inflection sometimes and at other times, they don't.

48 The use of bare stems that lack the overt signs of tense and agreement but have a specific temporal reference is also found in Swahili child language (Deen & Hyams, 2001).
In the Dutch data, the average percentage of modal utterances shows a clear decrease: it goes down from 50% to 35% if the HSE is included. Thus, if the Dutch data are made comparable to the English data, in the sense that only RIs with third person singular subjects are counted and if sentences that contain a bare stem are added, the apparent modal preference disappears and a preference for non-modal use is observed in the Dutch results. Extending this observation to the cross-linguistic comparison, I conclude that the HSE can theoretically account for the observation that RIs in English child language are less often modal than RIs in Dutch child language. Like the Infinitival Morphology Hypothesis (IMH) proposed by Hoekstra & Hyams (1998), the HSE predicts a difference between RIs in Dutch and English child language. The IMH relates this difference directly

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49 Utterances with first person singular subjects are not included as in Dutch these forms cannot be distinguished from bare forms with dropped inflection.

50 These are the RIs that remain after all corrections. Thus, only third person singular subjects and Peter's data are corrected for use of proper name instead of I.
to presence vs. absence of infinitival morphology. According to the HSE, presence vs. absence of infinitival morphology combined with OV/VO-order explains the difference between the two languages. The empirical advantage of the HSE is that this account does not predict a restricted use of RIs in Dutch (or English) child language. Because of this, the HSE, unlike the IMH, does not ignore the occurrence of ongoing RIs in Dutch child language.

3.7.2 Other cross-linguistic differences explained

Wexler (1994) and Harris & Wexler (1996) argued that English children use RIs, just like Dutch, Danish, German, Swedish, Norwegian and French children do. Hoekstra & Hyams (1998) pointed out that there is a difference in the interpretation of English RI and Dutch and German RIs. In the previous section, I discussed a factor that contributes to the cross-linguistic difference in the meaning of RIs: the HSE. In this section, I will point to a number of other differences between English RIs, on the one hand, and RIs in other languages (that is, more prototypical RI-languages that possess a recognisable infinitival form) that are explained by the HSE.

First, there is a difference in predicate type between English, on the one hand, and Dutch/French RIs, on the other. Deen (1997) and Madsen & Gilkerson (1999) find respectively 25% and 40% stative predicates in English RIs. The percentages Wijnen (1997) and Ferdinand (1996) report for Dutch and French are lower: less than 10% of the RIs in these languages are stative. However, stative predicates are frequent in finite

51 As mentioned before, I assume that the interpretation of RIs in intrinsically free. This applies to RIs in Dutch but also to the subset of RIs in English that contains 'real' RIs (and not finite items with dropped inflection). As other, newly acquired, verb forms take over the function of RIs, the order of acquisition and relative productivity of these new forms has an effect on the overall interpretation given to RIs. Thus, the interpretation (or use) of English RIs is not only influenced by the HSE, but also by another factor: the acquisition other forms. As far as I know, the development of different verb forms over time in English child language has not been studied yet. Therefore, I cannot determine whether or not this factor is relevant for the study of cross-linguistic differences. However, before detailed comparisons can be made between the different languages more insight into the acquisition of different verb forms in different languages is required.
sentences in both languages. As English RIs contain finite sentences with dropped inflection, it is expected that English RIs contain more stative predicates than Dutch and French RIs. A second difference concerns WH-words. Phillips (1995) summarises results from different studies: he reports that German, Dutch, Swedish and probably French show an asymmetry between finite sentences and RIs with respect to WH-questions. Finite sentences contain WH-questions while RIs do not (Kursawe, 1994 for German; Haegeman, 1994 for Dutch; Santelmann, 1994 for Swedish; Crisma, 1992 for French). In all these languages, RIs differ clearly from finite sentences in verb form and/or verb placement. Phillips did not find the same effect for English though: in child English, both finite sentences as well as RIs contain WH-questions. Given that in the English data the total number of RIs includes finite sentences, this difference is to be expected.\footnote{The reverse prediction is that WH-questions in Dutch are expected to appear with dropped inflection (like in English). The problem is that this is difficult to determine as in Dutch WH-questions with third person subjects, inflection and subject cliticise, as illustrated in (ii):}

\begin{itemize}
  \item[(i)] wat doet hij/die?  
  what does-\textit{fin} he  
  'What does he do?'
  \item[(ii)] wat doetij/doetie
\end{itemize}

By implication, sentences with pronominal subjects cannot be used to determine whether or not inflection is really dropped. Sentences with full DP subjects, however, could provide a test case. I will leave this as a suggestion of future research.

\footnote{Hyams cites results from Madsen & Gilkerson (1999).}

3.7.3 Some final notes on bare stems in child English

Hyams (2001a, b) reports a contrast between the interpretation of bare verb forms in child English and forms that end on [\text{-s}], that is, third person singular SFs.\footnote{Hyams cites results from Madsen & Gilkerson (1999).} The former are predominantly ongoing whereas the latter are most often habitual (like in adult English). This observation might have the implication that RIs in English child language are more often habitual than RIs in Dutch child language, because English RIs contain forms that are, in their underlying semantic representation, SFs. I made an attempt to find out
more about the habitual use of RIs (and other verb forms) in the Dutch corpus data, and found hardly any habitual RIs. I have to admit, though, that I found it very hard to define any criteria to decide whether or not an utterance was habitual or not. The only more or less clear cases occurred when children talked about animal sounds (the pig grunts, the dog barks, etc.). However, even when the children were looking at the same time at images of pigs or dogs, it was still questionable as to whether the utterance was habitual. Therefore, I desist from drawing any conclusions on this issue.54

One could also infer from the contrast that Hyams describes that the HSE may not adequately describe the difference between Dutch and English: Hyams' study suggests that relatively few SFs in child English denote ongoing events. Hence, the number of SFs with dropped inflection denoting ongoing events must also be small. By implication, the HSE may cover relatively few ongoing RIs in early child English. Until now, it is still unclear what the size and the nature of the difference between the interpretations of RIs in the two languages is, however. Thus, although an explanation of differences between the meaning of Dutch and English RIs like the HSE has to reckon with the different semantics of SFs in Dutch and English, future study has to point out whether or not an additional explanation for differences in meaning between Dutch and English RIs is really required.

Suppose that future research shows that the HSE does not suffice: what factors, other than the HSE, could explain the ongoinness of English RIs? The analysis that I will give for the Modal Reference Effect (MRE) of RIs in early child Dutch in Chapter 5 gives an idea for a possible solution. It turns out that the order of acquisition of various finite forms causes changes in the meaning of RIs. I will not go into the details of this analysis, but, given that finite forms in English differ from finite forms in Dutch, we could

54 Given the kind of criteria that are used to decide whether or not RIs in child Dutch are modal - that is, no reference to an event that is ongoing at speech time or took place before speech time - it is furthermore possible that some of the modal RIs were, in fact, habitual. Both in the modal as well as in the habitual reading a reference is established to speech time of a time prior to speech time.
hypothesise that the developmental effect that takes place in Dutch and that leads to the MRE, does not take place in English.

I finish this section with a final remark on SFs in early child English that relates to the previous paragraph in which I mentioned changes over time in the children's system of verb forms. Considering the experimental data, the use of SFs by English-speaking children is ambiguous: the experimental results show that children have some idea of the habitual use of SFs specific to English, on the one hand, but they also suggest that a full grasp of the habitual restriction is lacking. The early awareness of the restrictions on SFs shows up in the children's preference to use progressives in the ongoing condition instead of SFs.\(^\text{55}\) However, if the SFs were restricted to habitual readings and bare stems to ongoing readings (which is, basically, the claim made by Hyams), the expectation would be that the English subjects in the experiment used exclusively bare stems and no forms with [ -s] in the ongoing condition. This expectation is not borne out, as 19 % of the verbs in the ongoing condition were bare, whereas 15 % carried an [ -s] ending. Thus, the children used approximately as many SFs as RIs in ongoing condition. This may suggest that they do not have the full grasp of the target system and (over) use SFs relatively frequently to denote ongoing events.\(^\text{56}\) I leave this as a suggestion for future research; preferably longitudinal research that shows whether forms with [ -s] become more specific (i.e. habitual) over time.

3.8 Summary

In this chapter, I focused on the temporal, modal and aspectual denotation of RIs. Corpus data from six children acquiring Dutch showed that the children preferred to use RIs for modal events. Non-modal usage was

\(^{55}\) The results in Table 3.8 (p. 93) indicate that it is more likely that the English children use a progressive form on [ -ing] in the ongoing condition than a form that ends on [ -s]: the percentages are 60 % and 15 %, respectively.

\(^{56}\) As in adult English, verbs denoting states appear more often as finite forms on [ -s] than verbs denoting events - and states even require [ -s] and cannot appear as progressives - one could hypothesise that young children do not yet map aspect and tense properly and overuse the [ -s] on the basis of a generalisation over state verbs.
certainly not excluded, however: this confirms that there is a Modal Reference Effect (MRE) in early Dutch child RIs. In this respect, I found more evidence for the No Tense Hypothesis (Behrens, 1993; Wijnen, 1997), than for the Modal Hypothesis (Ingram & Thompson, 1996; Ferdinand, 1996; Hoekstra & Hyams, 1998). The strikingly marginal number of past/completed RIs suggests that Dutch RIs obey a Non-Completedness Constraint or NCC (Lasser, 1997). Experimental results confirmed a difference between the meaning of RIs in Dutch and English child language: Dutch RIs are more often modal than English RIs. The observed difference, however, was less sizeable than the difference that Hoekstra & Hyams (1998) reported, in a corpus-based study. I pointed to methodological choices that are responsible for the difference between experimental data and corpus results, and bring about a non-modal bias in the English corpus analysis. It was furthermore argued that RIs in child English are expected to be more frequently ongoing than RIs in Dutch child language because of the Heterogeneous Set Effect (HSE). As opposed to Dutch RIs, English RIs contain finite sentences in which the bare stem form is "overused". This asymmetry between Dutch and English RIs is the effect of morphological and syntactic differences between the two languages. The HSE is motivated by data from Dutch that support the claim that children indeed overuse bare stems because they either drop inflection or use incorrect inflections. The awareness that the HSE interferes in cross-linguistic comparisons does not only enable a better understanding of cross-linguistic differences in the meaning assigned to RIs but also explains various other asymmetries between RIs in early child English and RIs in languages that have distinct infinitival forms.