

On the Use and Interpretation of Root Infinitives in Early Child Dutch
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1 Abstract

Early last century, Van Ginneken (1917) observed that Dutch children use nonfinite utterances to refer to wishes, desires and needs. Recently, the observation that root infinitives (RIs) receive a modal meaning has been confirmed for Dutch (Wijnen 1997) and extended to German (Behrens 1993, Ingram and Thompson 1996, Lasser 1997). Based on these empirical studies Hoekstra and Hyams (1998) formulated the Modal Reference Effect (MRE) for Dutch and German child language which states that ‘with overwhelming frequency, RIs have modal interpretations’. In this paper I will discuss three proposals that account for the MRE: Boser, Lust, Santelmann and Whitman’s Null Auxiliary Hypothesis (1992), Ingram and Thompson’s input-based hypothesis (1996) and Hoekstra and Hyams’ (1998) morphological marking hypothesis. The most recent account, proposed by Hoekstra and Hyams (henceforth: H&H), will be singled out for a more thorough discussion. At first sight, H&H’s account seems very promising: different cross linguistic intuitions and observations are tied together in a model that covers a wide range of empirical data. In the second part of this paper, the MRE will be discussed from an empirical point of view. Data of six Dutch children show that the connection between modality and infinitive verb forms does not appear from early on. To connect modality to the infinitive form, children have to be able to make the finite-nonfinite distinction. My claim is that Dutch children need this knowledge to categorize infinitives as verbs. The early frequent nonmodal use of RIs by Dutch children and their shift to modal use reflects a categorical re-analysis of the infinitive by children.

2 Root Infinitives in Dutch and German

RIs are sentences headed by a nonfinite verb. The verb has an infinitival form and in languages like Dutch and German it takes the final position. Null subjects are preferred (Weverink 1989, Krämer 1993, Haegeman 1995) and stative verbs hardly ever occur in RIs (Wijnen 1997). The meaning of RIs in Dutch and German is often described as ‘modal’ and their temporal reference is usually future (Behrens 1993, Wijnen 1997). In adult Dutch/German RIs are marginally acceptable. Their use is restricted to specific contexts: imperatives, interrogatives, exclamatives¹, announcements and assertions in narrative contexts (Blom 2000). An example of each usage is given in (1):

- (1) a. Rennen!
Run-INF
‘Run!’
- b. Ook wat drinken?
Also something drink-INF
‘Do you want something to drink too?’
- c. Ajax dit jaar winnen? Kleine kans
Ajax this year win-INF? Little chance
‘Ajax going to win this year? Slim chance!’
- d. Even washandje pakken
Just washing cloth get-INF
‘I am just going to get the washing cloth’
- e. Ik de hele tijd wakker liggen en jij gewoon slapen
I the whole time awake lie-INF and you just sleep-INF
‘I am lying awake the whole time while you are sleeping’

In Dutch and German child language RIs are not restricted to the specific usages as in (1). Children’s use of assertive RIs, for example, is not restricted to the narrative genre. Examples of assertive child RIs are given in (2):

- (2) a. in soel zitten (Abel 1;11.26)
in chair sit-INF
‘I want to sit in the chair’

bare verb forms on the other hand do not have any morphology. There is no potential carrier, hence they cannot be [- realized]. The bare verb form in English refers not only to the process part of an event, it also includes the completion of the event. This is shown by the contrast in (3):

- (3) a. * I see John cross the street
b. I saw John cross the street

Following Giorgi and Pianesi (1996), H&H assume that the bare infinitive in English is [+ perfective]. In this respect, the infinitive in Dutch/German is more like the English *-ing* form which also refers to the process part of the event only:

- (4) I see John crossing the street

As infinitives in Dutch/German are inherently [- realized], H&H assume that the RIs of children learning these languages are [- realized]. By the same argument, that is the presence of an inherent feature, the RIs of English speaking children are [+ perfective].

The modal interpretation of RI in Dutch and German follows from certain properties of volitive (or 'bouletic' as H&H call it) and deontic modality. The event expressed in a volitive or deontic modal utterance has a future temporal reference since obligation, permission (i.e. deontic modality) or wishes (i.e. volitive modality) have to precede the event itself. Because infinitives in Dutch and German share [-realized] with certain modalities, RIs are used by the children to express modality. H&H relate this modal meaning to the use of eventive verbs in RIs (Eventivity Constraint).⁶ In particular deontic modality has a strong preference for eventive predication (while stative verbs yield an epistemic reading). Children under the age of four do not use epistemic modality, but they do use deontic modality very frequently. From this frequent use smoothly follows the overwhelming number of eventive RIs in child language.

3.4 Summary

We have seen that the Null Auxiliary Hypothesis is successful in explaining various properties of RIs, like the position of the verb and verbal morphology. Nevertheless, it runs into serious empirical problems. The strength of Ingram and Thompson's proposal is that it focuses on an underexposed topic, namely the input children get. However, the scope of the 'what they hear is what you get' hypothesis is too limited to offer a satisfying solution. At first sight, H&H's recent analysis has many advantages, because it ties nonfiniteness, modality and eventivity together. In the next section their proposal will be discussed in more detail.

4 A closer look at Hoekstra & Hyams (1998)

H&H's framework is based on a set of empirical observations and theoretical assumptions. In this section I single out three notions fundamental for H&H's analysis. A discussion of these notions brings various problems into light. The relevant notions are, in order of appearance: the nature of [-realized], morphological marking of semantic features, and the connection between modality and verb type.

4.1 The nature of [- Realized]

A crucial notion in H&H's analysis is the feature [-realized], proposed for Dutch and German infinitives. What [-realized] actually refers to is unclear, however, as no apparent definition is provided. It is not a feature which is embedded in a specific theoretical framework; there is no feature matrix to which [-realized] belongs. Theoretically [-realized] can be interpreted in three ways: as an (i) aspectual, (ii) tense and (iii) modal feature. Below I will discuss these three possibilities.

(i) *[-Realized] as an aspectual feature.* The label suggests this interpretation to be the most obvious one. An aspectual reading is reinforced by the fact that [+perfective], which is a valid aspectual feature, functions as its opposite. [+ perfective] includes the completion of the event while [-realized] excludes the completion. H&H also exclude a here-and-now interpretation of [-realized]: 'In such languages [i.e. Dutch/German etc.], the unanchored RI does not receive the here-and-now interpretation of the English bare V [...]'. Therefore, a translation of H&H's observation that 'the infinitive denotes that the event is not yet realized' into a known aspectual notion results in inchoative aspect being the most appropriate.

(ii) *[-Realized] as a tense feature.* Though [-realized] seems to be more aspectual than temporal, H&H do not exclude a temporal interpretation. Theoretically, there are two possibilities. When [- realized] refers to the non-

completion of an event it includes present tense as well as future tense. When it means that the event has not even started, it only refers to future tense. From the citation above, it can be derived that H&H implicitly follow the second strategy: [+ perfective] includes here-and-now events and by implication [-realized] does not.

(iii) [-Realized] as a modal feature. The feature [- realized] restricts the number of possible modalities. Both deontic and volitive modality assume a temporal ordering: the permission, obligation or wish precedes the event for which one gets permission, that is obliged or wished. This induced some linguists to not distinguish between future tense and modality. Chung and Timberlake (1985) claim: 'Future is thus not a semantic category where tense and mood merge. In practice many languages do not distinguish morphologically between future tense and potential (irrealis) mood. Where a difference is made, the future tense is used for events that are presumed to be certain to occur, and the irrealis mood for events that are potentially possible but presumed to be certain' (p. 243). Example (5a) in which the infinitive refers to a future event, receives a deontic interpretation, while (5b), in which the predicate refers to an ongoing event, receives an epistemic interpretation:

- (5) a. Hij moet afwassen
He must do the dishes
b. Hij moet aan het afwassen zijn
He must on the the dishes do-INF be-INF
' He must be doing the dishes'

As the event in deontic or volitive modal utterances still has to take place, or as H&H put it ' is not yet realized' , the feature [-realized] delimits the modal interpretation to deontic and volitive modality. Epistemic modality is excluded.

In this section we have seen that [-realized] can be described as an aspectual, tense or modal feature. H&H do not define their position and propose a feature that is neither one nor all. [-Realized] is a purely empirically motivated⁷ feature that collapses inchoative aspect, future tense and deontic and volitive modality.

4.2 Morphological Marking

H&H connect [-realized] to an *-en* suffix, that is to morphology. Bare verb forms like the infinitive verb in English, which do not have any morphology, cannot be [-realized]. H&H follow Giorgi and Pianesi (1996) by assuming that English bare verb forms receive a perfective reading. This perfective reading yields a nonmodal interpretation of RIs in child English. This gives rise to two questions. First, what morphology marks the [+perfective] feature? Second, as RIs in English cannot express modality, how do English speaking children express modality?

What morphology marks [+perfective]? Here, H&H follow some sort of default strategy: unless morphology indicates otherwise, the infinitive is [+perfective]. In English, however, the element *to* could function as a modal marker. Or, in terms of H&H, *to* could function as a carrier of [-realized]. Avrutin (1997) points at, for example, the use of *to*-infinitives for future events in headlines:

- (6) a. President to visit Russia
b. Unions to go on strike
c. McDonald's to serve beer

Like the examples in (7), the ' modal' meaning of (6) may be a relict from the historical prepositional meaning of direction towards, purpose or goal (Jespersen 1964).

- (7) a. To be or not to be
b. To live and let die
c. To look at you and never sleep

This brings us to the second question: how do English speaking children express modality? The *to*-infinitive seems to possess the necessary properties to express modality. However, young English children do not yet use the *to*-infinitive. Forms that do occur from relatively early on - between the ages of two and three - are *gonna*, *wanna*, *needta* and *hafta* (Bloom, Tackeff and Lahey 1984, Gerhardt 1991). These forms express intentionality, volitive and deontic modality which are exactly the same interpretations given to the RIs of Dutch children. Note that all these kinds of modality or modality-related categories are inherently [-realized]. In children's

speech, *gonna*, *wanna*, *needta* and *hafta* have in common that they all contain a corrupted version of *to* spelt out as @. This suggests that in English child language this @ suffix is like *-en* - pronounced as @ too - in Dutch and German: the carrier of [-realized]. This meaning is preserved in the adult English infinitival marker *to*.

4.3 Modality and Verb type

H&H observe a link between certain modalities and verb type. Young children only use deontic and volitive modality; semantic categories which Dutch and German children predominantly express with RIs. This pattern is formulated as the Modal Reference Effect (MRE). RIs in these languages are limited to eventive verbs. This property is summarized in the Eventivity Constraint (EC): 'RIs are restricted to event-denoting predicates'. H&H show that the MRE and EC are closely connected: eventive verbs 'force' a deontic modal reading whereas stative verbs 'force' an epistemic reading. See the contrast in (8):

- (8) a. Jan moet het antwoord weten
 Jan must the answer know-INF
 'John must know the answer'
 b. Jan moet dit boek lezen
 Jan must this book read-INF
 'John must read this book'

The modal auxiliary *moet* in (8a) has a stative predicate; an epistemic reading is most natural ('as far as I know, John has to know the answer'). In (8b) the same auxiliary has an eventive predicate. This yields a deontic interpretation ('John is obliged to read this book'). H&H argue that the eventive character of RIs follows from the fact that children use deontic modality and no epistemic modality. At this point, some remarks can be made. From the perspective of Dutch adult language, the correlation H&H point out is not as clear as they present it. Depending on the context a sentence like (8a) can receive not only an epistemic but also a deontic or volitive reading⁸; see respectively (9a-c):

- (9) a. Het kan haast niet anders of Jan weet het antwoord
 It can hardly not different or John knows the answer
 'Based on what I know, it must be the case that John knows the answer'
 b. Jan moet van de docent voor drie uur het antwoord weten
 John must of the teacher for three hour the answer know
 'The teacher obliged John to know the answer before three o' clock'
 c. Jan moet en zal het antwoord weten
 John must and shall the answer know
 'John wants to know the answer madly'

Barbiers (1995) observes that stative verbs do not force an epistemic reading. Furthermore, he argues that the relevant factor for a deontic or volitive reading is not eventivity, but the predicate's allowance of a 'polarity transition' (p. 148). Second, H&H ignore the frequent use of *volitive* modality by children. Not only are the RIs of Dutch children very often volitive, crucial is the fact that deontic and volitive modality cannot be collapsed. They differ from each other with respect to two structural properties: (i) volitive modality does not have the epistemic counterpart that deontic modality has, and (ii) volitive modality does not show a specific preference for eventive predication nor for stative predicates.

Volitive modality in Dutch is prototypically expressed by the auxiliary *willen* ('want to'). Barbiers (1995) points out that *willen* can have an epistemic reading as exemplified by (10):

- (10) Er wil hier wel eens een ongeluk gebeuren
 There MOD here AFFIRM-PART sometimes an accident happen-INF
 'Accidents (may) happen here'

The sentence in (10), however, does not express epistemic modality. Epistemic modality concerns the qualification of the *potential* truth of a proposition (Klinge 1998). Barbiers (1995) refers to this as probability. Sentence (10) however involves neither probability nor does it give a qualification of the potential truth of [accidents happen here]. It simply means that accidents sometimes happen here. In this sense, *willen* in (10) is not epistemic at all.⁹

Predication is the second argument for not treating volitive and deontic modality as one. Volitive modality does not show a preference for certain predicates whereas deontic modality does. In (11a) the modal auxiliary *wil* selects the eventive complement *trouwen*, in (11b) *wil* selects the stative predicate *getrouwd zijn*.

- (11) a. Hij wil trouwen
He wants marry-INF
'He wants to get married'
b. Hij wil getrouwd zijn
He wants married be-INF
'He wants to be married'

Following H&H's analysis, (11b) should receive an epistemic reading. This prediction is not borne out because *wil* in both (11a) and (11b) refer to a wish or an internal need. As volitive modality can occur with either eventive and stative predicates, the kind of modality children use does *not* necessarily predict that their RIs have to be eventive.

4.4 Conclusion

In this section I have discussed several aspects of H&H's recent analysis of modal RIs. First, I have shown that [-realized] is a feature which can be translated into known aspectual, temporal and modal notions. Second, some implications of morphological marking have been explored. H&H assume that [+perfective] (I preferably call it 'here-and-now') is the default reading which appears when there is no morphology. In English the bare verb form has this reading. *To*-infinitives, however, refer to events that are not yet realized. English *to*, in child language transformed into @, semantically functions as the *-en* suffix in Dutch and German: being an infinitival marker and, as such, yielding [-realized] interpretation. Third, the relevance of the connection H&H link up between modality and verb type is discussed. Such a relation exists, however, it does not provide a satisfactory solution for the Dutch and German child data. The main arguments in support of this claim is that volitive and deontic modality have different properties with respect to the predicate they prefer.

In general, H&H's recent account inspired us to think about specific form-function correlations in (child) language. Their framework raises interesting new questions, not only about language acquisition but also about language specific properties. These questions will be addressed in future research. In the second, empirical, part of this paper I will test the validity of the Modal Reference Effect for Dutch child language. Blom, Wijnen and Gillis (1998) found nonmodal RIs in the language of two Dutch children. Behrens (1993) reports the same for German child language¹⁰. We have seen that modal RIs have been studied rather profoundly. Nonmodal RIs, on the other hand, have received less attention. My aim is to take a closer look at modal RIs including the role of nonmodal RIs.

5 The Use of RIs in Early Child Dutch: A Corpus study

I will discuss two important empirical issues concerning modal RIs in Dutch child language. The first issue is the assumption underlying H&H's proposal, formulated as the Modal Reference Effect (MRE). An analysis of corpus data from six Dutch speaking children will show to what extent the RIs of Dutch children are modal. The second issue concerns the comparison of modal and nonmodal RIs in Dutch child data. This comparison is guided by the hypothesis that nonmodal RIs are categorised by the children as nominals and modal RIs as verbs.

5.1 Method

Transcriptions of spontaneous speech data of six Dutch speaking children will be used. All data are available via CHILDES (MacWhinney 1995). The tape recordings were made at home, in the presence of the mother or father as well as an investigator. In Laura's case, the mother and the investigator are the same person. From each corpus, files representing four stages are selected based on the following stages Dutch children go through in the acquisition of finiteness (Wijnen 1997):

- I The first occurrences of RIs
- II RI stage: almost no finite forms, only RIs
- III Optional infinitive stage: RIs and finite forms co-occur
- IV 'Adult' finite stage: almost no RIs, only finite forms

The first (early two word) stage was not available for every child. To begin, all four stages are collapsed with the advantage that there are enough data to analyse. Later on, as developmental patterns will be discussed, the data will be divided into stages indicated above. The children's age ranges are given in Table 1:

Table 1: *Children's Age Range and Number of Utterances*

Child	Age Range	Number of Utterances
Abel	1;10.03 - 2;07.29	2890
Daan	1;08.21 - 2;09.10	4877
Josse	2;00.07 - 2;08.18	3323
Laura	1;09.04 - 3;04.06	4241
Matthijs	1;09.30 - 2;11.19	5260
Peter	1;07.18 - 2;03.21	2576

The selected files are provided with codings according to CHAT conventions¹¹. First of all, it is marked whether an utterance is modal or not. As mentioned before, modality is the domain of possibility and necessity. Based on Palmer (1986), I divided modality into three subcategories: dynamic, deontic and epistemic modality. Dynamic modality implies a *subject internal* necessity or possibility. This can be a wish, ability or capacity. The essence of deontic modality is a *subject external* source that is responsible for the necessity or possibility. Obligation and permission are prototypically deontic modal notions. Epistemic modality refers to a speaker's beliefs or judgements. This type of modality requires rather advanced cognitive skills and is therefore acquired after the age of four (Stephany 1986, Gonsalves 1998).

- (12) Modal → dynamic → wish (volition)
 → ability, capacity
 → deontic → obligation, requirement
 → permission
 → epistemic → probability

Nonmodal utterances are coded for aspect/tense. The expressed event can be completed, ongoing or prospective.

- (13) Nonmodal → completed
 → ongoing
 → prospective

For the interpretation we made use of the information available in the transcription. For instance, utterances labelled 'modal' had to meet one of the following criteria:

- preceding or subsequent parental utterances suggest a modal interpretation, or
- the contexts suggests a modal interpretation

- (14) 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

'Nonmodal' were utterances that refer to events in the here-and-now or the past. For example:

- (15) 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

The above classification does not parallel H&H's [- realized] vs. [+ perfective] distinction. Based on H&H's study, I choose to do the following:

- (16) Modal = [-realized] = Modal + Nonmodal-prospective ('intentional')
 Nonmodal = [+perfective] = Nonmodal-completed + Nonmodal-ongoing

Nonmodal prospective RIs are often intentional. I categorised them as being nonmodal because they formally do not express necessity or possibility. The borderline between dynamic necessity (volition) and intentionality, however, can be very narrow.

5.2 Modal Infinitives

Ingram and Thompson (1996) showed for German child language that there is a contrast between RIs and simple finite utterances with respect to modality. RIs are predominantly modal whereas simple finite utterances are used for nonmodal purposes. Blom et al. (1998) did the same for Dutch. Using a more extensive database, containing six children instead of two, the connection between modality and infinitives in Dutch child language will be 'rechecked'.

To find out whether there is a connection between modality and infinitive verb forms, I made two comparisons:

1. A comparison between RIs and sentences with simple lexical verbs shows if modality is connected to infinitival morphology. The prediction is that RIs occur in modal contexts, whereas simple finite verbs occur in nonmodal contexts. Note that only finite *lexical* verbs are relevant here as modal verbs and copula do not occur in RIs (Wijnen 1997).

2. RIs as well as simple finite sentences are compared to a control group, which consists of sentences without a verb. The following scenario points out that this control is necessary. Assume that the first prediction is borne out and RIs are modal as opposed to simple finite sentences. Now suppose that utterances without a verb pattern like RIs and are predominantly modal too. In this case, there may be a connection between finite morphology and nonmodality, but there is no reason to assume a connection between modality and infinitival morphology on the verb.

5.2.1. Results

Table 2 gives the numbers and percentages of modal/nonmodal RIs, whereas Table 3 gives the numbers and percentages of modal/nonmodal simple finite utterances with lexical verbs. Noninterpretable utterances are excluded from the analysis. The tables show a reverse pattern: all children use RIs most frequently in modal contexts, whereas simple finite sentences are predominantly used in nonmodal contexts.

Table 2: *Modality in Root Infinitives*

Child	Number of RIs	Modal		Nonmodal	
		#	%	#	%
Abel	118	91	77	27	23
Daan	160	115	72	45	28
Josse	192	150	78	42	22
Laura	306	202	66	104	34
Matthijs	252	201	80	51	20
Peter	203	157	77	46	23

Table 3: *Modality in Simple Finite Sentences (SFS) with Lexical Verbs*

Child	Number of SFS	Modal		Nonmodal	
		#	%	#	%
Abel	129	16	12	113	88
Daan	289	37	13	252	87
Josse	141	14	10	127	90
Laura	160	16	10	144	90
Matthijs	150	25	17	125	83
Peter	439	10	2	429	98

A statistical analysis confirms the observed patterns: for each child the calculated value of χ^2 is greater than the 3.84 as well as 6.64 (which are respectively the critical values required for significance at the 5 and the 1 percent significance level for degrees of freedom = 1). See Table 4:

Table 4: *Calculated χ^2 (Modality in RIs/Utterances with simple finite lexical verbs)*

Child	χ^2
Abel	105.12
Daan	160.48
Josse	151.27
Laura	132.40
Matthijs	152.09
Peter	406.37

Examples of modal and nonmodal RIs are already given in (14) and (15). The sentences in (17) and (18) give examples of modal and nonmodal use of simple finite sentences. Note that simple finite sentence with a modal reference often contain verbs like *passen* 'to fit' or *gaan* 'to go'. Although they do not belong to the class of modal verbs, inherently they may be modal as *passen* can express (im)possibility and *gaan* a future event:

- (17) a. past niet ijsbeer in niet (Matthijs 2;04.24)
 fits not polarbear in not
 'the polarbear does not fit in here'
- b. ik ga ook naar de dok, of niet? (Laura 3;04.06)
 I go also to the doctor, or not
 'I will go to the doctor too, isn't it?'
- (18) a. ik hoor paatje niet (Laura 2;04.15)
 I hear horse-DIM not
 'I do not hear the little horse'
- b. Daan ligt in de wieg (Daan 2;04.14)
 Daan lies in the crib
 'Daan is lying in the crib'

The results and analysis in the Tables 2, 3 and 4 show that in order to express modality children strongly prefer to use infinitive main verbs to simple finite lexical verbs. Table 5, which gives the usages of utterances *without* a verb, also shows a significant difference between RIs and verbless utterances in this respect. This confirms the connection between modality and RIs. Table 6 gives the relevant χ^2 values showing this:

Table 5: *Modality in utterances without verbs*

Child	Number of Utterances	Modal		Nonmodal	
		#	%	#	%
Abel	275	32	12	243	88
Daan	557	9	2	548	98
Josse	635	158	25	477	75
Laura	484	80	17	404	73
Matthijs	298	73	24	225	76
Peter	210	97	49	113	51

Table 6: *Calculated χ^2 (Modality in RIs/Utterances without verbs)*

Child	χ^2
Abel	164.66
Daan	428.97
Josse	178.81
Laura	199.99
Matthijs	166.81
Peter	42.30

All values are statistically significant, which means that for all children it is the case that RIs are connected to modality as opposed to utterances without a verb. Note, however, that there is quite some variance between the children. Most striking is Peter's use of utterances without a verb: the modal/nonmodal distribution is almost at a 50% level. In his case it cannot be concluded that modality is exclusively associated with infinitive main verbs.

The sentences in (19) give examples of the modal use of utterances without a verb, in (20) nonmodal verbless sentences are exemplified:

- (19) a. mama schoen uit (Peter 1;09.20)
mama shoe off
'mama has to take off her shoe'
- b. ikke banaan (Josse 2;03.28)
I banana
'I want a banana'
- (20) a. Bart ook thuis (Abel 2;01.16)
Bart also home
'Bart is also at home'
- b. ik ook broertje zusje (Josse 2;03.28)
I too brother-DIM sister-DIM
'I get a little brother or sister too'

The above results support H&H's Modal Reference Effect: Dutch children do prefer to use RIs to express modality. However, if infinitives in Dutch contain a [-realized] feature, which is, according to H&H the explanation for the MRE, a percentage of 20-34 nonmodal RIs is undesired. In H&H's framework, nonmodal RIs should be excluded as all infinitives in Dutch have, in principal, infinitival morphology.

5.3 Change of Category

One of the findings of the previous section is that Dutch children allow RIs in nonmodal contexts. At first sight, this seems incompatible with the assumption that infinitives in Dutch are [-realized]. According to H&H's definitions, as well as the definitions I used, [-realized] and being nonmodal exclude each other. This problem may be solved if modal and nonmodal RIs have a different representation. My claim is that nonmodal RIs are [+N], whereas modal RIs are [+V]. This is stated in the Change of Category Hypothesis:

Change of Category Hypothesis

Nonmodal RIs are nominal, whereas modal RIs are categorised by the child as verbs

Nonmodal RIs are like the verbless utterances of the previous section: like the nonmodal RIs they can be analyzed as nonverbal too. Note that for now the [+N] feature is rather arbitrary; instead, it could be [-V] or [+referential]. Importantly, I assume a basic distinction between these and the [+V] infinitives of Dutch children. The nominal RIs are deictic expressions. They are used to label an action, which is present in perceptible physical context¹². As deictic RIs are labels of ongoing actions, it is expected that they appear as single elements, that is as a one-word utterance. Assuming that they are [+N] this could also follow from their nominal character, as there is no internal or external argument expected. Deixis plays a particularly major role in early language use, therefore a developmental effect is predicted here: the number of deictic RIs will decrease in time. As opposed to nominal RIs, verbal RIs are not deictic expressions, which means that they are not used and interpreted as such. Verbal RIs reflect properties of the grammar: the infinitive in these utterances has infinitival morphology, which carries a [-realized] feature. These utterances can be assigned an aspectual/temporal reference by means of grammar. A VP is projected and argument structure may lead to utterances that are more complex.

5.3.1 Results

The predictions are summarized below:

1. Nonmodal RIs refer to a here-and-now situation and a past reference is excluded
2. Nonmodal RIs are more frequently one-word utterances than modal RIs are
3. The number of nonmodal RIs decreases over time

Table 5: *The Interpretation of Nonmodal RIs*

Child	Number of RIs	Completed		Ongoing	
		#	%	#	%
Abel	27	2	7	25	93
Daan	45	0	0	45	100
Josse	42	6	17	35	83
Laura	104	6	6	98	94
Matthijs	51	4	8	47	92
Peter	46	6	13	40	87

In table 5 the interpretable RIs are divided into two aspectual categories: completed and ongoing. Cases in which it is impossible to distinguish between an infinitive and a participle without prefix are left out. Examples of this are *vallen* 'to fall' or *opeten* 'to eat', with the particle forms *gevallen* and *opgegeten*. This is necessary, as children often omit the participial prefix (Jordens 1990). Examples of completed events are in (21), and (22) shows RIs that are used to refer to ongoing events:

- (21) a. Ieke spugen (Matthijs 1;11.24)
 Ieke throw up-INF
 ' Ieke has thrown up'
- b. Peter koffer pakken (Peter 2;00.28)
 Peter suitcase get-INF
 ' Peter got his suitcase'
- (22) a. Ik een hand tekenen (Abel 2;07.15)
 I a hand draw-INF
 ' I am drawing a hand'
- b. Pake foto maken (Daan 2;04.14)
 Pake picture make-INF
 ' Pake is taking a picture'

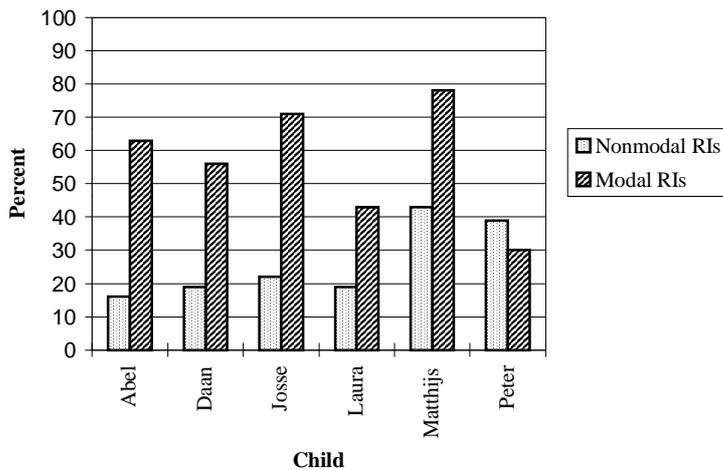
The first prediction is that completed RIs, or RIs with a past tense reference, do not occur. Though a small number of completed RIs does appear, nearly all (between 83-100%) nonmodal RIs refer to ongoing, that is here-and-now, events. About the very few completed RIs that do occur, I can remark the following. The cases in table 5 in which the number of completed RIs is relatively high, contain examples of repetitive use of RIs: the completed RIs of Josse are without exception formed with the verb *hoesten* 'to cough', Laura uses *zwemmen* 'to swim' 2 times, *spugen* 'to throw up' occurs 2 times in Matthijs completed RIs and Peter uses *pakken* 'to get' 3

times as a completed RI. If the repetitions are excluded from the analysis, there are hardly any completed RIs left.

The second prediction is that nonmodal RIs occur more frequently as one-word utterances than modal RIs do. All children except for Peter show this pattern: 30-78% of the nonmodal RIs is a one-word utterance whereas 16-43% of the modal RIs contains only one word. Figure 1 shows the distribution per child: per child the percentage of one-word nonmodal and modal RIs relative to the total number of respectively nonmodal and modal RIs is given:

Figure 1: *Nonmodal/Modal Distribution of One Word RIs*

1. Nonmodal/Modal Distribution of One Word RIs

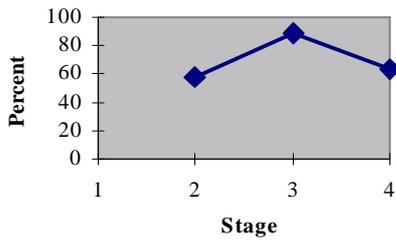


This suggests that there may be a connection between being nonmodal and appearing as a one-word utterance. Peter is an exception, being the only child who does not show this difference: nonmodal RIs are more often one-word utterances as modal RIs are. This, however, could be due to his repetitive volitive (i.e. modal) use of verbs like *stappen* ‘to walk’, and *koken* ‘to cook’.

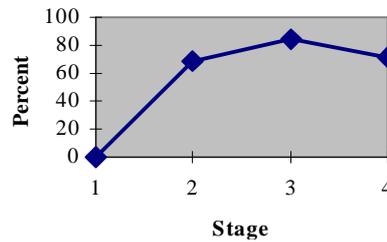
The third prediction focuses on the development. As modal RIs are supposed to occur as an effect of the less prominent use of deixis which reveals grammatical properties¹³, it is predicted that their number increases in time. The number of nonmodal RIs, on the other hand, should decrease. As described in paragraph 5.1, the data in Table 2 represent four stages. A re-analysis of the data in which the stages are taken into account shows that the proportion of modal and nonmodal RIs varies over time. Strikingly, the connection between modality and RIs does not appear *until stage three* (when the number of RIs and finite constructions is equal, the ‘optional infinitive’ stage¹⁴). It is not until this stage that there is a significant difference between the number of nonmodal and modal RIs. This counts for all children, again except for Peter, whose data I will discuss later on. Behrens (1993) found the same pattern in German child language. In the early stage (age 1;9) there is no preference with respect to the temporal reference of RIs: 28% can be interpreted as ongoing and 28% as non-ongoing. In the last stage (2;7) there is a clear difference: 11% is ongoing whereas 85% is non-ongoing.

Figures 2-7: *Developing Modal RIs*

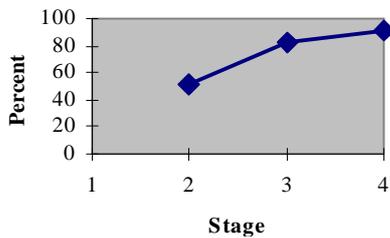
2. Abel's Modal RIs



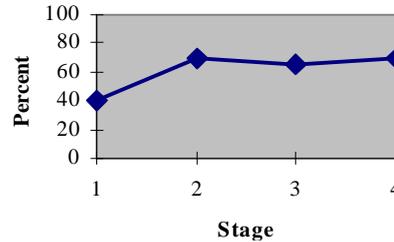
3. Daan's Modal RIs



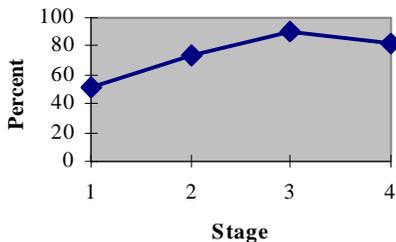
4. Josse's Modal RIs



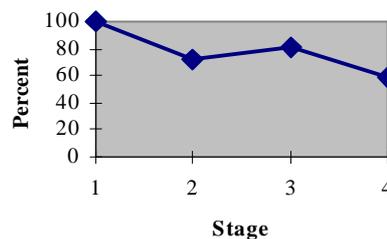
5. Laura's Modal RIs



6. Matthijs' Modal RIs

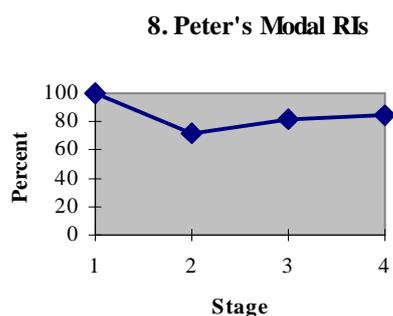


7. Peter's Modal RIs



Peter's graph suggests a decrease of modal RIs, while the relative number of nonmodal RIs seems to rise. This pattern, however, may be deceptive. A closer look on the data brings two relevant issues into light. As mentioned before, Peter tends to use certain lemma's repetitively (mostly in volitive contexts). He does this extremely frequently in the file representing the first stage. In this file *stappen* ('to walk') appears 18 times and *koken* ('to cook') appears 6 times, both only to express that Peter wants to walk or cook. As the total number of RIs in this file is 26, it seems reasonable to assume that the data are not wide-spread enough to draw any conclusions. Also, one of files representing the fourth stage contains nearly 50% (9 out of 19 RIs) highly elliptic RIs. These appear when Peter and his mother are reading a book. Every time they encounter a new picture, his mother asks Peter *what's X doing?* Peter answers with a bare infinitive (which is, in fact, exactly the same as adult speakers of Dutch would do). Although sessions in which the caregiver and the child are reading a book together are frequent, this is the only file in which such highly elliptic RIs are disturbing the results. Figure 8 is corrected for this:

Figure 8: *Peter's Developing Modal RIs (corrected version)*



In conclusion to this section I must point out that the second and third prediction may be correlated. The number of nonmodal RIs decreases as an effect of development. Modal RIs are more frequent in a later developmental stage. So, the fact that modal RIs are more complex than nonmodal RIs could be an effect of development. This has to be resolved in future research.

5.4 Summary and Discussion

In this section two claims have been tested empirically. First, the connection between modality and infinitive verb forms is checked by 1) comparing utterances with verbs to utterances without a verb and 2) by comparing utterances with simple finite lexical verbs to RIs. Although children use verbless utterances in modal contexts and RIs in nonmodal contexts, the two categories show a reverse pattern. Children tend to use utterances that lack a verb in nonmodal contexts and RIs, as opposed to utterances with a simple finite verb form, in modal contexts. In general, these findings support H&H's Modal Reference Effect, though nonmodal use of RIs is not excluded.

The second claim, formulated as the Change of Category Hypothesis, focuses on a basic distinction between modal RIs and nonmodal RIs. The underlying assumption is that nonmodal RIs are [+N] whereas modal RIs are categorized as [+V]. The first prediction, namely that nonmodal RIs are restricted to here-and-now events, is borne out. Second, it was predicted that nonmodal RIs predominantly occur as one-word utterances while modal RIs consist of more than one word. The results show a significant difference between modal and nonmodal RIs which could be interpreted as a reflection of a different representations of the two types of RIs. However, it could also be an effect of development. Moreover, it is a rather imprecise result: sometimes nonmodal RIs contain more than one element and a more detailed study is required to establish whether there is a difference in context in which modal and nonmodal infinitives are used. The categorical labels [+V] and [+N] may lead to rather specific predictions in this respect. Development brings us to the third prediction. With respect to the connection between modality and infinite morphology, an analysis based on developmental stages led to an interesting finding. The relation between modality and infinite verbs does not exist from the 'beginning'. Not until the optional infinitive stage do children use RIs significantly more frequent in modal than in nonmodal contexts.

If we follow H&H's framework and assume that infinitives in Dutch are inherently [-realized], it must be explained why this feature is not always present or does not always receive an interpretation. In doing so, I return to the Change of Category Hypothesis. As the developmental graphs have shown, the OI stage plays a crucial role for the identification of infinitives as verbs. In the OI stage children acquire finiteness. In Dutch, finiteness is a specific property of verbs. This could mean that children have to learn finiteness before being able to recognize infinitives as verbs. Why should Dutch children initially categorise infinitives as nouns? This is an important question as an explanation based on re-analysis by children points to a position in the continuity debate: there are stages in which the child grammar differs from the adult grammar i.e. language acquisition is a discontinuous process. Discontinuity can easily occur if it concerns the categorization of infinitives in Dutch. The 'verbness' of infinitives is not as straightforward as often is assumed. Infinitives in Dutch have only one unambiguous property which reveals their verbal character: they have finite (i.e. tense-marked/agreeing) counterparts. Morphology, for example, is not a sufficient cue, as the nominal plural suffix in Dutch could be *-en* like in *boek - boeken* ('book - books'). Syntax is rather confusing too, as Dutch allows a construction in which the infinite verb is preceded by a definite determiner, see (23):

(23) Wat ben je aan het doen? Auto's vernielen

What are you PREP DEF-DET do-INF? Cars smash-INF up
'What are you doing? Smashing up cars'

Not only can infinitives in Dutch follow a determiner, they can also become nominal without changing appearance. This is shown under (24):

- (24) Baden in karnemelk deed Suzanna bij voorkeur in het weekend
Bathe-INF in buttermilk did Suzanna by preference in the weekend
'Bathing in buttermilk was something Suzanna preferred to do in the weekend'

In Dutch finiteness is a property of verbs. As soon as children realize that the infinite and finite form of a verb concern the same lexical item (formally distinguished by morphology), infinitives will be categorised as verbs. This happens in the OI stage. At this point, I want to turn to H&H's hypothesis. H&H assume that infinitival morphology marks [-realized]. This assumption implies that children recognize stem and suffix, because no suffix means that there is nothing to connect [-realized] to. This situation describes the stage before the OI stage. Before the OI stage, Dutch children do not identify infinitival morphology as such. Therefore, there is no suffix that could mark [-realized]. This accounts for the finding that the association between modality and the infinite main verb does not appear from early on, but arises in the OI stage.

6 Concluding Remarks

This paper started with an overview of current theories that explain modal RIs in Dutch and German child language. Hoekstra and Hyams' (1998) recent proposal was singled out and discussed in more detail. This led to many new questions about child language, form-function correlations and cross linguistic differences. The second part focused on the empirical base of the theories which account for modal RIs. First of all, it was shown that the connection between modality and infinitive verb forms does exist, although there is also a relatively large number of nonmodal RIs. In H&H's view nonmodal use of RIs should be excluded. If, however, modal and nonmodal RIs are analyzed differently, this problem may be solved. I proposed that modal RIs are [+V] whereas nonmodal RIs, being deictic expressions, are [+N]. Data of six Dutch children seem to support this proposal. Though maybe not immediately obvious, the claim that infinitives are initially analyzed by children as nouns seems feasible. In Dutch, morphology is the only unambiguous cue for children to classify infinitives as [+V]. My claim is that children have to be able to alternate between finite and nonfinite morphology to recognize infinitival morphology. This ability is acquired in the OI stage. Strikingly, in the OI stage RIs become modal. If it is true that children do not recognize infinitival morphology before the OI stage, this finding supports H&H's claim that [-realized] is connected to infinitival morphology.

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¹ By using the term 'exclamative' for this type of RIs, I follow Grohman and Extepare (to appear). Taken as a whole, exclamative RIs are not (rhetorical) questions but rather descriptions of a "hypothetical event" (Akmajian 1984). Crucial is that exclamatives always consist of two parts. The first part describes the event (in the form of a rhetorical question), whereas the second part expresses that the truth of this event is very improbable. Lasser (1997): "they [i.e. exclamatives] contain the specific presupposition that, from the point of view of the speaker, the proposition expressed is false or at least debatable" (p. 40).

² This observation is supported by Lasser's (1997) findings for German child and adult RIs. Lasser divided her data into declaratives, interrogatives and imperatives. One of the differences she found between German adult and child RIs, was that the adult use RIs most frequently as imperatives while children use them most often as declaratives. Though declaratives and assertions do not refer to the same, the notions are closely related. As Clark (1996) puts it: 'To assert something, you choose a declarative' (p. 136).

³ Opinions differ with respect to the treatment of volition as modality or as a modality-related category. For example, Givón (1984), Chung and Timberlake (1985), Palmer (1986) and Bybee and Fleischman (1995) include volition in their usage of the term modality, while De Haan (1987) and Anderson (1986) exclude volition from it.

⁴ The two paraphrases, as well as the distinction between volitive and deontic modality, may suggest two different 'core' meanings here. However, I do not want to make this claim here. As described by Lyons (1997), both child usages can have one source: 'The origin of deontic modality, it has often been suggested, is to be sought in the desiderative and instrumental function of language: that is to say, in the use of language, on the one hand, to express or indicate wants and desires and, on the other, to get things done by imposing one's will on other agents. It seems clear that these two functions are ontogenetically basic, in the sense that they are associated with language from the 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'; and parents will commonly interpret the child's early desiderative utterances as mands, thereby reinforcing, if not actually creating, the child's developing awareness that he can use language in order to satisfy his wants and desires.' (p. 826)

⁵ Ferdinand (1996) analyzed nonfinite utterances in French child language along the same lines, though she explicitly assumes a covert modal or aspectual auxiliary. This modal or aspectual auxiliary accounts for the use of eventive verbs in these nonfinite utterances. Ferdinand's observation for French that certain modalities co-occur with eventive infinitives, re-appears as Hoekstra and Hyams (1998) explain the meaning of RIs in Dutch and German child language (see section 2.3).

⁶ Note that Ferdinand (1996) makes this connection too.

⁷ It is motivated by its compact and efficient description of the predominant meaning of RIs in child Dutch and German.

⁸ This was pointed out to me by Sjef Barbiers.

⁹ Among some generative linguists, however, a less strict definition of epistemicity is used. Here, modal verbs can have epistemic and 'root' meanings which differ structurally. Ross (1969), for example, claims that epistemic modals are one-place predicates that predicate over the whole sentence. It could be argued that this happens in (10). By contrast, the root modal *willen* in (i) is a two-place predicate expressing a wish of the subject.

- (i) Marie wil een appel eten
Mary wants to eat an apple

¹⁰ Hoekstra and Hyams themselves use results from Ud Deen (1997) who found that 13% of the RIs of English speaking children were modal. These modal RIs in English are contradictory to Hoekstra and Hyams' account as the infinitive in English should receive a [+ perfective] interpretation.

¹¹ I am grateful to Yvonne Steeneveld, who did most of the coding.

¹² The proposed strategy as applied by the children may be comparable to Roeper and Pérez-Leloux' (1997) proposal: 'Another possibility is that the child chooses a radically different structure and the correct

interpretation is obtained pragmatically. For instance, a nominal compound is selected, and there is no grammatically marked temporal reference. For instance, if one walked into a nursery room and one said “Ah finger-painting”, one might refer to an ongoing activity, but the utterance itself contained no tense-marker. In principle, this says that if the grammar cannot generate a more explicit output which refers to Tense and is consistent with economy, then the child may choose an altogether different structure and rely on contextual inference to convey the remaining information.’ (p. 129)

¹³ See Blom and Wijnen (2000) for more discussion about the question whether [-realized] is an inherent or a learnt feature.

¹⁴ I am using this term only to refer to a certain point in the development in which the amount of infinite and finite constructions is approximately equal. There are no theoretical implications.