The acquisition of Dutch syntax

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1. Introduction

1.1 History

The systematic study of Dutch children's syntactic development is fairly young. In the first two decades of the 20th century, some linguists published observations about the linguistic development of their own children (de Vooys 1916, van Ginneken 1917, Tinbergen 1919). These studies were based on diary notes. They are rich in observation, discussing phonological, morphological, lexical, syntactic, and semantic aspects of the children's linguistic output. But apart from these 'incidental' studies, hardly any research on Dutch children's syntactic development appeared until the 1960s. The late 1960s and the 1970s saw a number of studies of Dutch child language that were heavily influenced by psycholinguistic studies in the United States (see Van Besien 1981 for an overview).

In the 1980s, a new variety of research into the acquisition of syntax was born. This 'modern' approach is firmly grounded in a particular theory of language, Generative Grammar. There is a vast literature on the syntax of adult Dutch within this framework. The major impetus for the outburst of language acquisition research was provided by Chomsky's (1981) introduction of the Principles and Parameters framework as a model for the description and explanation of cross-linguistic variation and language acquisition. In the rest of this introduction, we will introduce the basic philosophy of the paradigm.

1.2 The logical problem

The Principles and Parameters (P&P) framework (and Generative Grammar in general) aims to be an *explanatory* theory of linguistic *competence*. Linguistic *competence* refers to what people know (consciously or unconsciously) about their grammar. So, rather

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than being a theory about what people say and understand, the theory deals with people's knowledge of which expressions are grammatical in their language and which are not. According to P&P, language acquisition is at the heart of the domain that should be explained in any theory of language. The problem requiring explanation is the *logical problem of language acquisition*, informally formulated in (1).

(1) *How is language acquisition possible in principle, given the fact that the linguistic input to the child underdetermines the (adult) linguistic competence that the child attains?*

Let us elaborate briefly on how the linguistic input underdetermines the knowledge the child arrives at. The first thing to notice is that the child's input consists of a finite number of sentences. Adult linguistic competence involves the capacity to form an *infinite* number of new sentences. Even in that sense alone, the child acquires a linguistic system that is richer than the linguistic input. The second thing to note is that the linguistic input to the child does not involve information regarding *ungrammaticality* or *ambiguity*. Though adult speakers of a language know that some sentences are grammatical and others are not, this knowledge is not exemplified by the linguistic input to the child. The same holds for ambiguous sentences (sentences with more than one meaning).

In order to bridge the gap between the input to the child and the grammar that the child constructs, P&P assumes that the child is helped by an innate capacity to acquire language, called *Universal Grammar (UG)*. The idea is that the human brain is somehow predisposed to form linguistic representations. Another way to formulate this is that, since human language is not found in other species, it must be something about the structure of the human mind that enables human beings to 'have' language, and that enables them to acquire it. That 'something' is called UG. UG makes language acquisition easier by constraining the types of hypotheses children may formulate about the grammar of their native language. By implication, the theory of UG should be able to account for the acquisition of every natural language. Hence, cross-linguistic variation should fall within the boundaries defined by a correct theory of UG. Theories of UG are usually based and tested on studies of adult linguistic systems. Theoretical linguists try to formulate the general principles underlying adult grammatical systems while taking into account the possibilities of cross-linguistic variation. The P&P view of UG holds that some parts (the principles) of the innate language faculty are invariant. Every language displays them. Other parts (the parameters) vary within particular limits. Children do not need to learn anything about the principles. For the parameters, however, the child must choose from the possible values on the basis of the evidence provided to the child in the input.

In this review of the acquisiton of Dutch syntax, we will first try to establish in which domains learning occurs. The question formulated in (2) will serve as a guide.

(2) *How similar or dissimilar are child Dutch and adult Dutch?*

The P&P framework imposes clear demands on the types of explanations put forth in

the domain of language acquisition. The aim is to formulate explanations for the developmental facts from any particular language (in our case, Dutch) that are consistent with linguistic development in other languages. A second central issue is therefore formulated in (3).

(3) *What does the study of Dutch linguistic development reveal about language development in general?*

In what follows we present an overview of the issues that have been addressed in modern studies into the acquisition of Dutch syntax. The focus is explicitly on areas that have been investigated, not on what remains to be done. For every domain we provide a sketch of the linguistic knowledge that adult speakers of Dutch possess. This is followed by a sketch of children's linguistic development. Finally, we discuss the various theories that have been proposed to account for the fact that children resolve the logical problem in the domain at hand. These theories sometimes require reference to the acquisition of other languages, as has become clear from the above. It will become clear that an account of children's resolution of the logical problem is not always the same as an account of the developmental path they follow. Ultimately, a theory of language acquisition should obviously be able to deal with developmental patterns (the developmental problem) as well as with the logical problem.

2. Word order and sentence structure

2.0. Introduction

Perhaps the main reason for thinking of syntactic development as *development* is that children's utterances grow (sometimes very rapidly) in length and complexity. It is obvious that, as the child's verbal repertoire comes to include two- and multi-word sentences, a system is emerging that controls the combination of words into strings with a composite interpretation, in other words, a grammar.

We start our review by summarizing research that addresses a very basic and hotly debated issue: what is the nature of this early, emerging grammar? We approach this question from the perspective of generative grammar, and thus focus on the extent to which Dutch children's early language production complies with presumed universal principles of syntactic representation. A question that will figure prominently in our discussion is whether early syntax comprises so-called *functional* categories, that is, categories specifically associated with (morpho-)syntactic features. A classical observation is that children omit 'grammatical morphemes' (Brown 1973) such as determiners and tense and agreement markers, which modern syntactic theory connects with the heads of functional categories. The absence of particular morphemes by itself is not sufficient to conclude that children do not possess the necessary representations. Other explanations —phonological constraints, processing effort (see section 3)— are conceivable.

However, functional categories are also crucially involved in syntactic processes such as movements of verbs and noun phrases. Some of these processes are prominent

in Dutch grammar, and these will form the anchor points in this section. We will deal with the available data on verb placement, notably *verb second* and its associated word order variations, *scrambling*, i.e., the optional displacement of object noun phrases vis-a-vis a negator or sentential adverb, and *question formation*. Furthermore, we will briefly go into the acquisition of subordination.

2.1. Verb placement

A central issue in the study of Dutch syntax acquisition has been the acquisition of verb placement. As was pointed out in the introductory chapter of this volume, Dutch has an *SOV/V2* typology. Recapitulating very briefly, this means that there are two positions for verbs in Dutch sentences. The first is the sentence-final position (disregarding extraposed prepositional phrases and the like), to the right of the verb's object (if there is one). This has traditionally been considered to be the basic position (Koster 1975). The second one is the 'Verb Second' position, in the left periphery of the sentence, preceded by at most one other constituent. We will not go into the rules of verb placement in any detail, as these are not essential to our argument. It suffices to note that Verb Second is restricted to *finite* verbs in independent (matrix) sentences (or clauses).

We will take as our point of departure the assumption, extensively argued for by generative syntacticians, that Verb Second is the result of movement[1] of the verb out of its base position in the verb phrase to a functional head dominating that projection (see Haegeman 1994 for an overview). There is an ongoing debate on what the target of this movement operation is. Sentences are usually considered to be projections of the category Comp(lementizer), or CPs. Below this topmost projection and above the verb phrase (VP) a 'shell' of intermediate functional categories is usually assumed to exist, each of which is associated with a specific morphosyntactic feature, e.g. Tense (the Tense Phrase), Agreement (the Agreement Phrase), etc. Hypotheses on sentence representation vary on, among other things, the number and nature of these categories. For Dutch, the 'traditional' assumption has been that verbs move to the head of the CP, i.e., *COMP* (Den Besten 1977). More recently it has been proposed that the verb can also move to a sub-ordinate head (AgrS or Infl) in particular conditions (Zwart 1993). Irrespective of the exact nature of the functional head associated with Verb Second, the sentence-initial constituent (subject or otherwise) in verb-second structures is assumed to attain its position through movement as well (namely, to the so-called *specifier* of the head hosting the verb). The tree in (4) illustrates these points, omitting irrelevant details.

The general approach taken by the acquisition studies to be reviewed below has been to try to determine to what extent the syntactic surface patterns of early Dutch

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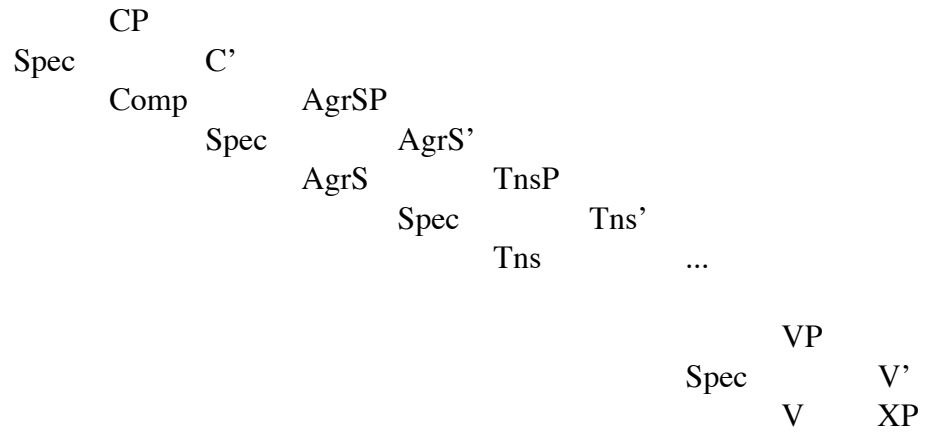
[1] The (transformational) generative framework has been criticized on the basis of a lack of 'psychological evidence' (e.g. processing effort) for syntactic movement. This is unjustified, at least in so far as the more recent versions of the theory are concerned. 'Movement' is a metaphorical term, used to denote the association of the syntactic position where a constituent receives its morphosyntactic attributes with the position where it is assigned, or assigns, its thematic role(s).

child language mimick those in adult language. Among the questions that have been addressed are the following: at how many and at what structural positions do verbs occur? Does position affect the morphology (finiteness) of the verb? Can all verbs occur in every position, or are there morphological, semantic or other distinctions? With what types of other constituents can verbs in different positions combine? We will see (section 2.1.1) that the research results accumulated so far allow for a number of relatively reliable empirical generalizations. What these generalizations mean with regard to the nature of the child's early syntax, however, is still a matter of much dispute, as section 2.1.2 will briefly illustrate.

(4)



2.1.1. The Development of Verb Placement

Van Ginneken (1917) was possibly the first to record that the infinitive is the earliest verb form in Dutch child language. He also noted that in combinations of a (pro)nominal and a verb, the verb usually takes the final position, and that the function of the initial nominal phrase can be both *agentive* ('subject') and *passive* ('object').[2] Van Ginneken's observations have been confirmed by Verhulst-Schlichting (1985), Bol (1995) and Wijnen (1995a, b), who all describe an early phase in the acquisition of syntax during which verbs virtually only appear in the infinitive form, and mostly in utterance-final position (examples 5).

(5) a. voor Debbie geven (Jasmijn 2;0.18)
for D. give
'give to Debbie.'

b. ik zelf doen (Jasmijn 2;0.20)
I myself do
'I want to do it myself'

[2] Van Ginneken explicitly assumes a continuity between this type of child utterance and the small clauses (i.e., simple combinations of a nominal argument and a verbal or other lexical predicate) of adult grammar, which also fail to distinguish between an 'active' and a 'passive' role of the nominal argument. This idea was recently revived by, among others, Radford (1990).

A possible conclusion from this observation is that Dutch children learn the base position of the verb before anything else. Language input might be a crucial factor here. Klein (1974) reports that Dutch mothers display a preference for SOV-word order in child-adressed speech, often achieved by the use of —sometimes pleonastic— auxiliaries (as in e.g. *eendje gaat broodjes eten he?* 'duckie is eating bread'). He suggests that young children imitate their mothers' preferred word order but leave out the auxiliary.

Descriptive cross-sectional studies of Dutch morphosyntactic development, (Verhulst-Schlichting 1985, Bol & Kuiken 1988, Bol 1995) indicate that the next stage is marked by the appearance (or by a significant increase in number) of constructions with a single verb occurring in a left-peripheral (first or second) position (examples 6). In such utterances, the shape of the verb usually corresponds with that of an adult finite equivalent. Roughly at the same time, bare participle forms in sentence final position start to occur (ex. 7).

(6) a. zit vuilniswagen in (Peter 2;0.7)
sits garbage truck in
'there is a garbage truck in it'

b. Peter kan [schwa] bij (Peter 1;11.3)
P. can by
'Peter can reach it'

(7) Peter emmer daan (Peter 1;10.3)
P. bucket done
'Peter put (it) (in) (the) bucket'

The third stage is marked by the appearance of complex predicates. In these constructions, one verb has finite morphology, and occurs in first or second position and the other, with nonfinite morphology, occurs in sentence-final position. The sentence-final verb can either be an infinitive or a past participle (examples 8).

(8) a. doe je ook handje geven (Jasmijn 2;5.27)
do you also hand give
'Are you shaking hands too?'

b. ik heb die gevonden (Niek 3;1.17)
I have that+one found
'I found that one'

Importantly, Dutch children err very infrequently with regard to the correlation of position and (non)finite morphology. Note however that the term 'finite' as applied to Dutch children's verb forms in the early stages described so far should not be taken to imply that tense and agreement marking have been mastered. As to agreement, it is difficult to decide at what point Dutch children master this, since the singular forms are morphologically very much alike (and the crucial suffix is often elided both in adults' and children's speech), and plural forms are virtually non-attested in the early stages

(Jordens 1990, Wijnen 1993a, b). The development of tense marking has not been systematically studied, but the sparse data indicate that first productive uses of simple past tense occur relatively late, most likely around age 3, on average (Verhulst-Schlichting 1987, Bol & Kuiken 1988). In relative terms, past tense forms are not observed until after the acquisition of the Aux-V predicate, when the proportion of nonfinite matrix verbs (see below) has dropped to a near adult level (De Houwer 1987, Wijnen & Bol 1993). The past participle in Dutch child language might be a past-tense denoting form, although it seems more likely that it has the aspectual meaning of completedness (Jordens 1990). De Haan and his co-workers (de Haan & Frijn 1992, de Haan, Frijn & de Haan 1995) argue that the distinction between finiteness and non-finiteness in the early stages (before V2 has become productive) is reduced to a phonological length contrast. Finite forms are monosyllabic, nonfinite forms (generally) disyllabic. Having said this, we will nonetheless for convenience continue to use the terms 'finite' and 'nonfinite' to refer to verb morphology.

In the early finite sentences both subject-verb and verb-subject orders are attested. There is some unclarity as to the first appearance of finite sentences with non-subject constituents in first position. Verhulst-Schlichting (1985) claims that subject-initial structures (6.b, 8.b) are prior to non-subject-initial structures, both for simple (6.a) and complex (8.a) predicates. Bol (1995) suggests that non-subject-initial structures may appear earlier as well as later than subject-initial ones. Neither Bol nor Verhulst-Schlichting discriminate between initial non-subject *arguments* and other (adjunct) phrases (e.g., adverbs such as *daar* 'there', *nu* 'now', *zo* 'in such a way', etc.). Both inversion-questions and WH-questions appear after non-subject-initial structures are attested, although the studies differ as to the exact placement of these in the acquisitional sequence. In part, the differences between Verhulst-Schlichting's and Bol's results may be due to differences in methodology (see Bol 1995, for details).

Longitudinal single case studies corroborate as well as complement the cross-sectional results. Jordens (1990), in an analysis of diary data from his daughter Jasmijn (at 2 and 2.5 years of age) and Wijnen (1995a, b), who analyzed taperecorded spontaneous speech of two boys (Peter, 1;9-3;1 and Niek, 2;6-3;4) found that in all three children nonfinite, sentence-final verbal predicates ([S]...$V_{nonfinite}$; ex. 5) are predominant at first, to the virtual exclusion of finite verbs. Wijnen observes that the first finite verbs are almost without exception modals (6.b), and that the earliest finite constructions either lack a subject or have verb-subject (i.e., 'inversion') order (6.a). Subject-initial finite constructions appear later. The same appears to hold for complex predicate (auxiliary plus main verb) constructions. In these early 'inversion order' structures, either the finite verb, or an adverb (locative or manner) is in first position. Object topicalizations and WH-questions are at this point not attested. They come in after subject-initial sentences with complex predicates are regularly used.

The question whether the two verb positions (sentence-final and V2) are syntactically related can be addressed by looking at children's treatment of separable particle verbs. The interesting feature of these verbs in this connection is that movement in V2 contexts only applies to the finite verbal part of the compound. The particle remains in sentence-final position (as in example 9.c). Thus, if a particular particle verb occurs both as an infinitival compound in sentence-final position, and as a finite form,

whereby the verbal part and the particle occupy the V2 and sentence-final positions respectively, this would suggest the operation of syntactic movement.

(9) a. papa uit (Jasmijn 1;5.4)
daddy out

b. Mijnie vast houden (Jasmijn 1;9.29)
Jasmijn hold
'J. (wants to) hold'

c. doe jij die aan (Jasmijn 2;0.19)
put you that+one on
'put on that one'

It is generally reported that in the early stages of syntactic development, children use verb particles as autonomous predicates (Verhulst-Schlichting 1987, Wessel 1995, Bennis, den Dikken, Jordens, Powers & Weissenborn 1995; example 9.a). Wessel (1995) notes that in Jasmijn (1;5.5-1;8.26, Jordens' diary data), Arnold (1;10.18), Maria (1;10.18), Diederik (1;10.18) and Gijs (1;8.29) (corpora collected by Schaerlaekens 1973) both the orders particle-noun and noun-particle occur, although the canonical adult order (noun-particle) dominates. Particle-plus-verb compounds usually first occur after simplex verbs have already been used regularly. Full particle verbs first occur only as non-split nonfinite sentence-final forms (Broihier, Hyams, Pesetsky, Poeppel, Schaeffer & Wexler 1993, Wijnen 1993a; example 9.b). The first occurrence of split particle verbs (example 9.c) is very close in time to the appearance of the complex (auxiliary plus main verb) predicate (Wijnen 1993a).

Another window on the existence of verb movement in the child's grammar is the distribution of verbs (lemmas) across sentence-final and sentence-initial position. Longitudinal analyses indicate that in the early stages, particularly before the emergence of the complex predicate, verbs appearing as finite forms and verbs appearing as nonfinite forms may constitute non-overlapping sets. De Haan (1986, 1987) claims that finite verbs and nonfinite verbs are not only bound to distinct structural positions, but are also semantically distinct. Finite verbs express time or modality, nonfinite verbs denote action or change. Wijnen's (1995b) observations resemble those of de Haan. Jordens' (1990) generalization is that position and morphology are correlated with *Aktionsart*. Left-peripheral finite verbs are either *statives* (10.a) or *resultatives* (10.b). In the latter case, they denote 'non-completedness'. Verbs that appear in final position with infinitival morphology denote *activities* that have not been completed (10.c). Sentence-final verbs with past participle morphology are either *resultatives* or *activity* verbs, and mark *completedness* (10.d).

(10) a. poppie heef(t) dors(t) (Jasmijn, around age 2)
dollie has thirst
'dollie is thirsty'

b. ik valt (Jasmijn, around age 2)
I falls
'I'm falling'

c. poppehuis spelen (Jasmijn, around age 2)
doll house play
'(want to) play with the doll house'

d. ikke ooievaar (ge)kregen (Jasmijn, around age 2)
I (have) stork got
'I got a stork'

A pertinent question in this context is whether the overlap between the two sets of verbs increases over time, which might reflect the emergence of Verb Second. Jordens (1990) reports that at age 2, his subject Jasmijn had 89 different main (thematic) verbs, of which 10 (11.2%) occurred both as finite and non-finite forms. Six months later, the number of verb types had risen to 127, and the overlap set still contained only 14 items (11%). These statistics are not cumulative, however, although cumulative counts are necessary to draw valid conclusions with regard to developmental change. Wijnen (1994, 1995b), using cumulative statistics, reports a zero overlap in Niek up to age 2;8 and in Peter up to age 1;10.17, and a subsequent gradual increase.

After finite verbs have entered the child's repertoire there is a period of variable length during which children continue to use nonfinite matrix verbs in a way that is ungrammatical from the adult point of view (e.g. in declarative expressions containing a lexical subject as in 5). Thus, there appears to exist free alternation between (overtly) finite and non-finite verbs. For instance, Wijnen (1994) observed that after the appearance of, e.g., *staat* 'stands' in V2 position children go on using the infinitive *staan* '(to) stand' sentence-finally as a matrix verb. Similar observations have been made for German (Clahsen 1990), and several other languages (Wexler 1994). This can be seen as an instantiation of what Wexler (1991, 1994) has termed the 'optional infinitive stage'.[3] Cross-sectional data indicate that the optional infinitive stage may last until approxiately age 3;6 in Dutch-speaking children (Wijnen & Bol 1993).

The longitudinal studies indicate that the decrease in frequency of nonfinite sentences is non-linear. As pointed out above, the percentage of nonfinite sentences may be close to one hundred right after the onset of multi-word utterances, and decrease very slowly over the subsequent weeks or months. Jordens (1990) and Wijnen (1995a) have noticed a sharp drop in the proportion of nonfinite constructions after the appearance of complex predicates, i.e., some three to four months after the first multi-word utterances are produced. Another three to four months later, the percentage of nonfinite sentences will typically have dropped to five and stay at that level (Wijnen 1995a). At this time Dutch children are reported to show a distinct tendency constructing finite sentences with the aid of auxiliaries such as *doe(t)* 'do(es)' and *ga(at)* 'go(es)', rather than by conjugating and moving the lexical verb (Jordens 1990, Evers & van Kampen 1995, Hollebrandse & Roeper 1996). In many of these cases, the

[3] The evidence available so far suggests that an 'optional infinitive stage' occurs only in children acquiring languages that do not allow *pro-drop* (grammatical non-realization of subject pronouns). When the target grammar allows *pro-drop*, optional infinitives in child language seem to be ruled out (Wexler 1995). Parenthetically, for Dutch child language, 'optional infinitive' is not an ideal term, since as we have seen past participles may constitute the matrix predicate during this stage besides infinitives.

auxiliaries appear to be 'dummy' forms (or 'expletives'), since they do not contribute to the meaning of the utterance (as in 11.a), or add an unjustified aspectual feature, as in 11.b and 11.c.

(11) a. hij doe huilen (Jasmijn 2;5.3)
he do cry
'he's crying'

b. poesje gaat hier blijven staan (Jasmijn 2;6.1)
kitty goes here remain stand
'kitty is staying here'

c. (q) *wat doet de postbode?*
what does the mailman?
'what's the mailman doing?'

(a) gaat brengen (Wouter 3;4.0)
goes bring
'(he) is delivering (the mail)'

Corpus data show that children are not necessarily ignorant of the relevant agreement forms. Possibly, access to the finite forms, or to the rules that create them, is effortful and (therefore) relatively slow. Alternatively, this preference for using auxiliaries might be a reflection of the language input, in which complex predicates are relatively common (Klein 1974, Wijnands 1993).

Dutch-speaking children's nonfinite sentences are ungrammatical or at best marginally grammatical in the standard language.[4] Consequently, it is puzzling that children are rather persistent in using them. Possibly, this ongoing use is functionally motivated. Root infinitivals and finite structures might represent distinct meanings or communicative intentions. Van Ginneken (1917) suggested that finite sentences are used to describe current states and events, whereas nonfinite sentences express desires and demands. Recent analyses confirm this. Krämer (1993) reports that a majority of infinitive utterances in (sections of) the corpora of Maarten (1;11.4 - 1;11.15, Gillis 1984) and Thomas (2;3-2;8, Elbers & Wijnen 1992) have a 'desire' meaning. Wijnen (1996) determined the meaning of 977 sentences with infinitive matrix verbs in corpora of Josse, Matthijs, Niek and Peter by means of a contextual analysis. The proportion of these structures that has a desire, demand or intention interpretation rises from 40-60% in the early transcripts (Josse 2;0, Matthijs 1;11, Niek 2;7, Peter 1;9) to virtually one 100% around the 25th week of observation (Josse 2;6, Matthijs 2;5, Niek 3;2, Peter 2;2). In adult Dutch, modal auxiliaries are most often used to express the desires, demands and intentions for which the children use infinitival constructions.

Next to interpretive differences, children's nonfinite sentences show some structural properties that not only set them apart from finite sentences, but also from nonfinite structures in adult language. Haegeman (1995) analyzed a large set of

[4] In colloquial adult Dutch, nonfinite sentence fragments without subjects can be used as elliptical answers to questions. Nonfinite sentences with subjects are acceptable as counterfactual exclamations ('mad magazine sentences') or in story-telling contexts.

utterances produced by Hein, from age 2;4 up to 3;1. She observed that there are almost no root infinitives with initial WH-phrases. Also, weak subject and object pronouns[5] are systematically absent from these constructions. By contrast, these elements do occur in the child's finite sentences, as well as in adult nonfinite sentences and clauses. This suggests that children's nonfinite sentences and finite structures have different representations.

Summarizing, it appears that at a descriptive level, the acquisition of Dutch verb placement and associated syntactic processes proceeds by and large in three phases. The first phase is characterized by a near absolute dominance (at least quantitatively) of nonfinite sentences. The onset of the second phase is marked by the appearance and subsequent numerical increase of finite verb forms in 'V2' (i.e., first or second) position. Up to this point, children's sentences have at most one verbal predicate. The appearance of sentences with *two* verbs, i.e., a finite auxiliary and a nonfinite lexical verb (complex predicate) marks the onset of the third phase, which seems to constitute a turning point in the acquisition of sentence structure. The appearance of the Aux-V predicate structure seems to roughly co-occur in time with the appearance of split particle verbs and an increase of the verb types occurring in both V2 and sentence-final position. Preposing (topicalization) of objects, as well as WH-phrases, seems to come in after subject-finite verb structures have become part of the productive repertoire. The rate of decline of nonfinite main clause (root infinitives) seems to increase at the onset of the third stage.

2.1.2. Theoretical Accounts of the Acquisition of Verb Placement and Evidence from Dutch Child Language

The acquisition data reviewed above are, so it seems, reasonably consistent. As such, they constitute a reliable testing ground for theoretical accounts of syntactic development. In this section, we will briefly review some theories and focus on their predictions for Dutch. All of them can be seen as universalist hypotheses, in that they seek to explain the patterns found in child language by recourse to principles and mechanisms considered to be universal to human language. Two subsets of hypotheses can be distinguished. The first is typified by the assumption that the child's syntactic representation is principally identical to the adult one, but that certain processes or categories are not yet obligatory. We will label this the 'full competence' approach. The second set of hypotheses share the assumption that clause structure representation is gradually extended and altered over time. We call this 'incremental acquisition'.

Full Competence. Boser, Lust, Santelmann and Whitman (1992) assume that young children know that independent sentences require a finite verb, and that such verbs have to occur in V2 position. On the face of it, the (frequent) occurrence of nonfinite sentences (root infinitivals) runs counter to these assumptions. The solution that Boser et al. propose is that root infinitivals contain a 'null auxiliary', i.e., a phonetically empty bundle of syntactic features (person, number, case), hosted by COMP, just

[5] Weak pronouns are phonologically reduced forms of personal pronouns, such as *'k* (from *ik* 'I') and *'m* (from *hem* 'him'), whose syntactic distribution most likely differs from that of their strong counterparts. See Haegeman 1995.

like an overt finite verb. This predicts that nonfinite structures with a topicalized non-subject (e.g., *in bedje beer slapen* 'in bed bear sleep$_{inf}$') would occur alongside topicalizations in *finite* sentences (*in bedje slaapt de beer* 'in bed sleeps the bear') which, however, is not confirmed. Boser et al. explain this by recourse to the universal Empty Category Principle, which in this case demands the presence of an overt subject in the specifier of the category hosting the null auxiliary. This in turn however would predict that root infinitives without overt subjects are illegal, which is clearly wrong. Also, the absence of weak pronouns and WH-phrases in root infinitivals is not accounted for.

For Wexler (1991, 1994), too, the main problem to solve is that children's grammars allow root infinitives. He proposes that both left-peripheral verbs agreeing in number and person with the subject, and right-peripheral non-agreeing verbs count as finite forms. Wexler argues that this double mechanism can survive as long as the feature *Tense* does not have referential value. Acquisition of the present-past distinction triggers referential interpretation of Tense, and this is predicted to rule out root infinitives. Data on the relative timing of the appearance of past tense forms in Dutch however do not support this prediction. Furthermore, again, the finding that root infinitives apparently are incompatible with both WH-pronouns and clitics seems to be problematic for Wexler's account.

Other than Wexler and Boser et al., Rizzi does not analyze root infinitives as full (partly non-overt) structures. In assigning a reduced structure to root infinitives, Rizzi's proposal resembles the Incremental Acquisition approaches. Rizzi (1992, 1994) proposes that children's grammars, in contrast to adults', allow 'truncation' of clause structure. In particular, root infinitives lack the node representing *Tense*, as well as the categories that dominate it, up to and including CP. Rizzi predicts that processes and elements associated with Tense and its dominating nodes (negation, subject and object clitics and WH-phrases) are absent in root infinitives, but present in finite sentences. Haegeman's findings provide some support for Rizzi's hypothesis, but the observed negations in root infinitives are problematic in view of the presumed absence of the functional head hosting sentential negation.

Generally, the assumption shared by these three hypotheses is that children's syntactic representations can be complete and adultlike. This assumption is advantageous, since it reduces the learning problem. From the empirical perspective, however, it seems to introduce a weakness, since it implies that all sentence structures allowed by the adult grammar should occur in child language from the very start. The data reviewed so far, though, point at a systematic extension of the repertoire of syntactic structures. Also, finiteness of verbs (and placement) is predicted to be truly optional; the *same verbs* should occur both as finite and nonfinite forms, which the data appear to deny, at least for the earliest stage. Perhaps the 'full competence' approach can be salvaged by assuming that the observed developmental pattern results from the fact that the realization of particular syntactic capacities depends on the acquisition of the appropriate lexical items. However, lexical acquisition as we now understand it is a nondeterministic process, which is at odds with the highly constant and predictable

order of syntactic acquisition.[6]

Incremental Acquisition. A basic tenet of de Haan's (1986, 1987) theorizing is that the early system underlying verb placement is *non-transformational*. The V2 operation has to be learned on the basis of distributional learning. Initially, finite and nonfinite verbs constitute distinct categories, labeled *Aux* and *V*, respectively. The increasing overlap between these classes, which comes about as a result of lexical learning, will induce morphological analysis (segmentation) of related verbal items, and the formation of inflectional paradigms. Consequently, *Aux* and *V* merge into a single category associated with both verb positions. A problem for this hypothesis is that there is no clear empirical support for a correlation between the acquisition of agreement morphology and Verb Second. Partly in response to this, de Haan (de Haan & Frijn 1992, de Haan, Frijn & de Haan 1995) has recently argued that the transition from the early system to adult competence is triggered by the discovery that finite (i.e., monosyllabic) verbs can (also) occur in sentence-final position (viz., in subordinate clauses).

Jordens (1990) assumes that children in general start to analyze formal (i.e., syntagmatic and morphological) patterns in terms of semantic distinctions. He proposes that the acquisition of modals and auxiliaries paves the way for Verb Second, because it allows a reanalysis of the distributional difference between finite and nonfinite verbs in terms of the presence or absence of an auxiliary or a modal. At this point, the child will be in a position to discover that morphology is not related to (the semantic category) 'Aktionsart', but to the (syntactic) notion of finiteness.

Wijnen's (1995a, b) hypothesis combines elements of both Jordens' and de Haan's proposals. Crucially, acquisition of Verb Second is presumed to depend on the appearance of periphrastic verbal predicates (Aux + V). The first auxiliary-main verb constructions are created by adjoining an auxiliary or modal to an S-O-V structure (see Roeper 1992, Hoekstra & Jordens 1994). The resulting structure allows the child to detect that grammatical subjects can occur both before and after the left-peripheral auxiliary. This enables an analysis of the subject's leftmost position as the specifier of a functional category. Consequently, left-peripheral auxiliaries must be verbal heads, rather than adjuncts. Distributional analysis (along the lines of de Haan) will clarify the relation of verbal elements appearing left-peripherally to the embedded position of the verb.

It is clear that de Haan's, Jordens' and Wijnen's proposals are highly similar, certainly in spirit. Each stresses the role of learning, involving semantic, morphological and distributional analyses in order to determine the nature of syntactic categories. The differences between the proposals seem mainly related to empirical issues. It is not yet clear whether the initial verbal categories are constant across individual children. More importantly, it is not even clear if *all* children initially have distinct classes of verbal elements. Also, the relation between increasing overlap and the acquisition of morphology is a matter of controversy.

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[6] It is conceivable, however, that language *intake*, and thus the acquisition of lexical material needed to 'flesh out' particular syntactic structures, is much more deterministic than is usually assumed (Wijnen & Elbers in prep.).

The strength of these accounts, viz., their descriptive adequacy vis-a-vis the actual data, seems to be their weakness as well. Although each of the three proposals is built on universalist assumptions (at least to a certain extent), one wonders what they have to say about the acquisition of languages other than Dutch (e.g., morphologically richer languages, see e.g., Sarma 1995). On the other hand, it is not implausible that developmental patterns are highly influenced by the specific characteristics of the target language, both as far as its grammar and patterns of usage are concerned.

An obvious problem is the 'optional infinitive stage', i.e., the period during which children seem to freely alternate finite and nonfinite matrix verbs. In both de Haan's and Wijnen's accounts, the re-analysis of the category hosting left-peripheral finite verbs would lead to an across-the-board disappearance of nonfinite matrix verbs. Wijnen presumes that the remaining root infinitivals are intended to incorporate modal auxiliaries, but that children for a long time struggle with the word form-modal semantics mapping, and consequently fail to supply the appropriate lexical items. Jordens claims that Verb Second is acquired in a 'piecemeal' fashion, which may explain the gradual fade-out of the optional infinitive stage. However, a prediction is that as soon as children show that their ability to apply V2 to verb *X*, they will stop using it as nonfinite matrix verb, which the available data seem to deny.

We end this section with a word on the issue of maturation. It has been suggested that the child's initial grammar lacks all functional categories, and that their emergence is the result of a maturational process (see, e.g., Radford 1990). Is such an account compatible with the Dutch data? The crucial prediction is that surface elements associated with the functional categories in question will all appear at the same time. A study by Ruhland, Wijnen and van Geert (1995), which employed dynamical modelling of language production data, clearly showed, however, that determiners and pronouns (the category Det) and verb inflections (Infl) emerge non-simultaneously. Also, they exhibit markedly different quantitative growth patterns, which is difficult to reconcile with maturation. For a conceptual critique of maturation, we refer to Verrips (1991, 1996).

2.2. Object scrambling

We have seen that Dutch grammar allows the direct object to move to the sentence-initial position. The overview in section 2.1.1 mentions that the first object topicalizations appear after the child has productive command of the complex (Aux-V) predicate with a sentence initial subject. This section deals with another instance of freedom of object placement, viz. *scrambling*, which refers to the apparently free positioning of the object vis-a-vis a sentential negator or certain adverbs. We deliberately use the term 'apparently', since closer scrutiny shows that the options are not really free. There are three positions for the object, exemplified in (12a-c).

(12) a. Jan heeft waarschijnlijk niet <u>het boek</u> gelezen
J. has probably not the book read
b. Jan heeft waarschijnlijk <u>het boek</u> niet gelezen
J. has probably the book not read

c. Jan heeft het boek waarschijnlijk niet gelezen
J. has the book probably not read
'John probably did not read the book'

Definite nominal phrases such as *het boek* 'the book' can occur in each of the three positions. However, there is a difference in meaning between on the one hand (12.a) and, on the other, (12.b) and (12.c). The negator *niet* 'not' in (12.a) has narrow scope (constituent negation), indicated by the fact that a plausible continuation of this sentence can be something like ... *maar de krant* ('but the newspaper').[7] The negator in (12.b) and (12.c) has wide scope (sentence negation). Proper names and so-called *D*-pronouns (*deze* 'this (one)', *dat* 'that (one)') behave just like definite NPs. Indefinite NPs and personal pronouns are different. Personal pronouns do not occur to the right of *niet* (except in contrastive usage, marked by stress on the pronoun; example 13.a), and a personal pronoun in between an adverbial like *waarschijnlijk* 'probably' and the negator (example 13.a, 13.b) is allowed only in marked cases. Example (13.c) instantiates the unmarked placement option for object pronouns.

(13) a. Piet heeft waarschijnlijk niet haar gezien
P. has probably not her seen
'Pete has probably not seen *her*'[8]
b. Piet heeft waarschijnlijk haar niet gezien
P. has probably her not seen
'Pete has probably not seen *her*'
c. Piet heeft haar waarschijnlijk niet gezien
P. has her probably not seen
'Pete has probably not seen her'

An indefinite NP in the rightmost position (example 14.a) is interpreted non-specifically, i.e., as referring to something unknown to both speaker and listener.[9] In the two other possible positions (ex. 14.b, 14.c), indefinite NPs have a specific interpretation.

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[7] This continuation would make sense for examples 12.b and 12.c only if *het boek* were contrastively stressed.

[8] Italics are used here to indicate that the structures in 13.a, 13.b are acceptable only if the object pronoun is stressed contrastively.

[9] Compare (i) and (ii) below. In (i) *een SFboek* refers to an unknown, unspecified book, as is clarified by the proper English translation 'that Saskia probably hasn't read *any* SF book'. By contrast, the indefinite NP in (ii) refers to a specific book, i.e., an SFbook from a particular set, e.g. the set of books for an exam (see Schaeffer 1995).

(i) dat Saskia waarschijnlijk niet een SFboek gelezen heeft.
that S. probably not a sci-fi book read has
(ii) dat Saskia waarschijnlijk een SFboek niet gelezen heeft.
that S. probably a sci-fi book not read has

(14) a. Niek heeft waarschijnlijk niet een (geen) boterham gegeten
N. has probably not a sandwich eaten
'Nick has probably *not* eaten a sandwich'
b. Niek heeft waarschijnlijk een boterham niet gegeten
N. has probably a sandwich not eaten
'Nick has probably not eaten a (particular) sandwich'
c. Niek heeft een boterham waarschijnlijk niet gegeten
Niek has a sandwich probably not eaten
'Nick has probably not eaten a (particular) sandwich'

In the ensuing overview, we will refer to the word order that corresponds to the *a*-examples above as the nonscrambled order, and to the other two as the scrambled order(s).

Schaeffer (1995) and Dokter (1995) have investigated the acquisition of these intricate rules by analyzing object-adverb order variations in the corpora of Niek (2;7-3;11), Thomas (2;4-2;11), Hein (2;4-3;1), Laura (2;0-5;5) and Sarah (2;1-5;2). In both studies, a sample of utterances containing temporal adverbs such as *even* 'just', *nu* 'now' and *morgen* 'tomorrow', manner adverbs like *zo* 'in this way', *nog* 'still', and spatial adverbs like *hier* 'here' were analyzed. Schaeffer also looked at *niet* 'not'.

(15) a. nog 'n bord ook opeten (Thomas 2;7.14)
another plate also eat up
'finish yet another plate'
b. ik heb een hoed ook op vandaag (Laura 4;7.30)
I have a hat also on today
'I have also a hat on today'

(16) a. ik maak even brug (Niek 3;2)
I make just bridge
'I'm building a bridge'
b. ik vind niet bietje lekker (Laura 2;10)
I find not beet nice
'I don't like (the) beetroot'

(17) a. ga je straks mij ophalen (Sarah 3;0.19)
go you later me pick up
'you'll pick me up later'
b. jij ga hier mij saaie (Laura 3;4.25)
you go here me wave+at
'you're going to wave at me'
c. jij even mij helpen (Hein 2;4.18)
you just me help
'you (have to) help me'

The data show that scrambled and nonscrambled word orders appear at roughly

the same age (between 2;3 and 2;5 in most cases). Just like adults, children use definite NPs both in scrambled and nonscrambled positions, although there is a prefererence for the nonscrambled position.[10] According to Dokter, both scrambled and nonscrambled word orders occur with each of the investigated adverbs. Indefinite NPs occur in scrambled positions (as in 15), but not very frequently so. It is difficult to determine whether they have a specific reading in these cases, as in adult language. Bare —i.e., determiner-less— NPs occur very frequently, particularly in the earliest of the analyzed samples. These phrases occasionally occur in scrambled positions, but the majority is nonscrambled (ex. 16). According to Dokter, scrambled bare NPs get a specific reading. Schaeffer does not address this issue directly, but her data seem to confirm Dokter's generalization.

The subjects of these studies at first do not scramble (personal) pronouns (ex. 17), despite the fact that this is a marked option in the target language. Schaeffer observes that as the percentage of noun phrases without a determiner decreases with age, the percentage of scrambled pronouns increases. She interprets this as an indication of a relation between the acquisition of scrambling and the acquisition of the distinction between specific and non-specific nominal expressions.

The results of an elicited imitation study by Barbier (1994) by and large confirms Schaeffer's and Dokter's observations. Barbier presented 66 children between 2;8 and 6;3 with 10 sentences in which either the direct object, the indirect object or a prepositional phrase was scrambled over *niet* 'not' or one of the adverbials *nu* 'now' or *straks* 'in a while'. As customary in elicited imitation studies, the assumption was that if children change the sentence structure in reproduction (in this case the scrambled position of the object), they have not yet mastered the syntactic means to represent the stimuli, and adapt them to comply with their own rules. All children were capable of reproducing the order object-negator or object-adverb. Each of the youngest subjects (2;8-3;3) did so at least once. Nonetheless, there is a strong preference for the non-scrambled order, which gradually decreases with age.

In summary, the data suggest that development in this domain is continuous, i.e., children's and adults' performance is not qualitatively different. As soon as Dutch children are capable of producing sentences with an object and an adverb (including the negator), they use both the scrambled and the nonscrambled orders. However, nonscrambled orders dominate at first and the propensity to use the scrambled order increases with age. This increase may be related to the acquisition of nominal specificity. That the distinction between specific and nonspecific reference must be learned is indicated by the initial predominance of nonscrambling with personal pronouns. On the basis of Schaeffer's observations, we can speculate that acquisition of the determiners sets the stage for the acquisition of the distinction between specificity and nonspecificity, and its role in scrambling.

[10] Jordens has not found any instance of scrambled word order in utterances of his daughter Jasmijn at an age below that of Dokter's and Schaeffer's subjects (Jordens, personal communication).

2.3. Subordination

The first subordinate clauses usually appear after the most important operations affecting word order in independent simple sentences (including WH-movement, see below) have been acquired. This happens approximately between the ages of 3;0 and 3;6 (Bol & Kuiken 1988). Van Ginneken (1917) and De Houwer (1987) report that the first subordinate clauses are conditionals with *als* 'if, when' (18). It is not clear whether complement clauses appear simultaneously with *als* subordinations. The (scant) available data warrant the generalization that from the very beginning, children's subordinates usually have correct (i.e., verb-final) word order (De Houwer 1987, Krikhaar 1992). However, there are anecdotal but consistent reports of the initially systematic and later optional omission of subordinating complementizers (see Krikhaar 1992; example 19)[11]. This might be due to the absence of a CP projection, as suggested by, e.g., Clahsen 1990, but this explanation seems to be contradicted by the presence of WH-questions and object topicalizations in matrix clauses (see Krikhaar 1992 for an overview of competing hypotheses.)

(18) a(ls) Keesje slape heeft (van Ginneken 1917)
when K. slept has
'after Keesje has slept'

(19) ik denk jij boven was (Laura 3;3)
I think you upstairs were
'I think that you were upstairs'

To date, there have been no acquisition studies on either relative clauses or nonfinite complement clauses (small clauses) for child Dutch.

2.4. Question Formation

Much like in English, Dutch WH-questions start with a clause-initial interrogative pronoun (examples 20). Question formation without movement of the WH-pronoun to the sentence-initial position (example 21) is restricted to so-called 'echo questions', i.e., requests for specific (lexical) clarification of an interlocutor's utterance (Haegeman 1994: 302). Yes-No questions are formed by inverting the order of the finite verb and the subject (22), or by adding rising intonation to a non-inverted main clause, but this is not the preferred option (as it is in colloquial French, for instance).

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[11] Immediately prior to the first unmistakeable cases of subordination, Dutch-speaking children produce utterances with two finite verb forms such as (i), which look like precursors to complex sentences. Since not only a complementizer, but often also other constituents are absent, one cannot be sure about the status of these structures. Strikingly, though, the second finite verb form is without exception in the utterance-final position.

(i) kijk es doet (Laura 3;4.6)
look ADV does
'look (what) (she?) does'

(20) a. wie doet dat?
who does that
'who's doing that?'

b. wat heeft zij t_{WH} gezegd?
what has she said
'what did she say?'

c. welke treden heb je nog niet t_{WH} geschilderd?
which steps have you not yet painted
'which steps haven't you painted yet?'

d. hoe ging het t_{WH}?
how went it
'how did it go?'

e. waarom vertrekken wij niet t_{WH}?
why leave we not
'why aren't we leaving?'

(21) je bent waar geweest?
you have where been?
'where did you go?'

(22) ben je bij de dokter geweest?
are you with the dokter been
'did you see the doctor?'

In embedded WH-questions the WH-pronoun takes the position of the complementizer (23). Matrix WH-pronouns may be dependent on positions in embedded clauses (24.a), but the extraction of a WH-pronoun from an embedded WH-question is illegal, as it is in English (24.b).

(23) ik vroeg me af *wie* t_{WH} de tuin had omgeploegd.
I wondered who the garden had ploughed
'I wondered who ploughed the garden'

(24) a. wie denk je wel dat je bent t_{WH}?
who think you PRT that you are
'who do you think you are?'

b. *wie vroeg je je af waar had gewoond?
who wondered you where t_{WH} had lived
'*who did you wonder where lived?'

Like the Verb Second mechanism, the development of question formation is closely intertwined with issues concerning the lay-out and status of clause structure representation in early grammar. Grammatical theory states that the syntactic representation of interrogatives involves an operator in the specifier of the Complementizer Phrase (i.e., the position directly left to the finite verb), which may bound by a moved phrase,

as in WH-questions, or left unbound, as in yes/no questions.

2.4.1. The Early Stages

Van Kampen (1989) observed three phases in the development of WH-question formation in Laura (1;8-3;8), Fedra (1;10.3-1;11.5) and Tobias (1;10.4-1;10.24; see Stevens 1977). In Phase I, utterances that adults interpret as WH-questions do not contain a WH-pronoun. They systematically start with either the finite copula *is* 'is' or the finite light verb *doet* 'do(es)'. The implication is that from the very beginning, Dutch children appear to use the appropriate inverted order of finite verb and subject.[12] Many questions at this stage end with the adverb *nou*, which can be literally translated as 'now', but in fact appears to serve no other function than to mark the utterance as a question (ex. 25). Also, these questions have a highly prototypical rising intonation. The missing WH-word can in all cases be construed as either *wat* 'what' or *where* 'where'. Since during the same period declaratives have a much more sophisticated and varied structure, van Kampen assumes that question-formation in this phase is, in fact, based on the application of the template *is/doet NP (nou)*.

(25) a. doet beer nou? (Laura 2;1.28)
does bear now?
'what's the bear doing?'

b. doet de auto? (Fedra 1;10.3)
does the car?
'what's the car doing?'

c. is autootje nou? (Tobias 1;10.3)
is car-DIM now?
'where is the little car?'

(26) a. zit er nou in? (Laura 2;8.22)
sit there now in?
'what's in there?'

b. denk ik nou? (Fedra 1;11.6)
think I now?
'what am I thinking?'

c. zijn dat voor lettertjes? (Tobias 1;11.21)
are that for letters?
'what kind of letters are those?'

Phase II is characterized by two developments. First, the set of verb forms in sentence-initial position expands. In other words, the initial 'slot' in the question formula is no longer exclusively associated with *is* and *doet* (see examples 26).

[12] These observations reveal a striking difference between WH-question acquisition in Dutch and English. It is reported (e.g. by Klima & Bellugi, 1966) that English children, possibly after a short phase in which questions are marked by intonation only, systematically supply WH-words, but do *not* invert subject and auxiliary.

Secondly, the first WH-word *wat* appears. During this phase it is only combined with the verbs *doet* and *is*. In the third phase, *wat*, and also *waar* 'where' start to occur with any finite verb, but these WH-words are not yet systematically supplied in all obligatory contexts (i.e., there is optionality).

De Houwer (1987) observes that various functions of *wat* 'what' do not appear simultaneously. The order of emergence of Dutch WH-words in her (bilingual) subject Kate is (1) *wat* 'what' (subject complement); (2) *waar* 'where' (locative); (3) *wat* 'what' (direct object); (4) *wie* 'who' (subject), *hoeveel* 'how much', *how* 'how'; (5) *wat* (subject); (6) *waarom* 'why'. De Houwer reports that yes/no questions come in some 3 months later than WH-questions. The first yes/no questions are lexically restricted; they occur only with the modal *kan* 'can'. This is reminiscent of the apparently formulaic character of early WH-questions reported by van Kampen.

Van Kampen (o.c.) notes a contrast between on the one hand *wat* and *waar*, which appear relatively early and are often omitted in later stages, and *waarom* 'why', *welke* 'which', and *hoe* 'how', which are acquired later, and apparently do not go through a stage of optionality. According to van Kampen, the contrast is related to identifiability of non-realized elements through direct, deictic reference. *Wat*, used as an argument noun phrase, and also locative adverbials such as *waar* can be deictically interpreted. *Waarom*, *welke* and *hoe*, by contrast, cannot. Assuming that children are sensitive to this contrast (just as they are aware of it in the case of the omission of topics, see section 3.2) may explain the observed difference in developmental pattern.

Van Kampen (1989) has explored which assumptions with regard to the structure of the early syntactic representation are compatible with the observed three-phased developmental sequence. She argues that the Dutch data, and also the interesting contrast between the Dutch and English developmental patterns (cf. fn. 12), defy both radical 'full competence' and 'incremental acquisition' (see above, section 2.1.2) explanations. As an alternative, van Kampen suggests that the necessary syntactic category (i.e., COMP) is present from the beginning, but is underspecified. She proposes that the initial feature specification depends on the categorial nature of the elements that are most prominently associated with the category in the position. Since Dutch has obligatory V2, COMP will at first be associated with verbal features, and will therefore resist association with nominal elements such as WH-phrases. By contrast, in English V2 is highly restricted, and the featural composition of COMP will be derived from WH-constructions.

2.4.2. Later Developments

On their way to mastery of question formation, Dutch children sometimes make intriguing errors. One of these is the so-called 'sub-extraction' of WH-operators as described by van Kampen (1994a, 1994b). Subextracted questions are constructions in which a WH-pronoun is extracted from a nominal or adverbial phrase and 'moved leftward', while the remainder of the phrase is stranded (example 27). Van Kampen notes that in her two daughters, Laura and Sarah, WH-subextraction is an optional phenomenon, in the sense that subextracted as well as normal, full extractions (example 28) occur side by side. Similar observations have been reported by other authors as well, and the phenomenon seems similar to NP sub-extractions as discussed by Hoekstra

and Jordens (1994, ex. 29).

(27) a. welke wil jij liedje zingen? (Sarah 3;7)
which want you song sing
'which song do you want to sing?'

b. hoe is het laat? (Laura 6;5)
how is it late
'what time is it?'

(28) a. welk verhaaltje wil jij voorlezen? (Sarah 3;9)
which story want you read aloud
'which story do you want to read?'

b. hoe laat is het? (Sarah 3;1)
how late is it
'what time is it?'

(29) a. die heb ik niet sok aan (Jasmijn 2;3)
that have I not sock on
'I don't have that sock on'

b. ik vin Cynthia niet tekening leuk (Jasmijn 2;8)
I find C. not drawing nice
'I don't like Cynthia's drawing'

These subextractions suggest that there is a stage in Dutch children's development during which they do not know that items within a phrase that stand in a head-complement relation (such as determiners and nouns) cannot be separated, but must stick together in movement (*Left Branch Condition*). This constraint is not universal, though, which renders the mistakes less surprising. An account proposed by Hoekstra and Jordens (1994) is that the 'subextracted' element is analyzed as an *adjunct* rather than a head. Van Kampen raises several objections against this proposal, the most incisive of which is that the possibility of subextraction depends on the function of the NP. It occurs only with direct objects and predicate adjectival expressions. Subextraction from subject phrases and adverbials seems to be excluded. This cannot be accounted for by the adjunction analysis. Van Kampen assumes that the subextracted elements are functional heads, just as they are supposed to be in adult Dutch. She suggests that in allowing subextractions, children assume a less marked option of universal grammar.

To date, the only study dealing with the extraction of WH-pronouns from embedded clauses is the one by van Kampen and Evers (1995), which focuses on a peculiar phenomenon in this regard, namely the reduplication of WH-words, as illustrated in (30). Complex questions of the type illustrated in (30), which are often asked to enquire about someone's opinion, are acquired relatively late, as is indicated by the ages of the observed children. In adults' renditions of these structures, the italicized WH-expression is replaced by a complementizer such as *dat* 'that'.

(30) a. hoe denk je *hoe* ik dat weet? (Sarah 5;3.11)
how think you how I that know
'how do you think I know that'?

b. op wie denk je *wie* ik verliefd ben? (Laura 7;8.18)[13]
with who think you who I in+love am
'who do do you think I'm in love with?'

(31) a. wie is dat voor t_{WH}? (Laura 4;1)
who is that for

b. welke is dit boekje van t_{WH}? (Sarah 2;9)
which is this book of

Van Kampen and Evers' account of the WH-reduplications is that the child's grammar is governed by a principle which prescribes that the phonetic realization of a sentence optimally reflects its interpretive structure and the process by which this has been attained. Grammatical theory assumes that the dependency relation between the matrix WH-expression and its underlying position in the embedded clause is mediated by the embedded complementizer. The child's grammar 'spells out' this 'connecting' element. The authors suggest that the same principle can also explain several other phenomena in child language, such as the subextractions discussed in the previous paragraphs, preposition stranding in WH-question formation (31), and the use of pleonastic auxiliaries (see section 2.1.1).

3. Missing arguments

3.0. Introduction

Everyone who is familiar with young children will agree that their utterances are often highly elliptical. That is, the intended interpretations seem to imply constituents that are phonetically absent. Notably, the verb's external argument, the subject, or its primary internal argument, the object, often appear to be missing. A basic problem in studying children's incomplete utterances (and adults' as well, for that matter) is whether the missing but implied information is present at some underlying level of representation, and if so, at what level.

Three types of explanations have been proposed. First, omission of sentence elements might be due to limitations of processing capacity (Bloom 1990). Results that support this hypothesis have been reported, but serious doubts have been raised as to their validity by Hyams and Wexler (1993). These authors point out that a processing explanation cannot account for grammatically conditioned assymmetries in argument omission, such as the fact that English-speaking children drop subjects far more often

[13] Many of the examples given in van Kampen and Evers (1995) were obtained by means of an (experimental) elicitation task, with the aim of illustrating the extended period of productivity of this construction. This explains Laura's advanced age with this example.

than objects. Moreover, Hyams and Wexler show that the effect of subject 'weight' on verb phrase length (null subjects on average combine with longer VPs than lexical subjects) that Bloom cites as evidence for his processing explanation also occurs in spontaneous language production data of adult speakers of Italian, in which subject drop is a bonafide grammatical phenomenon. The implication seems to be that processing capacity limitations cannot be invoked as a causal factor in children's argument omissions.

As a second possibility, it has been suggested that (optional) omission of subject pronouns as well as object pronouns and other closed class morphemes is phonologically motivated (Gerken 1991, Wijnen, Krikhaar & Den Os 1994). Research on early Dutch and English shows that children tend to squeeze their utterances into a metrical mold that is characterized by a regular alternation of strong and weak syllables. It is not clear just yet whether this reflects a universal preference for trochaic metrical templates, or whether is reflects a kind of overgeneralization of the predominant trochaic structure of Dutch and English. At any rate, not only word-initial weak syllables, but also utterance-initial weak monosyllabic morphemes such as subject pronouns (and object pronouns in Dutch) are supposedly fall prey to this phonological constraint.

The third type of explanation is to treat non-overt elements as syntactic entities, viz. *empty categories*. The question then becomes: assuming that elliptical child utterances comprise empty categories, do their characteristics fall within the range of variation that obtain in adult languages? The best known approach along these lines is Hyams' (1986, 1992) *pro-drop* theory, which claims that null subjects in child language, irrespective of the target language, are identical in nature and distribution to null subjects in known *pro-drop* languages such as Italian, Hungarian or Chinese. If this is right, we would expect that for some time Dutch children omit subjects at points where the target grammar does not allow it.

3.1. Empty Categories in Dutch

Dutch is a *topic drop* language (see Weerman 1989). This means that it sometimes allows the omission of subjects, objects, as well as other constituents, provided that they are associated with the first position in the sentence, preceding the finite verb (the *topic* position). The examples given below illustrate the mechanism (*e* denotes an empty category). The answer under (32) has a dropped pronominal subject (*het* 'it' or *dat* 'that', or something similar). In (33) it is the object that is dropped. Topic drop is unacceptable when there is no clear discourse referent, as in (34). Example (35) shows that the initial phrase of an embedded clause (the subject) cannot be omitted, and (36) illustrates that in general dropping from non-initial positions is ruled out.

(32) q: moet jij niet hard aan je voorstel schrijven?
must you not hard on your proposal write
'aren't you supposed to be working hard on your proposal?'
a: *e* is klaar.
is done

'it's done'

(33) q: Ga je mee naar naar *Turks Fruit*?
come you along to *Turkish Delight*?
'are you coming along to *Turkish Delight*?'

a: *e* heb ik al gezien.
have I already seen
'I've already seen it'

(34) Jan en Piet gingen wandelen.
J. and P. went $walk_{inf}$
'John and Pete went for a walk'
**e* viel in het water.
fell in the water
'*?* fell in the water'

(35) *Jan zei dat *e* later komt
J. said that later comes
'John said that *?* would come later'

(36) q: hoe heeft meneer Jansen de dag doorgebracht?
how has mr. J. the day spent
'how did mr. Johnson spend the day?'

a: *Vanochtend heeft *e* geoefend.
this morning has practiced
'this morning *?* has practiced'

Theorists assume that 'dropped categories' are bound to an empty operator located in the specifier of the top-most projection in the sentence representation (the specifier of CP, see section 2.1), which in its turn is linked to an antecedent outside of the sentence. When the specifier of CP is lexically filled, it can no longer bind an empty argument position, hence the illegitimacy of (35) and (36).

3.2. Null Subjects in Dutch Child Language

At the beginning of this century, the Dutch linguist Tinbergen (1919) wrote that subject omissions are very common in Dutch child language. His observation is confirmed by recent studies. Bol (1996) analyzed all utterances containing a verb and at least one other constituent in a cross-sectional sample of 43 children between ages 1;7 and 3;7, and found that on average one in every five lacks a subject. In the youngest children (1;7-2;0), subject omission occurs in 42.5% of the cases, but interindividual variation is considerable, as indicated by a standard deviation of 33.6. The percentage decreases as a function of age: 2;1-2;6: 35.6% (s=17.7), 2;7-3;0: 20.8% (s=14.3), 3;1-3;6: 8.8% (s=6.2).

(37) a. *e* kan niet slapen op 'n schaap (David 2;1.29)
can not sleep on a sheep
'? can't sleep on a sheep'

b. *e* ga die weer maken (David 2;1.29)
go that+one again make
'(I) will make that one again'

c. *e* is een trein he (David 2;1.29)
is a train eh
'that's a train, isn't it'

(38) a. nou is *e* groen (Thomas 2;4)
now is green
'now it's green'

b. als je wakker wordt, gaan *e* naar Hein (Thomas 2;7)
when you awake become, go to H.
'when you wake up you go to Hein'

c. waar is *e* nou? (Abel 2;1.16)
where is now
'where is (it)?'

d. toen ga *e* voetballen (Abel 2;4.23)
then go football play
'then (I) went playing football'

If Dutch children were to —erroneously— assume that Dutch has *pro*-drop, they would omit subjects from non-initial positions in finite sentences. When analyzing 272 multi-word utterances of a single boy (David 2;1.29), de Haan and Tuijnman (1988) found that nearly all of the utterances from which subjects appear to have been dropped have a verb in first position as in (37). This suggests that the dropped subjects are associated with the sentence-initial (topic) position.[14] Later, more comprehensive studies have indicated that the proportion of utterances with subject drop from non-initial positions (example 38) is markedly less high than that of utterances with subject drop from initial positions, but certainly not negligibly so. In Bol's (1996) cross-sectional data, 11 out of 272 finite subject-less sentences had an element other than the finite verb in initial position (4.4%), which indicates that the missing subject is associated with a non-initial position. Bol (1996) also analyzed the longitudinal corpus of Abel (1;10.30-3;4.1). He found 555 cases of subject drop, 41 (7.4%) of which involved sentence-medial positions. Haegeman (1996), who analyzed the corpora of Thomas (2;3-2;11), Hein (2;4-3;1) and Niek (2;8-3;10), reports that 10 to 13% of the finite sentences have non-initial null subjects. Also, the 'drop rate' of subjects varies over position. Roughly 23% of all sentence-initial subjects are non-overt, against 4 to 5% of the sentence-medial subjects. Haegeman's data furthermore show that 12 to 13% of the embedded clauses have null subjects and that her subjects —in contrast to adults— omit *quasi-argumental* subjects, such as *het* 'it' in weather statements (see examples 39).

[14] There were three cases with apparent non-initial subject omission, each of which allows an alternative analysis.

(39) a. wordt al donker (Hein 2;6)
becomes already dark
'it's getting dark' (referring to nightfall)

b. regent beetje? (Niek 3;6)
rains little
'does it rain a little bit?'

(40) a. aardappels moet [schwa] schillen (Dirk 2;5)
potatoes must peel
'the potatoes have to be peeled'

b. lepel moet likken (Hein 2;5.11)
spoon must lick
'the spoon has to be licked'

c. auto moet repareren (Matthijs 2;6.11)
car must repair
'the car has to be repaired'

d. kijk, dan moet [schwa] grote toren bouwen (Abel 2;5.6)
look, then must tall tower build
'look, then the tall tower must be built'

Verrips (1996) has observed a fair number of apparent null-subject sentences that involve a complex predicate consisting of the modal auxiliary *moet* 'must' and an infinitive lexical verb in the spontaneous speech of various two- and three-year old children (see 40). These structures are reminiscent of 'modal passives' in colloquial adult Dutch (in which, however, the thematic verb is a past participle: *die jas moet gewassen* 'that coat must washed'). Verrips suggests that these cases of subject drop represent the Dutch children's first attempts at the passive construction (see section 4). An argument in favor of this interpretation is that correct modal passive constructions, i.e., ones with past participles instead of infinitives, appear at the same time that constructions like those in (40) are first witnessed. If Verrips is right, this type of construction should not be classified as an instance of subject drop at all. Rather, the theme or patient noun phrases (e.g., *aardappels* in 40.a, *lepel* in 40.b, etc.) supposedly are the grammatical subjects of these sentences.

The data reviewed so far suggest that a large number of the missing subjects in Dutch child language is associated with sentence-initial position preceding a finite verb. This corresponds with the *topic drop* characteristics of the adult language. We have seen, however, that a considerable portion of the sentences produced by two- to three-year old children lack a finite verb. Weverink (1989) has drawn attention to the fact that subject omissions are particularly common in these root infinitivals. Quantitative data are provided by Krämer (1993), who reports that in the corpora of Maarten (1;11, see Gillis 1984) and Thomas (2;3 to 2;8) approximately 89% of the root infinitives have null subjects, against 25% of the finite sentences.

The gradual decrease of subject drop over age as reported by, among others, Bol (1996) correlates with the developmental decrease of root-infinitives. For instance, in Peter, one of Wijnen's (1994) subjects, the proportion of utterances lacking a finite verb

shows a steady (though non-linear) decrease from 93% at age 1;9 (the onset of the two-word stage) to 4.9% at 2;4 (see also section 2.1.1). During the same period, the proportion of utterances without a grammatical subject diminishes from 30% at 1;9 to 9.2% at age 2;4. It seems reasonable to conclude that the decline of subject drop is a result of the gradual disappearance of root infinitives from Dutch children's repertoire. This does largely seem to be the case, but not completely. Both Wijnen (1994) and Haegeman (1995) note that the proportion of null subjects in *finite* sentences diminishes as a function of age as well. Haegeman reports that in the earliest samples of the corpora of Thomas (2;4), Hein (2;4) and Niek (2;7), the percentages of initial null subjects in finite sentences are 39, 43 and 83, respectively. At the end of the period of observation, the percentages are 13 (Thomas 2;11), 16 (Hein 3;1) and 6 (Niek 3;10). Over the same period, the percentage of root infinitives drops from 22% in Hein, 56% in Thomas and 80% in Niek, to 10% and less. Haegeman points out that in the early samples there is a sharp decrease of null subjects in finite sentences as well as root infinitives. Later on, the percentages of root infinitives continues to drop, whereas the proportion of null subjects remains more or less stable. Wijnen (1994) notes that whereas the set of finite (V2) sentences in Peter's corpus manifests a marked decrease in null-subjects as a function of age, the proportion of null-subjects in *nonfinite* sentences increases. Haegeman (1995) found a similar contrast in Hein's corpus. This means that children's root infinitives come to resemble the elliptical, nonfinite structures in adult colloquial question answering (ex. 41).

(41) q: wat ben je aan 't doen?
what are you doing?
a: een brief aan m'n moeder schrijven
a letter to my mother write$_{inf}$
'(I'm) writing a letter to my mother'

3.3. Null Objects

Although it has long been known that children do not only drop subjects but also objects, systematic analyses of the latter phenomenon have been scarce. De Haan and Tuijnman (1988) observed a non-negligible number of dropped objects in David's utterances at age 2;1.29 (examples 42). They formulate two descriptive generalizations. First, all dropped objects can be construed as third person singular deictic pronouns. This agrees with other observations in children's as well as adult languages and is generally taken to reflect the different syntactic status of empty subjects (which can have various person features) and empty objects (Sano & Hyams 1994, Hamann 1994, Haegeman 1995). Second, de Haan and Tuijnman note that all sentences with dropped objects have initial finite verbs. They consider this to be further support for their *topic drop* analysis of the data.

(42) *e* heeft papa voorgelezen (David 2;1.29)
has daddy read$_{ppt}$ aloud
'daddy's read (that)'

It is likely, however, that de Haan and Tuijnman's analysis has to be modified in the light of new data which show that null objects in non-initial positions do occur, although it is not clear as yet how often (Bol 1996).

A study by Krämer (1995) provides us with some much needed quantitative data. She analyzed the corpora of Hein (2;4-3;1) and of the two triplets originally observed by Schaerlaekens (1973), Gijs, Joost and Katelijne (1;8-2;10), and Arnold, Diederik and Maria (1;10-3;1). In these corpora, objects are omitted from obligatory contexts (i.e., when the verb is obligatorily transitive) in 20 to 30% of the cases. Thus, object drop is on average somewhat more frequent than the omission of subjects in finite contexts (13 to 25% in the same set of data). Not unexpectedly, the rate of object omission decreases as a function of age. At age 1;10, the rate of object omission may in some cases be as high as 75% (Arnold). For all seven children, objects are somewhat less frequently omitted in the context of finite transitive verbs than in root infinitivals. Interestingly, the children studied by Krämer appear to make a distinction between obligatorily transitive and optionally transitive verbs: with optionally transitive verbs, object omissions occur two to four times more frequently than with obligatorily transitive verb.[15]

3.4. Missing Arguments: Conclusion

The developmental study of object omissions is highly relevant both from the perspective of devising a unified account of ellipsis in child language and from the perspective of the acquisition of verb argument structures (see section 4). It is clear, however, that this domain of inquiry —at least as far as Dutch is concerned— is still in its infancy. Additional analyses are much needed.

As far as subject omission goes, the available data show that (*i*) in Dutch-speaking children's finite sentences, the majority of null subjects are sentence-initial, but (*ii*) the proportion of non-initial null subjects seems to be too large to be explained away as noise or performance error. Furthermore, (*iii*) null subjects are much more frequent in root infinitivals than in finite sentences, and (*iv*) with age, the frequency of null subjects in finite sentences decreases, whereas the frequency of null subjects in root infinitivals increases. Descriptively, the latter two observations reflect the child's discovery of the syntactic dependency between finite verbs and subjects.

Several theorists, such as Sano and Hyams (1994), Roeper and Rohrbacher (1994) and Hoekstra and Hyams (1995) have proposed accounts that relate the correlation of root infinitivals and null subjects to a single mechanism in grammatical development. Each of these proposals suggests that the common factor in early null subjects and root infinitivals is the underspecification of a morphosyntactic feature such as tense, person or number. Although the technical details differ, all predict that discovery of some aspect of verbal agreement morphology leads to the specification of these features in the syntactic representation, as a result of which nonfinite matrix verbs as well as null subjects will disappear.

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[15] Unfortunately, Krämer does not deal with the (inferred) person and number features of the omitted objects, nor with the sentence positions they are associated with.

A problem with these proposals is that they appear to fully ascribe the occurrence of null subjects to the use of root infinitives. However, Dutch children do also produce finite sentences with null subjects. These could be construed as instances of adult-like topic drop, but, as Haegeman (1996) observes, then the apparent developmental correlation with the decline of root infinitives would not be accounted for. Haegeman therefore proposes an account along the lines of Rizzi's (1992, 1994) truncation hypothesis (see section 2.1.2). Under Rizzi's assumptions root infinitivals must be analyzed as structures truncated at the level of the Tense Phrase. Haegeman suggest that finite sentences with null subjects are truncated as well. They have tense and agreement projections (which host the finite verb), but lack the CP level. Consequently, empty categories of a particular type (null constants) can freely occur in subject position (the specifier of AgrS). An independent argument for this analysis is the observation that Dutch-speaking children, in contrast to adults, can drop quasi-argumental subjects (cf. ex. 39). The concerted decline of root infinitives and null subjects in finite clauses is supposed to result from maturation of the 'Root = CP' constraint. Note that non-initial null subjects are not accounted for by these proposals.

The theoretical proposals summarized so far seem to ignore the fact that despite the strong root infinitival-null subject correlation Dutch-speaking children actually do produce root infinitivals with overt subjects quite systematically, particularly during the early multi-word stage. This deserves an explanation, in particular because such structures are ungrammatical, barring (fairly exceptional) 'counterfactual exclamatives' (ex. 43) and sentences in what for lack of a better term might be called 'elliptical story-telling style' (ex. 44). This may well indicate that the relation between subject and verbal predicate is represented completely different from that in adult grammar, perhaps as a (non-syntactic) topic-comment association (Weverink 1989).[16]

(43) Hij in zee zwemmen! Van z'n leven niet!
he in sea swim_{INF}! of his life not
'him swim in the sea? never in his lifetime!'

(44) de train kwam er al aan, dus ik rennen!
the train arrived already, so I run_{INF}
'the train was already pulling in, so I ran/had to run'

In summary, subject drop in Dutch child language is a multifaceted phenomenon, in some respects similar to the pattern in the target language, and in other respects definitely different. It has become clear that the original pro-drop theory as formulated by Hyams was too narrow in scope. In fact the Dutch data as summarized in this section, particularly those concerning the root infinitive-null subject association, have contributed to re-orienting the theoretical approach to null subject phenomena.

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[16] An alternative solution is, as Radford (1988) proposes, to assume that the constraint that all noun phrases must bear case (which, in the case of a subject NP would be assigned by the finite verb) is not yet operative.

4. Argument Structure

4.0. General Issues

The acquisition of the rules discussed in the previous sections implies a decision as to which elements count as subjects and which count as objects. What we have not discussed so far is how children acquire the nature (and number) of the semantic and syntactic relations between sentence constituents. Let us illustrate the issue first.

(45) Jan bijt zijn hond
'John is biting his dog'

Example (45) expresses that, in some biting event, John is the 'biter' and his dog is 'bitten'. Following Gruber (1965), we assume that the verb assigns a *thematic role* 'Agent' to *Jan*, and a thematic role 'Patient' to *zijn hond*. Another way of putting it is to say that the NP *Jan* is the *agent argument* of 'bite' in (45), and the NP *zijn hond* is the *patient argument*.

Thematic roles, or arguments, are mapped from the lexicon onto syntactic positions. In a loose sense, the term 'argument structure' refers to everything that is involved in the relation between thematic roles and syntactic positions. Since Williams (1981) it has become common to distinguish two types of arguments: *internal* arguments are projected in the syntax in a position close to the verb (inside the VP); *external arguments* are projected in the syntax external to the VP. Consider examples (46) and (47).

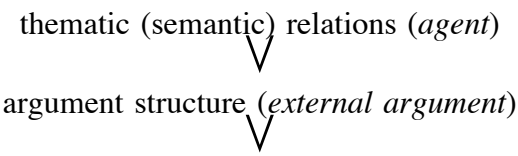
(46) a. Jan stuurde Marie een boek
J. sent M. a book
'John sent Mary a book'
b. Jan stuurde een boek naar Marie
J. sent a book to M.
'John sent a book to Mary'

(47) Jan ontving een boek van Marie
J. received a book from M.
'John received a book from Mary'

The verb *sturen* 'send' assigns an agent role, a theme role and a recipient role. The 'sender' is the *external argument*, and the 'recipient' is the *internal argument*. As a result, the 'recipient' in a sentence with *sturen* is syntactically the direct or indirect object; in the case of *ontvangen* 'receive', however, the recipient is the *external argument*, and as a result it is syntactically the subject (see also Chomsky 1981, Marantz 1984).

Summarizing, the general picture is like the following:

(48)



The diagram in (48) is like a funnel: a large set of thematic relations maps onto (a smaller set) of argument-structural positions, which in turn map onto syntactic relations such as subject or object. Children thus have to learn for each predicate the *number* of arguments that it takes, and the *position* of each argument in the argument structure. In addition, most verbs may surface in *more than one* argument structure, a phenomenon often referred to as *lexical syntactic flexibility*. An example is *sturen* in (46a-b). Children also have to learn which argument structures each verb may appear in. With some verbs even the number of arguments varies, as with *breken* 'break', which may appear as a transitive verb with two NP arguments, and as an intransitive verb with one NP argument, as exemplified in (49).

(49) a. *Jan* breekt *het glas*
J. breaks the glass
'John is breaking the glass'
b. *het glas* breekt
the glass breaks
'the glass breaks'

The evidence that children receive for all this is indirect: language input does not consist of 'bare' argument structures. There are basically two positions on how knowledge of argument structure is acquired. *Semantic bootstrapping* accounts (Pinker 1984) consider that children could make use of the fact that the semantic relations in a predicate sometimes predict the argument structure relations. *Syntactic bootstrapping* accounts (Gleitman 1990) draw attention to the possibility that children learn something about verb argument structures from a comparison of the various syntactic frames that a verb appears in.

The terms introduced above will be used in this section as descriptive devices. Every theoretical assumption underlying them is currently object of theoretical debate: the idea that each verb specifies which thematic roles it assigns; the idea that arguments are either internal or external arguments; even the basic idea that verbs specify their argument structures (see van Hout 1996 for a lucid overview of various approaches). Still, it is possible to investigate children's knowledge of topics related to the realisation of thematic relations in syntax. It is likely that some of the theoretical disputes, which largely concern the role of innate knowledge in the representation of argument structure, can be settled on the basis of evidence from acquisition. In what follows we discuss the acquisition of argument structure in Dutch. As before, we adopt a universalist perspective in discussing similarities and dissimilarities between Dutch children and adults.

4.1. Intransitives in Dutch

We have seen in section 4.0 that we may distinguish two types of argument structure positions: *internal* arguments (projected in the syntax inside the VP) and *external* arguments (projected in the syntax outside the VP). *Intransitive* verbs are verbs which take only one nominal argument, like *lachen* 'laugh' or *sterven* 'die'. The question thus arises whether this single argument is an internal argument or an external argument. First, note that there is evidence that intransitive verbs come in two types (Perlmutter 1978). The evidence comes, amongst others, from perfect formation and passives. In adult Dutch, some intransitive verbs, such as *lachen* 'laugh' form the perfect tense with *hebben* 'have' while others such as *sterven* 'die' select *zijn* 'be'[17].

(50) Jan *heeft* gelachen
J. has laughed
'John laughed'
(51) Jan *is* gestorven
J. is died
'John died'

The distinction between intransitives that take *hebben* and those that take *zijn* correlates with the distinction between intransitive verbs that allow impersonal passives and those that do not. Impersonal passives are grammatical with intransitives that form the perfect tense with 'hebben' *have* but not with the ones that take 'zijn' *be*:

(52) daar wordt gelachen
there is laughed
'people are laughing'
(53) *daar wordt gestorven.
there is died

Perlmutter (1978) suggests that systematic differences between verbs of the *lachen*-class and verbs of the *sterven*-class derive from differences in their argument structure: verbs in the *lachen*-class take an external argument, and are called *unergatives*. Verbs of the *sterven*-class take an internal argument, and are called *unaccusatives*[18]. The internal

[17] Some intransitives seem to fall in both classes, depending on the meaning, especially whether or not they imply a goal or an endpoint. These are usually assumed to have two lexical entries (Hoekstra 1984, van Hout 1996).

(i) Teun *heeft*/*is* in de sloot gesprongen.
T. has / is in the ditch jumped.
'Teun has been jumping in the ditch'
'Teun has jumped into the ditch'

[18] Space does not permit us to elaborate on how this analysis explains the differences in auxiliary selection and impersonal passivisation. Van Hout (1996) summarizes the theoretical discussion as well as the adult Dutch facts.

argument moves to subject position in the syntax.

Strikingly, verbs pattern in very similar ways in different languages which express the unaccusative-unergative contrast. It is therefore attractive to assume that the classification of intransitive verbs is systematic and predictable. For example, in Dutch, *unaccusative* verbs are typically *telic*, i.e. they denote events which imply an endpoint (e.g. *sterven* 'die'). *Unergative* verbs are typically *atelic*, i.e. they denote events which may continue indefinitely (e.g. *lachen* 'laugh'). Various theories account for these and other regularities. Some assume that thematic roles are mapped onto argument structures in systematic ways (e.g. Levin and Rappaport-Hovav 1995; van Hout 1996); others assume that semantic relations determine syntactic position directly (Van Valin 1990); yet others assume that verbs only specify *how many* arguments they take, and that the thematic relation that an argument bears to the verb is (partly) the *result* of the syntactic position (Borer 1994). The upshot is that children have to determine for each intransitive (use of a) verb whether it is unergative or unaccusative. We discuss the acquisition of auxiliary selection and impersonal passivization in turn.

4.1.2. Intransitives and Auxiliary Selection in Dutch Acquisition

With respect to auxiliary selection in Dutch, studies of spontaneous speech show remarkable convergence: children begin to use tense auxiliaries around age 2;6. Van Ginneken (1917), Tinbergen (1919), Kaper (1985) and De Houwer (1990) all note that generally the choice of the auxiliary is correct, except on a few rare occasions. The mistakes noted by Tinbergen are given below. Also listed are some as yet unpublished data from Verrips' diary. Other examples can be found in Schaerlaekens and Gillis (1987). Errors appear to be made in both directions in spontaneous speech, though most examples involve overgeneralized 'zijn' *be*[19]:

(54) ik *heb gisteren in de kamer gevallen (Luuk 2;11)
I have fallen in the room yesterday
'yesterday I fell down in the room'

(55) het *is geregend (Luuk $\pm$ 2;11)
it is rained
'it rained'

(56) *is het geregend? (Dirk 3;8)
is it rained?
'did it rain?'

(57) ik *ben niet buitengespeeld (Dirk 3;11)
I am not played outside
'I haven't played in the open air'

[19] On the other hand, Jacqueline van Kampen (personal communication) reports that at age seven, her daughter produces overgeneral *hebben*. Bennis (personal communication) suggests that children's auxiliary selection may be based on the distinction between events that the child can control and those that s/he cannot. For uncontrolled events, like rain, losing a game and so on, Bennis hypothesizes that children select *zijn*; in other cases they select *hebben*. This idea is also discussed in the study by van Hout, Randall and Weissenborn (1993).

(58) ik *ben verloren[20]
I am lost (Dirk 4;5; Ties 2;6)
'I lost (the contest)'

Van Hout (1996) studied children's productive auxiliary selection experimentally (see also van Hout, Randall and Weissenborn 1993). In line with other recent approaches to argument structure (Hoekstra 1992, Hale & Keyser 1992, 1993, van Hout 1996, Borer 1994), Van Hout assumes that the syntactic realisation of the arguments of a predicate is largely determined by the aspectual structure of the event denoted in the sentence. For example, if a sentence describes an event which involves an endpoint (a telic event), an internal argument must be projected. In an experiment, 42 Dutch-speaking children between 4;0 and 8;0 and 14 adults were taught *novel verbs*. The experiment tested the prediction that a novel intransitive's event type (i.e. *telic* or *atelic*) predicts the projection of its argument as internal or external argument. In an elicitation context, the subjects were asked to supply tense auxiliaries for the past participles of the novel verbs which they had been taught with the aid of short videotaped scenes. Cues for the relevant aspects of the novel verbs' meanings (+/- telic, +/- agentive) were supplied by the videos. For instance, for a telic verb an event would be shown that stopped by the end of the video. The assumption is that if the children supply *hebben*, they have classified the verb as unergative. On the other hand, if they supply *zijn*, they have classified it as unaccusative. The prediction is that children will produce *zijn* with telic verbs.

Van Hout (1996) analyzes the findings as follows: in all age groups, the main factor determining auxiliary choice is telicity. In the youngest age group it is even the only factor. Agentivity plays a role in a subclass of verbs in adults, but not at all for the youngest children. *Hebben* is overgeneralized more often than *zijn*, both by adults and by children. Van Hout assumes that this is due to the fact that only a small class of real verbs in Dutch take only *zijn*, whereas most take either *hebben*, or *hebben* or *zijn*. This makes speakers of Dutch reluctant to pick out *zijn* with a novel verb.

Summarizing then, the available evidence from spontaneous speech suggests that children acquire auxiliary selection rapidly and easily, and that they distinguish two classes of intransitives which resemble the adult classification, though some errors do occur. The experimental results also support the view that children are sensitive to the aspectual distinctions that determine auxiliary selection in adult Dutch, though some of the experimental findings are —as yet— hard to interpret. The finding that aspectual distinctions play a role in early verb semantics will be taken up again in section 4.4.

4.1.3. Intransitives and Impersonal Passivization in Dutch Acquisition

Another domain in which the split between unergatives and unaccusatives shows up is passivization. It was noted above that unergatives can appear in the passive and unaccusatives cannot. Passives of intransitive verbs (i.e., *impersonal passives*) are not

[20] *Ik ben verloren* 'I am lost', and *ik heb verloren* 'I have lost' are both grammatical in Dutch with the same meaning contrast as in English. In the context of a contest, in which this example is repeatedly uttered, *hebben* is the appropriate auxiliary.

very frequent in spoken Dutch. It is not surprising therefore that we find very few of these in early child speech. Verrips (1996) searched for passives in four longitudinal corpora in the CHILDES database (MacWhinney & Snow 1990), viz. those of Niek (Wijnen 1988), Hein and Thomas (Elbers & Wijnen 1992) and Matthijs (compiled by Krikhaar) and found about 100 utterances that could be considered to be passives. None of these involved an intransitive verb. Diary studies do list impersonal passives. Both Tinbergen (1919) and Verrips (1996) give a few examples of these, some of which are listed below.

(59) a. hier wordt gespuit (Ties 2;6)
here is being sprayed
'they're spraying here'

b. d'r moet gespele worden (Luuk 3;0)
there must be played
'there's got to be playing'

In an experiment, Verrips (1996) elicited passives through picture descriptions with 89 Dutch children between the ages of 2;6 and 6;9. Only two passives were elicited below the age of 3;0. From 3;0 and up however, more passives are produced. As of age 3, the children also distinguish unergatives from unaccusatives: they produce passives of transitive and unergative verbs (with the passives of transitive verbs outnumbering the passives of the unergative verbs). They do not produce passives of unaccusatives at all, with the exception of some 3-year olds who produce passives with unaccusative *vallen* 'fall'. Verrips (1996) speculates that *vallen* is miscategorized as an unergative verb. Such a speculation is somewhat supported by the fact that errors in auxiliary selection in spontaneous speech also involve the verb *vallen* 'fall' (Kaper 1985, Schaerlaekens & Gillis 1987).

Considering the question whether children know that intransitive verbs come in two types, we may conclude that the first results suggest that they do. One obvious gap in this domain is evidence with respect to a relation between the acquisition of auxiliary selection and impersonal passivization. Neither van Hout et al. nor Verrips systematically compare auxiliary selection and impersonal passivisation of the children in their studies. A theory which views both as the result of intransitive verbs' argument structure obviously predicts such a relation.

4.2. Passives of Transitive Verbs and Implicit Arguments

Transitive verbs assign two thematic roles, which appear syntactically as subject and object of active sentences. In passives, transitive verbs may appear with their 'subject' argument unexpressed, and the object argument in subject position. Consider the active-passive pair in (60) and (61).

(60) papa eet een stuk taart op
daddy eats a piece pie up
'daddy is eating a piece of pie'

(61) de taart wordt helemaal opgegeten
the pie is completely eaten
'the pie is eaten up completely'

Verrips (1996) has investigated the acquisition of the passive in Dutch. She finds that Dutch children produce their first passives between the ages of 2;6 and 3;0 (van Ginneken 1917, Tinbergen 1919, De Houwer 1990, Verrips 1996). In these first passives, the participial verb is often rendered as an infinitive (see also section 3.2). After about 6 months, the verb usually takes the participial form. Furhtermore, the first passives are *short* passives as in (61) that do not overly express the external argument.[21] It is intriguing that Dutch children's that they often involve the modal verb *moeten* 'must' (see 62 and also 40, section 3.2 above).

(62) a. d'r moet tante Koosje gezegd worde(n) (Luuk 3;0)
there must aunt Koosje said be
'you have to say Aunt Koosje!'

b. die moet niet betaald worden! (Dirk 2;9)
that must not paid be!
'that one doesn't have to be paid for'

c. hij moet op(ge)zet (Niek 3;1)
he must on-put
'this has to be put on top'

In short passives, as in (61), the *agent* argument is present in an adult's *interpretation* though it is not expressed lexically. It is usually referred to as the *implicit argument* (Jaeggli 1986, Roeper 1987). For the child acquiring language, this situation potentially raises a problem. How does s/he learn that the implicit argument is represented in (61)? Here we may confront two basic views on the acquisition of argument structure: the *inductive* approach, which assumes that children construct argument structures on the basis of the lexical phrases with which a verb appears in the linguistic input, and the *deductive* approach, which stresses the role of innate knowledge in the construction of verb argument structures. The most extreme inductivist prediction is that children end up representing (61) separately from (60), including an agent for the active but not for the passive. A deductive theory assumes that children construct a relationship between passives and actives. A child may create the argument structure of *opeten* 'eat up' on the basis of (60), and retain the agent argument when representing a derivation of (61). Alternatively, a child may construct the argument structure of *opeten* 'eat up' on the basis of (61), and temporarily entertain an argument structure that does not include the agent. A subsequent encounter with a sentence like (60) will then lead the child, as Wilkins (1994) argues, to replace the lexical entry for *opeten* with a transitive entry that specifies both an 'eater' and an 'eaten entity'.

What Dutch children know about *implicit arguments* in passives has been

[21] This is in contrast with passives with a by-phrase, as in de taart wordt helemaal opgegeten **door vader** 'the pie is eaten up completely **by father**'.

explored by Verrips (1993, 1996). Verrips (1993) reports two experiments in which 24 Dutch children between the ages of 4;2 and 6;9 are asked questions about pictures. Some questions contain a passive verb. For each picture-question pair, at least two appropriate answers are possible: one with and one without reference to an agent. For example, the experimenter tells the child a story about a picture which depicts a rabbit that is frying eggs in a frying pan while its children are getting ready for breakfast. The rabbit hits the egg on the side of the frying pan, and as a consequence the egg breaks. Then the experimenter asks: *Waarom wordt het ei gebroken?* 'Why is the egg (being) broken?'. Adults answer such a question with reference to the agent, explaining why the rabbit wanted to break the egg (e.g., 'in order to fry it'). This answer is grammatical, because the implicit agent (in this case, the rabbit) is represented in an adults' representation of a passive. It is instructive to compare this with the interpretation of a sentence using the intransitive *breken*, in which the agent is not represented: *waarom breekt het ei?* 'why does the egg break?'. In this latter case, the grammatical answer explains how the egg broke (e.g., 'it hit the frying pan'). This variation in the interpretation of 'why', which is dependent on the presence or absence of an *implicit argument*, is used in Verrips' experiment to investigate whether children represent implicit arguments in passives. The child may answer with or without reference to the agent, depending on whether s/he does or does *not* include the external argument in his/ her representation of the passive. 77% of the passive questions in this experiment received an agentive answer. In a similar experiment (involving how-questions which display a similar ambiguity as why-questions) with the same set of children, 38% of the passive questions received an agentive answer. Verrips (1993) concludes from this that implicit arguments are represented in these children's passives. Some questions remain, however. One is why agentive answers are more readily given to why-questions than to how-questions by both adults and children, suggesting that the answer lies with linguistic theory rather than acquisition theory.

Secondly, how do younger children fare with implicit arguments? Verrips (1996) reports a follow-up study with 57 children between the ages of 2;6 and 6;6. Children are requested to complete a sentence that ends with the preposition *met* 'with'. The sentence type is varied, and short passives are the experimental condition. For each sentence a picture supplies both an instrumental and a comitative reading for the with-phrase. For adults, the instrumental interpretation is only available when an agent is represented. In (63) both the comitative reading of the with-phrase (*een peer* 'a pear') and the instrumental reading (*een vork* 'a fork') are available, but not in (64). When a child completes the sentence with an instrument phrase, this is interpreted as evidence for an agent argument in the representation of the sentence.

(63) hier wordt een appel gegeten met ... (een peer/een vork)
here is an apple eaten with ... (a pear/a fork)
'here an apple is being eaten with ... (a pear/a fork)'

(64) hier draait een draaimolen met ... (een hondje (erop)/touw)
here turns a merry-go-round with ... (a dog (on-it)/ rope)
'here a merry-go-round turns around with ... (a dog on top/ a rope)'

Verrips found that 3-year-olds give instrument responses to passive items about one third of the time. The proportion of instrument responses to passive items increases steadily with age. 94% of the responses of the six-year-olds involve instruments. There is no evidence for a developmental stage in which implicit arguments are absent from children's passives. This finding provides support for the deductive point of view expressed above.

What is the nature of the deductive apparatus? How do these young children know that passives have an implicit argument? One possibility is that the meaning of the verb is involved (*semantic bootstrapping*, section 4.0): the meaning of *opeten* is hardly conceivable without the involvement of some 'eater'. Another possibility (*syntactic bootstrapping*, section 4.0) is that the children may have encountered the relevant verbs in an active sentence and constructed a representation which includes an external argument. If a child assumes that all arguments of a verb are represented with every occurrence of the verb, s/he would have to conclude that somehow the passives include the external argument. If the syntactic bootstrapping account is correct, a learning problem arises in other cases. Consider the following examples.

(65) Jan breekt het glas.
J. breaks the glass
'John is breaking the glass'
(66) het glas breekt.
the glass breaks
'the glass breaks'
(67) het glas wordt gebroken.
the glass is broken
'the glass is (being) broken'

The grammaticality of (65) in no way implies that the verb *breken* 'break' in (66) contains an implicit argument parallel to *Jan* in (65). Example (67) however does include an implicit argument parallel to *Jan* in (65). In Dutch, *breken* has two argument structures, one with (65) and one without (66) an external agent argument. In the experiments discussed above, Verrips (1993, 1996) also included verbs like *breken* both as passives (67) and as intransitives (66). The children sometimes treat intransitive *breken* as if it implies an external argument like the passive in (67). The general conclusion must be that the extreme inductivist approach sketched above must be rejected. Children's construction of argument structures soon goes beyond listing the NPs that appear in a particular input sentence.

4.3. Alternations

It was noted above that many verbs show up with more than one type of argument structure. This phenomenon is referred to as '*argument structure alternation*'. In the previous section we discussed that some verbs like *breken* 'break' can have two argument structures, viz. a transitive (causative) structure with an internal and an external argument, and an unaccusative structure (with only an internal argument),

denoting a change of location or a change of state. Children sometimes generalise this pattern to cases where it does not apply. A few such examples have been reported for Dutch in diary studies:

(68) Ik ga het ei *barsten* (N 6;0, de Vooys 1916)
I go the egg *burst*
'I am going to make the egg burst'

(69) (M.'s legs form a "mountain" underneath the blanket. Child is climbing the mountain on the outside, while M. makes it come down every once in a while.)
Je mag hem niet *instorten*[22] (Dirk 4;3)
you may him not *collapse*
'You should not make it collapse'

(70) (D., looking at his dad who is trying to hoist the new sail on the dinghy. M. tells him it is time to go to bed)
... maar ik wil zien dat hij hem *zakt* (Dirk 3;8)
... but I want see that he him *lowers*
'...but I want to see that he makes it come down'

In other cases, the number and type of the arguments are invariant, but there are alternative syntactic realizations. A classic example of this type of argument structure alternation is the dative alternation, illustrated here for the Dutch verb *sturen* 'sturen':

(71) Jan stuurde Marie een boek
'John sent Mary a book'

(72) Jan stuurde een boek aan Marie
'John sent a book to Mary'

Sentences such as (71) are commonly referred to as *double object constructions*, those like (72) are known as *prepositional dative constructions*. The recipient argument appears as an NP adjacent to the verb in (71), and as the object of the preposition 'aan' *to* in (72).[23]

One of the issues concerning argument structure alternations is whether one of the argument structures of such a verb is basic, and the other derived. Some research has focused on the question whether children systematically acquire one of the realisations before the other, and whether this implies —for adult grammars— that one is derived from the other. Dutch children's acquisition of dative verbs is largely unexplored territory. The available evidence suggests that dative verbs (with both internal arguments overtly realised) appear first between 2;6 and 3;0. Ages of first

[22] Transitive use of *instorten* is reported anecdotally by other parents, too. The authoritative dictionary *Van Dale's Groot Woordenboek der Nederlandse Taal* (11th edition, 1984) gives only an intransitive reading for *instorten*.

[23] There is a vast literature on the acquisition of such alternations in English. Studies have mostly focussed on why certain verbs do and other verbs do not participate in such alternations. Constraints on alternations have not been studied in the acquisition of Dutch.

appearance are 2;10 for Kate (De Houwer 1990), 2;5 for Thomas, 2;6 for Hein, and 3;4 for Niek[24] (Bruyn, Muysken & Verrips 1995, 1996). This is consistent with the findings in Bol and Kuiken's (1988) cross-sectional study.

Dutch children's spontaneous realisation of dative verbs like the ones in (71) and (72) was investigated by Bruyn, Muysken and Verrips (1995, 1996). Their subjects Niek and Thomas produce their first prepositional datives after their first double object datives. Their subject Hein produces the first of each at the same recording session. In this respect the Dutch children show the same pattern as English children (Snyder & Stromswold in press). Before age 3;0, both realisations are very infrequent in Dutch child speech[25]. The first double object constructions of Hein, Niek, and Thomas are listed below in (73).

(73) a. Pepijn stukje geven (Hein 2;6)
P. piece give
'give Pepijn a piece'

b. mij antwoord geven! (Niek 3;4)
me answer give!
'answer me!'

c. plantjes water geven (Thomas 2;5)
plants water give
'(I want to) water the plants'

The less frequently a construction is used, the smaller the chance is that it will appear at all in a recording session. As a result, one is likely to erroneously conclude that a child does not master the construction. The low frequency of dative constructions in child speech therefore makes the study of spontaneous speech a questionable methodology for investigating children's knowledge (Maratsos & Abramovitch 1975). Experimental research should be carried out to extend the picture.

4.4. Light Verb Constructions

Section 4.1 presented some findings indicating that aspectual distinctions between events which imply an endpoint and events which do not play a role in mapping a verb's arguments onto syntactic positions, in both adult and child language. Van Hout (1996) argues that another domain in which the role of aspect shows up is in the acquisition of Light Verb Constructions (LVCs). Van Hout defines LVCs as non-literal uses of verbs like *gaan* 'go' (in *open gaan* 'to open' and *in bad gaan* 'to bathe') and *geven* ('give' in *een kus geven* 'to kiss'). She characterizes the verb in LVCs as a purely *aspectual* verb: its only function is to signal a certain event type.

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[24] For Niek, see Wijnen (1988); for Hein and Thomas, see Elbers and Wijnen (1992).

[25] In this respect, Dutch children seem to differ from English children, who produce dative constructions more frequently before their third birthday. We are not aware of any study of the frequency of dative verbs in Dutch adult speech.

Van Hout (1996, also Hollebrandse & van Hout 1995) explored the use of LVCs in children's early spontaneous speech. From an investigation of four longitudinal corpora from the CHILDES database (MacWhinney & Snow 1990), viz. those of Hein and Thomas (Elbers & Wijnen 1992) Niek (Wijnen 1988), and Laura (van Kampen 1994b) van Hout concludes that (1) children produce light verbs frequently and productively, (2) light verbs appear early, and (3) children make up their own LVCs. Some of the first LV are listed under (74).

(74) a. Thomas poepje doen (Thomas 2;4)
T. poop-$_{dim}$ do
'Thomas do doody'

b. ik ga onder douche (Laura 1;11.21)
I go under shower
'I am going to take a shower'

Another interesting finding is that when children make a verb-choice error in an LVC, they choose a verb which expresses the same event type as the target form. For example, they may choose causative *maken* 'make' instead of causative *doen* 'do' or vice versa, but they will not choose inchoative *gaan* 'go' in a causative context. Some examples are given in (75), with the adult verb in parentheses.

(75) a. *een spelletje maken (doen) (Hein 2;11.16)
a game make-INF (do)
'play a game'

b. *dicht brengen (maken) (Niek 3;1.17)
closed bring-INF (make)
'close'

Hollebrandse and van Hout take these findings to be further evidence for the accessibility of aspectual distinctions to children, and for a theory of argument structure in which event types play a major role.

4.5. Acquisition of Argument Structure: Conclusions

Any conclusion about the acquisition of argument structure in Dutch seems premature. Most research has been exploratory, and large domains are still totally unexplored. With respect to the representation of intransitives, children appear to behave largely like adults, though we have mentioned that it remains to be seen how 'deep' the similarities are. In general, aspectual distinctions, which play an important role in current theoretical approaches to argument structure, appear to play a role in children's classification of verbs.

With respect to the representation of passives, we have seen both similarities and differences between children and adults. Similarities include the fact that children appear to represent implicit arguments in passives, like adults do. However, differences arise when children overgeneralize implicit arguments to intransitive sentences where

adults do not represent them. The findings suggest that a deductive approach to the acquisiton of argument structure is correct.

5. The Interpretation of Anaphors

5.0. Introduction

In the early eighties, studies of children's interpretation of anaphors marked the onset of the "modern" era in Dutch language acquisition research (see section 1.1 above). The line of investigation that was started then and which continues today is strongly influenced by theoretical notions from the government and binding framework. This research focuses on children's knowledge of syntactic principles guiding the interpretation of anaphors.

Anaphors, of which reflexive and reciprocal pronouns are the prime examples, are referentially dependent noun phrases. Their interpretation depends on an association with an independently referring expression such as a noun, which is called the *antecedent*. Other pronominals, e.g. personal pronouns[26], can be used anaphorically as well. The table in (76) shows third person singular pronominal forms, which are most relevant for the present discussion. There are two types of reflexives; a simple (*zich*) and a complex one (*zichzelf). Zich* occurs with inherently reflexive predicates (e.g. *zich schamen* 'to be ashamed'). In contrast to the pronouns, reflexives are not gender-marked.

(76) *Third person singular pronouns and reflexives in Dutch*

	Gender	Nominative	Dative & Accusative
Pronouns	masculine	hij/ie	hem/'m*
	feminine	zij/ze	haar/d'r
	neuter	het/'t	het/'t
Reflexives			zich
			zichzelf

*: Before the slash: strong form, after the slash: the weak form

Anaphoric pronouns and reflexives[27] obey complementary constraints as to the

[26] In the remainder of this text, the term 'pronoun' will be understood to mean 'personal pronoun'. 'Reflexive' is used as a shorthand expression for 'reflexive pronoun'.

[27] The Dutch reciprocal pronoun *elkaar* 'each other' patterns with reflexives as far as antecedent binding is concerned (Haegeman 1994, p. 223 ff.). We know of one study on Dutch children's interpretation of the reciprocal pronoun (Philip, to appear), which focusses on semantics. Interestingly, Philip's results seem to indicate that children sometimes allow non-local antecedents for *elkaar* in sentences like *de kinderen zeiden dat de eendjes elkaar kietelden* 'the children said that the ducks tickled each other'.

possible location of their antecedents. These constraints have become known as Principles A and B of the Binding Theory (see e.g. Haegeman 1994: 228ff.):

A. An anaphor (i.e., reflexive or reciprocal) must be bound in its governing category.
B. A pronominal (i.e., an anaphoric pronoun) must be free in its governing category.

These principles are illustrated by examples (77) and (78). The reflexive *zich* in (77) can only refer to *Piet*, and not to *Jan*.

(77) Jan zegt dat Piet zich wast.
J. says that P. himself washes
'John says that Pete is washing (himself)'

(78) Jan zegt dat Piet hem wast.
J. says that P. him washes
'John says that Pete is washing him'

The crucial distinction between the potential antecedents *Jan* and *Piet* is related to the concept *governing category*. This notion is often assumed to refer to the minimal category that contains the anaphor, its governor, and either an accessible subject or a finite verb (Chomsky 1986: 169ff., Koster 1993: 19). For the present discussion, we can loosely equate the anaphor's governing category with the minimal clause that contains it. In example (77) *Piet* is within the governing category of *zich*, while *Jan* is outside of it. By the same token, this explains why *hem* in example (78) can **not** refer back to *Piet* (in that case it would not be free in the subordinate clause), but that *Jan* is a possible antecedent.

Binding is further restricted by a particular type of hierarchical relation between antecedent and anaphor, called *c(onstituent) command*. For a technical discussion of this notion, the reader is referred to Haegeman (1994). Loosely, c-command is related to dominance. In (79), the complex NP *de vader van Jan* as a whole dominates *zich*, but the NP *Jan* does not, because it is embedded in the former. Thus, *zich* can be bound to *de vader van Jan*, but not to *Jan*. By the same token, *de vader van Jan* is ruled out as an antecedent of *hem*, but *Jan* is not.

(79) de vader van Jan wast zich/hem
the father of J. washes himself/him
'John's father is washing himself/him'

The classical Chomskyan argument has been that learners cannot derive notions such as c-command and government through analysis of the input language and that, therefore, they must be innate. This would imply that from a very early age on, children should in principle be capable of treating anaphors and pronominals correctly from a syntactic point of view. A necessary condition is, of course, that they have acquired the

relevant morphemes, and have assigned them to the proper category. Thus, in a nutshell, the acquisition of binding would seem to comprise only the child's learning which pronominal elements are free, and which are bound anaphors.

5.1. Acquisition Evidence: 'Delay of Principle B'

The study of the acquisition of binding has traditionally relied heavily on experimental methods. The primary reason for this is the necessity to gain access to children's interpretation of anaphors, which production data does not allow. Nonetheless, it is important to know when the relevant lexical items enter the child's repertoire. An analysis of spontaneous speech of 36 children (Bol & Kuiken 1986) showed that the first personal pronouns appear around age 2. The nominative forms, notably 1SG *ik* 'I' and 3SG masculine *hij* 'he' are usually first. The oblique forms come in later, the order of appearance being *mij* 'me' (first occurrence at 1;11), *het* 'it'[28] (2;4), *jou* 'you' (2;6), and *hem* 'him' (2;11). No instances of the feminine form *haar* 'her' were found. Bol and Kuiken did not find any reflexives in this corpus. In a later survey of a larger set of data (Bol & Kuiken 1988), the earliest age at which a reflexive (viz. 1SG *me* 'me') was found was 3;0.

The assumption that the interpretation of both reflexives and pronouns depends on a single set of universal syntactic constraints has led researchers to expect that reflexives and pronouns would show a parallel developmental pattern. However, quite to their surprise, Deutsch and Koster (1982) found that children find pronoun interpretation much harder than reflexive interpretation. Six- and 7-year-olds were presented with sentences like (80) and were asked to evaluate whether they matched an accompanying picture.

(80) De vader van Jan wast zich/hem
the father of J. washes himself/him
'John's father is washing himself/him'

The sentences that contained a reflexive (*zich*) yielded 71% and 91% correct responses for 6- and 7-year-olds respectively. Sentences with the pronoun *hem* were responded to correctly 62% (6-yr-olds) and 52% (7-yr-olds) of the time. Statistical tests showed a significant improvement on the reflexive sentences over age, whereas the (negative) age trend for pronominal constructions was not statistically reliable.

Deutsch, Koster and Koster (1986) extended the age range of the subjects downward to age 4 and used a slightly different methodology. Presenting stimuli like (80), they found a steady increase in correct responses on reflexives from 22% at age 4 to 90% at age 10. Pronouns were interpreted correctly in only 37% of the cases by the 4-year-olds up to in 81% of the cases by the 10-year-olds. A significant interaction of age by anaphor type indicated that performance on the pronouns increased more slowly as a function of age than performance on the reflexives.

[28] Note that in *het* case is not morphologically marked.

Using an acting out task and sentences like (81), Deutsch, Koster, Koster and Corver (reported in Koster 1993) observed slightly higher success rates with the reflexives, but the developmental trends were identical to those reported by Deutsch, Koster and Koster.

(81) Jan schiet met Piet's pistool op zichzelf/hem
'John is shooting with Pete's pistol at himself/him'

Summarizing, these experiments clearly show that children's comprehension of pronouns lags behind that of reflexives, such that 'even at 10 years of age, the pronominal-antecedent relationship is often still causing these children more problems than adults' (Koster 1993: 29). Experiments in English and other languages have yielded a roughly similar pattern (White 1982, Lust 1986). This pattern has become known as the *Delay of Principle B*, although this is in fact a misleading term, since most of the researchers concerned do not believe that the *principle* is developmentally delayed. Whatever the correct label may be, the phenomenon constitutes a real problem for those who are interested in squaring linguistic theory with acquisitional data.

In an attempt to shed further light on the contrast between pronouns and reflexives, Deutsch, Koster and Koster (1986) analyzed the erroneous responses of their subjects. They found that the majority of errors were 'antecedent errors' in which the agent of the denoted action is wrongly identified, but in which the orientation of the action (self-oriented vs. other-oriented) is correct. For instance, when presented with the sentence *Piet z'n broer bindt zichzelf vast* 'Pete's brother is tieing himself up', the child would choose a picture in which *Jan z'n broer 'John's brother'* (i.e., *Piet*) is tieing himself up. This type of error was not only most frequent, but also most persistent with increasing age. The researchers conclude from this that children's difficulty with pronouns cannot be ascribed to a defective knowledge of the semantic contrast between reflexives and pronouns. Rather, they suggest that the problem has to do with the syntactic (configurational) properties of pronouns. However, in a subsequent study (Deutsch, Koster, Koster & Corver, see above), the most frequent error type was the interpretation of a pronoun like *hem* as *zichzelf*, which would indicate that children mistakenly assume pronouns to be reflexives.

Indeed, the latter error type is reported to be predominant in studies of other languages as well, and has played a role in attempts to reformulate the binding principles. Reinhart (1983), for example, has proposed a theory in which binding proper is separated from *(co-)reference*, which belongs to the domain of pragmatics. The (syntactic) binding principles apply only to morphemes that can be construed as bound variables. Reflexives are bound variables, whereas pronouns are not, except in some special cases. The relation between binding and co-reference is asymmetric. If an element *X* is syntactically bound to element *Y*, *X* and *Y* must also be co-referent. However, if *X* is *not* bound to *Y*, it might still be co-referent with it, although a pragmatic rule may prevent this. On this proposal, it is possible that children's persistent errors with pronouns are due to their lack of knowledge of the pragmatic constraints on pronominal reference. One implication of this hypothesis is that in contexts where a pronoun cannot co-refer with an antecedent NP, because the NP does

not have a referent, children should not behave as if, e.g., *hem* meant *zichzelf*. Such contexts arise, for example, when the antecendent NP is a quantified expression (e.g. *every bear* in 'every bear washes him' does not have a fixed referent). Results obtained by Chien and Wexler (1990) support this prediction.

Koster (1993, 1994), in testing Reinhart's hypothesis, made use of another sentence context in which pronouns behave as variables, as exemplified in (82).

(82) Bert wijst naar zijn fiets en Ernie ook
'Bert is pointing to his bike and Ernie (does) too'

(83) Bert wijst naar zichzelf en Ernie ook
'Bert is pointing to himself and Ernie too'

(84) Bert wijst naar hem en Ernie ook
Bert is pointing to him and Ernie (does) too'

On the one hand, the sentence in (82) can mean that both Bert and Ernie are pointing to Bert's bike. On the other hand, it can mean that Bert and Ernie each are pointing to their own bikes. In the latter case, *zijn* is construed as a bound variable, analogously to the reflexive in (83). As pointed out above, children frequently interpret *hem* 'him' as *zichzelf* 'himself'. Koster set out to investigate how the second conjunct in a sentence like (84) would be interpreted when *hem* in the first conjunct is (erroneously) made to refer to *Bert*. She conducted an acting-out experiment with 4 to 8 year olds using sentences like (83) and (84). Sentences containing reflexives were virtually always acted out correctly. Sentences containing the pronoun *hem* yielded correct responses in only 33 to 53% of the cases, which replicates the prototypical 'delay of principle B' effect. Crucially, however, the vast majority of the erroneous responses on the *hem*-sentences were reflexive-reflexive interpretations. Thus, upon hearing a sentence like (84), children made Bert point to Bert and Ernie point to Ernie.

Koster assumes that the interpretation of the V-ellipsis structure as in (84) implies reconstructing the missing element in the second conjunct by copying it from the first. The finding that the (implied, or copied) pronoun in the second conjunct is made to denote the local subject (Ernie) must mean, according to Koster, that it is construed as a bound variable. This means that the interpretation of the pronoun is determined by the binding principles. If the interpretation of *hem* had been based on co-reference, the referent of the pronoun would have been fixed to *Bert*, and, after copying, the interpretation of the second conjunct would have been 'Ernie is pointing to Bert'. The upshot is that, taking Koster's assumptions for granted, these data are incompatible with the hypothesis that children's pronoun errors are due to defective knowledge of the pragmatic contraints on co-reference.

To explain children's relative difficulty with pronouns, Koster (1993) has proposed that children may assign a representation to the sentences presented to them (whether in an experimental setting or not) that differs from the one adults construct. She suggests that children may believe that the subject of the sentence has moved to a syntactic position outside of the sentence proper, comparable to that of a topic phrase

in English (e.g. 'As to John, he is simply mad'). Since this implies removal of the subject out of the pronoun's governing category, binding of the pronoun to the subject would be legal. Koster does not clarify, however, on what grounds children would assume this representation. Also, since children do not make pronoun errors all the time, it must be assumed that they vacillate between their own 'wrong' representation and one that is more adult-like. If they can do that, the question arises as to why they don't get rid of the topic-representation right away.

5.2. Are Dutch Pronouns Special?

A comparison of the experiments reported in Koster (1993) with those in other languages suggests that Dutch children have more severe and more persistent problems with the interpretation of pronouns than children learning other languages. Sigurjónsdóttir and Coopmans (1996), comparing Dutch and Icelandic, confirm this. They tested 4-, 5- and 6-year old children and adults with the truth value judgement technique developed by Crain & McKee (1985). The subjects were asked whether sentences with reflexives (*zich*, *zichzelf* for Dutch) or pronouns (*hem*; see example 85) correctly described scenes displayed with the aid of dolls and props.

(85) Bert zegt dat Ernie zich/hem krabt.
B. says that E. himself/him scratches
'Bert says that Ernie is scratching him/himself'

The results for the *zichzelf* sentences are as expected; 73 to 78% of the 4 and 5 year olds and all 6-year-olds know that *zichzelf* must have a local antecedent. By contrast, none of the 4-year-olds and only 17% of the 5- and 6-year olds perform correctly on the *hem*-sentences. These results cannot be directly compared to Koster's because of different success criteria. Importantly, however, Sigurjónsdóttir and Coopmans show that Icelandic children, in an identical experiment, using the same criteria, succeed in 44% of the pronoun cases.

Sigurjónsdóttir and Coopmans also showed that the children's performance is affected by verb type. They contrasted verbs like *wassen* 'wash', which can either be inherently reflexive —which is indicated by the possibility of combining it with the simple reflexive *zich*—, or transitive, with ordinary transitive verbs, like *aaien* 'stroke' and *wijzen naar* 'point to' which combine with *zichzelf* in a reflexive context. Sigurjónsdóttir and Coopmans found that many more children (wrongly) accepted reflexive readings of *hem* with *wassen*-type verbs than with *aaien*- and *wijzen naar*-type verbs.

Their explanation of these results hinges on the assumption that Dutch children mistake accusative pronouns such as *hem* for *referentially incomplete* expressions, that is, expressions lacking person, number or structural case features. *Zich* and *zichzelf* are bonafide examples of this category, as is indicated for instance by the fact that they occur with both masculine and feminine antecedents (see the table in 76 above). Inherently reflexive verbs lexically specify the co-indexation of their subject and object (Reinhart & Reuland 1993). This in itself would allow for, e.g., $Piet_i$ *schaamt* hem_i

'Pete is ashamed of himself'. However, Reinhart and Reuland propose that this is ruled out by the *Chain Condition*, which dictates that a dependency relation between two elements can involve maximally one referentially complete expression.

Now if the child thinks that *hem* is referentially deficient, then binding of *hem* to the subject of a verb that has an inherently reflexive reading, such as *schamen* 'to be ashamed', but also *wassen* 'to wash', is allowed. By contrast, a co-indexation (binding) of *Piet* and *hem* in *Piet aait hem* 'Pete is stroking him' is still ruled out by binding principle B[29]. The fact that Dutch children make fewer errors with transitive verbs such as *aaien* than with verbs like *wassen*, which may be construed as inherently reflexive, suggests that they *are* sensitive to the binding principles, and that part of their problem is connected to determining the referentiality status of pronouns.

(86) het meisje ziet haar touwtje springen
the girl sees her rope-DIM jump
'the girl sees her jumping in the rope'

(87) het meisje pakt haar bij de enkel vast
the girl grabs her by the ankle PRT
'the girl is grabbing her by the ankle'

Philip and Coopmans (1996) further explored this hypothesis by testing 3- to 8-year old children with sentences like (86) and (87) in a sentence-picture matching task. Reinhart and Reuland's theory treats binding as a relation between arguments of reflexive predicates. In both (86) and (87), the predicate is non-reflexive. Hence its subject cannot be co-indexed with its object. In (86), the verb's object is the small clause *haar touwtje springen*. Thus, a co-reference interpretation of *het meisje* en *haar* would be possible if it weren't for the Chain Condition (both *het meisje* and *haar* are referentially complete). In (87), by contrast, *haar* is an argument of the (non-reflexive) predicate, and can therefore not be co-indexed with the subject. A prediction is that if the Dutch-speaking child does indeed have problems identifying pronouns as referentially complete, she will readily accept a non-adult-like reflexive interpretation of (86) at a time when she is already showing much greater adult-like performance with respect to structures like (87), which invoke binding principles. The results supported this prediction. The children's performance on sentences like (86) was significantly less adult-like than on those like (87). Philip and Coopmans also tested English-speaking children in the same age-range, but they did not show this pattern.

It is important to note that Dutch children's 'extra' difficulty with pronouns in terms of a failure to recognize their referential completeness only makes sense in the framework of Reinhart and Reuland's (1993) theory. The standard binding principles as introduced above by themselves cannot explain the obtained results. A remaining and important question is, of course, why Dutch children have difficulty in recognizing

[29] To be more precise, in Reinhart and Reuland's formulation this reading is ruled out because *aaien* 'to stroke' is not marked as a reflexive predicate. Transitive predicates can only get a reflexive reading by association with a reflexive pronoun (i.e., *zichzelf*).

pronouns as referentially complete expressions. Philip and Coopmans surmise that this is an effect of the deficiency of case morphology in the Dutch pronominal system. In particular, the absence of a morphological distinction between dative and accusative forms of the third person pronoun may prevent the child from discovering that *hem* 'him' and *haar* 'haar' are structurally case-marked. This suggestion calls for studies of the acquisition of binding in dialects of Dutch with an unambiguous morphological marking of pronoun case.

5.3. ***Zich*** *vs.* ***Zichzelf***

As pointed out before, there are verbs that can take both *zich* and *zichzelf*, such as *wassen* 'wash' and *ontwikkelen* 'develop'. These are assumed to have two distinct entries in the mental lexicon, one inherently reflexive, and one transitive (Everaert 1986). Sigurjónsdóttir's and Coopmans' (1996, see above) experiment explored children's knowledge of the intricacies of the simple reflexive *zich*. The authors assessed 4-, 5- and 6-year old children's, as well as adults', interpretation of *zich* with verbs of the *wassen* 'wash' type, and transitive verbs like *aaien* 'stroke' and *wijzen naar* 'point to'.

The experiment used sentences comprising finite, indicative complement clauses (88.a) and nonfinite (small clause) complements (88.b). In a finite complement clause, *zich* must get a local antecedent (i.e., Ad) for *wassen*-type verbs. In combination with a transitive verb, *zich* is ungrammatical as a local anaphor. Binding of *zich* to the subject of a small clause (88.b) is licit for *wassen*, but disallowed for *aaien*. Surprisingly, *zich* gets a non-local interpretation with *wijzen naar*. Thus, *zich* is bound to the matrix subject (Jan), rather than the embedded subject (Ad).

(88) a. Jan wilde dat Ad zich waste/aaide//naar zich wees.
J. wanted that A. 'zich' washed/stroked//pointed to.
'John wanted that Adrian washed/stroked//pointed to himself.'

b. Jan zag Ad zich wassen/aaien//naar zich wijzen.
J. saw A. 'zich' wash/stroke//point to
John saw Adrian wash/stroke//point to himself

For the *finite complement clauses* adults, as expected, only accepted local binding of *zich* with *wassen*. A majority of the children, however (50% of the 4- and 5- year-olds and 80% of the 6-year olds) allowed both local binding *and* long distance binding of *zich*. With the transitive verbs both adults and children strongly preferred local binding of *zich* in the finite complement contexts. This is unexpected, since, as explained above, a reflexive interpretation of a transitive verb is dependent on *zichzelf*. For the small clause complements, both adults and children strongly preferred to locally bind the anaphor with all verbs, even those of the *wijzen naar* type. This, too, constitutes a violation of the binding theory.

These results at least suggest, according to Sigurjónsdóttir and Coopmans, that children distinguish between finite and nonfinite complement clauses in terms of their thematic relation to the matrix clause. However, it is difficult to draw conclusions with

respect to children's knowledge of the distinction between *zich* and *zichzelf*, since with the particular task used, even adults apparently violate syntactic constraints, which the authors ascribe to the tendency of subjects in an experiment to construct sentence interpretations anyhow, even if the input is ungrammatical.

5.4. Anaphors: Conclusion

The data summarized in this section show that Dutch children have fewer problems with learning the interpretation of reflexives than with learning that of pronouns. In this respect, the Dutch findings resemble those of other languages. None of the explanations for this phenomenon advanced so far, however, seem to hold under careful experimental scrutiny. There is evidence that Dutch children's difficulty with pronouns is more serious and persistent when compared with e.g. English and Icelandic children. The experimental results reviewed here are compatible with the hypothesis that referential completeness of Dutch pronouns is not transparent to learners. Very generally, this illustrates the importance of 'lexical learning' in the acquisition of pronoun and reflexive interpretation.

6. Summary and Conclusion

It is clear from the above that the study of the acquisition of Dutch syntax has only just begun. There has been remarkable progress both in extending the empirical domain and in increasing the depth of analysis. Still, metaphorically speaking, the holes are larger than the cheese. We do not want to end this overview with a depressing list of all the areas of Dutch syntax for which we have no idea of how they are acquired. One generalisation must be made however: so far, almost all Dutch studies of language development have focused on clausal word order, and on properties of verbs and their arguments. The internal structure of NPs has hardly been studied at all[30]. This asymmetry corresponds to some extent to an asymmetry in adult linguistics: more theoretical studies focus on verbs and sentences than on nouns and nominal phrases. However, an analysis of nominal phrases in adult Dutch does exist (Corver 1990, Barbiers 1992). Moreover, the Principles and Parameters framework assumes that similar properties (for example agreement) play a role in NPs and clauses. It would be worthwhile to investigate such relations in language development (cf. Hoekstra and Hyams 1995 for a concrete proposal).

Let us now consider whether adopting the formal, universalist model of linguistic theory has proved fruitful in our quest for understanding Dutch language

[30] An exception should be made here for De Houwer (1990) in her case study of bilingual Dutch/English language acquisition. She discusses gender marking on determiners in Dutch, and finds a pattern similar to Schaerlakens and Gillis (1987): indefinite articles are used before definites, and the neuter definite article *het* is acquired after masculine/feminine *de*. De Houwer (1990) also looks at plural formation, at the development of NPs with an adjectival head, e.g. *de rooie* 'the red (one)', and at the internal complexity of NPs.

acquisition. This question can only be addressed with respect to the domains that have been investigated in some depth, such as verb placement, null subjects and early binding phenomena. In these areas the findings from a number of studies more or less converge. As regards the use of linguistic theory, a first conclusion is that the focus on the logical problem has sparked off a lot of research that was unthought-of before. The focus on the cross-linguistic implications has sharpened our theories, and has made cross-linguistic predictions and comparison possible. In these respects, there is no doubt that the adoption of the theoretical framework has been fruitful.

In the introduction to the present overview, we formulated two guiding questions. Now let us try to formulate some general answers. *How similar or dissimilar are child Dutch and adult Dutch?* The picture that emerges from this review is that the syntax of child Dutch is remarkably similar to the syntax of adult Dutch, though developmental change is attested in many domains. Across children, linguistic development proceeds in a similar fashion. In general, there appears to be relatively quick and errorless acquisiton of the overall structure, with later, piecemeal acquisition of the details. For example, section 2 describes how Dutch children *by and large* respect the distributional properties of finite and non-finite verbs throughout development, in fact as soon as the first multi-word combinations appear. Development in this domain consists of acquiring constraints relating to the contexts in which a particular form (e.g. a matrix infinitive) or operation (such as topic-drop) is allowed. Similarly, the details of agreement morphology on the verb are filled in in the course of acquisition. Another case is discussed in section 5, where children's interpretation of pronouns and reflexives is shown to be sensitive to the hierarchical structure of sentences, like in adult languages. Development consists in the acquisition of some particular, possibly lexical, property of Dutch anaphors. In other domains, we find similar patterns: object-scrambling is acquired early, but the interaction with the specificity of the NP takes longer to acquire; NP-movement in passivisation is acquired early, but the relation with the morphological marking of the verb is acquired later.

The general picture that emerges, then, is that the overall structure of Dutch syntax emerges with remarkable ease and rapidity, whereas the details are filled in in the course of time. The value of such a generalisation obviously depends on our success at defining the notions 'overall structure' and 'detail'. Is it possible to formulate in general terms which properties of a construction (or even of an entire language) are part of the 'overall structure' —and therefore acquired early— and which properties are details —and therefore acquired later? This brings us to the second guiding question formulated in the introduction: *how can the study of the acquisition of Dutch syntax contribute to our general understanding of the acquisition of syntax?* One approach would be to assume that universal properties of language are acquired early, while development occurs in domains in which cross-linguistic variation occurs. This distinction is implied in the original formulations of the Principles and Parameters framework: principles of Universal Grammar are invariant (innate, and therefore early), as opposed to the parameters which need to be fixed on the basis of positive evidence (therefore they are later). Does the distinction between invariant principles and varying parameters correlate with the distinction between 'acquired early' and 'acquired late' observed above?

The answer seems to be: only to some extent. We have discussed evidence that invariant principles are 'early', for example from the acquisition of binding. Concerning the more variable aspects of language however, a more complex picture arises. Consider once more the acquisition of verb movement, one of the best-studied areas in the acquisition of Dutch. The latest view on Dutch sentence structure (Zwart 1993) is that a universal phrase-structure, which produces an SVO order, interacts with particular properties of Dutch to produce SOV surface word orders. Both SVO and SOV patterns are part of the linguistic input to a Dutch child. If universal properties are acquired first, the prediction is that (S)VO orders are the first orders to be acquired and used, followed later by (S)OV structures. This prediction is not borne out at all; if anything it is the reverse prediction that holds. Other domains too, reveal early acquisition of very particular features of Dutch syntax, as for example conditions on the appearance of null-subjects (which occur almost exclusively in Topic-position), the relative order of the lexical subject and the finite verb in WH-questions, and the early use of passives with modal auxiliaries, which have not been reported to exist in any other language.

Thus, to conclude that the universal structure is 'early', whereas properties particular to Dutch are 'late' would not be the correct generalisation. What, then, distinguishes the 'early acquisitions' from the 'late acquisitions'? It seems to us that the 'late acquisitions' are always connected to some less conspicuously marked syntactic property of a position or a lexical item. For example, specific reference of NPs, which plays a role in object scrambling, is not marked explicitly in the linguistic input. Its interaction with object scrambling takes time to acquire. On the other hand, the overt characteristics of scrambling, i.e., the fact that objects appear on both sides of certain adverbs *is* overtly manifested in the linguistic input, and therefore acquired easily. In such general terms, the idea that the conspicuity of the evidence plays a role in the timing of acquisition was already formulated by Slobin (1973). Embedding this idea in a P&P framework makes it possible to come up with a more specific content for 'conspicuity' than Slobin provides.

Consider, for example, a phrase coined by Clark and Roberts (1993), *P(arameter)-expression. P-expression* stands for the idea that the linguistic input must contain some evidence —probably unique evidence— for the setting of a parameter. If the evidence is obscure, it is hard if not impossible for a child to select the adult value of a parameter. Roberts (1995) discusses the acquisition and diachronic development of verb-movement, and suggests that a parameter-setting can be morphologically or syntactically expressed. Movement of the finite verb in Dutch results in a position of the verb which can easily be distinguished from the base position. Dutch thus has syntactic P-expression of the verb-movement parameter. Equating, for the sake of argument, the notion 'parameter' with 'properties that vary between languages', we have encountered 'parameters' in this review which are neither morphologically nor syntactically expressed, like the relevance of specificity to object scrambling. A first generalisation from the review above is that the timing of acquisition depends on the nature of P-expression. If P-expression is overt and syntactic, acquisition is early. If P-expression is non-overt or if it depends on interaction with modules other than syntax, such as morphology or semantics, acquisition is late.

On the other hand, some findings indicate that some *un*conspicuously marked

features of Dutch syntax are acquired early. Those probably provide an even more direct 'window' on Universal Grammar than the relative timing of acquisition. Consider the fact that Dutch children's empty subjects are almost exclusively limited to the Topic-position. Or consider the finding that the syntactic implications of the aspectual properties of verbs are acquired without any remarkable trouble. There is nothing in the input to inform the child about the (abstract) diference between a subject and a Topic-position. Nothing informs children to limit their empty subjects to that position. In fact, children use empty subjects on occasions when adults do not. Yet, empty subjects are clearly confined to that particular syntactic configuration.

Roeper (1988) remarks that the heart of the matter of acquisition research lies in *explaining how the child acquires 'invisible' information*. Put differently, the primary problem is not how a child comes to produce grammatical strings, but how the child comes up with the correct *analysis* of those strings (which, in turn) leads him/her to produce only those strings and no others. It is exactly in the domains in which the input provides no information to the child, that we can see to what extent children are equipped innately to come up with a particular (type of) analysis.

The conclusion is then that the study of the acquisition of Dutch syntax so far has been fruitful in two ways: it has furthered our empirical knowledge of the development of Dutch syntax; secondly, it has shaped and sharpened our knowledge of the innate component in language acquisition.

Appendix: Child language corpora referred to in the text

Name of the child	*Source*	*Key citation*
Abel	Groningen (CHILDES)	Bol 1996
David	Tuijnman: unpubl. data	de Haan & Tuijnman 1988
Dirk	Verrips: diary notes	Verrips 1996
Fedra	Stevens: unpubl. data	Stevens 1977
Hein	Utrecht (CHILDES)	Elbers & Wijnen 1992
Jasmijn	Jordens (diary notes)	Jordens 1990
Josse	Groningen (CHILDES)	
Keesje	van Ginneken: diary notes	van Ginneken 1917
Laura	van Kampen (CHILDES)	van Kampen 1994a
Luuk	Tinbergen: diary notes	Tinbergen 1919
Maarten	Gillis (CHILDES)	Gillis 1984
Matthijs	Groningen (CHILDES)	
N	de Vooys: diary notes	de Vooys 1916
Niek	Wijnen (CHILDES)	Wijnen 1988
Peter	Groningen (CHILDES)	Wijnen 1995b
Sarah	van Kampen (CHILDES)	van Kampen 1994a
Thomas	Utrecht (CHILDES)	Elbers & Wijnen 1992
Ties	Verrips: diary notes	Verrips 1996
Tobias	Stevens: unpubl. data	Stevens 1977
Wouter	Wijnen: unpubl. data	

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