The Acquisition of Particles

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1. The acquisition problem*

One of the major questions in the field of Generative Grammar is the question how children are able to acquire their native language. The general answer to this question is based on the hypothesis that chidren are born equipped with a mental language organ that allows them to learn their mother tongue in an efficient, fast and homogeneous manner. Given that the content of this language capacity at this moment cannot be studied in a direct way by doing neurological and biological experiments, the study of human language competence must be approached through the study of the linguistic output that is (partly) the result of the activities of the linguistic competence. Generative Grammar thus faces the task to provide evidence for the innateness hypothesis by providing analyses of the linguistic output that support an underlying language organ.

In this view a particular adult language L is the result of the innate language competence, which is generally referred to as Universal Grammar or UG, and interacting language specific properties that have to be learned during the process of language acquisition. These language specific properties can be divided into two types. First, there are properties that are directly related to UG in the sense that they determine particular choices that are left open within UG. These choices or parameters are fixed during the process of language acquisition on the basis of linguistic evidence the child is exposed to. In addition to the positive evidence that allows the child to fill in UG, the child also has to learn language specific properties of L that cannot be reduced to properties of UG.

The linguist that tries to provide evidence for UG on the basis of analysing the language L thus has to distinguish three types of linguistic knowledge that speakers of L possess: knowledge of UG, knowledge of the setting of the parameters, and knowledge of language specific properties of L. It is evident that it is extremely complicated to distinguish these three types of knowledge on the basis of the analysis of a particular linguistic phenomenon in L.

At first glance it might be expected that research in the field of generative linguistics would be dominated by the study of first language acquisition. The reason being that if we want to know how the child acquires his first language, we have to study the child in the process of acquisition. A more sophisticated reason to expect the importance of the study of language acquisition is that the child's language is to some extent 'closer' to UG than the adult language, since his language specific knowledge is less extensive. Study of language acquisition thus may give us information about the structure of UG that is not easily obtained in the adult language.

However, the actual situation in generative linguistics does not seem to correspond to this picture. Although a lot of research in the field of language acquisition is going on, it is by no means clear that this type of research has a profound influence on the theoretical construction of Universal Grammar. It appears to be the case that studies in language acquisition generally take the theoretical framework as a guideline to analyse particular

phenomena in the process of language acquisition. The theory about UG gains in descriptive scope in as far as it succeeds in providing us with insights in the phenomena of first language acquisition. However, it is hardly ever the case that arguments from the domain of language acquisition crucially determine the particular format of a part of the theory of UG. Why would this be so?

The first reason for this might be the fact that a particular stage of language acquisition (say L(Si), i.e. Stage i in the acquisition of language L) is not very stable. The process of language acquisition takes the child from UG or L(S0) to the final stage L(Sn). Given the fact that the child is continuously making progress, it is quite difficult to develop a sound theory about L(Si). So even for one child it is difficult to say something about a particular stage L(Si).

It is evident that it is even more complicated to make claims about a stage L(Si) across children acquiring language L. How do we determine whether children are in a particular stage? Although it appears to be clear that language acquisition proceeds in a very homogeneous way across children, it is nevertheless true that there is a lot of individual variation. It is not so easy to abstract away from individual variation to assess the properties of a particular stage that every child goes through.

Given the first two problems it is more difficult still to compare Si in different languages from a comparative point of view. In order to approach UG we need to adopt a comparative perspective to able to abstract from language specific properties. In order to do so we would need to compare a particular stage in Li to the same stage in Lj. At this moment it seems hardly possible to make such a comparison that is detailed and explicit enough to have a substantial influence on the theory of UG.

It thus appears to be much more realistic to study the final stages of the process of language acquisition. This has the advantage that we are able to discriminate a particular stage within and across speakers of Li, and that we are able to compare Li with Lj without the methodological problems we have encoutered above. Moreover, the data that generative linguists consider to be the relevant data for linguistic analysis are not the utterances spoken by native speakers of a particular language, but rather the judgements that these speakers have about the well-formedness of particular sentences. The advantage of this assumption is that it allows abstraction from irrelevant pragmatic factors that influence a particular speech situation.

But again, this methodological advantage turns into a disadvantage in studying child language. Asking well-formedness judgements assumes the possibility to perform meta-linguistic tasks. It is well-known that younger children do not have the capacity to give meta-linguistic grammaticality judgements. It is thus by no means clear what the status is of child language data that are generally taken from tape recordings. It is virtually impossible to determine whether a particular child language utterance is a well-formed sentence reflecting the grammar of L(Si), or an utterance that is not well-formed through ellipsis, or other pragmatic factors influencing the grammaticality in a particular speech situation.

A final problem for the relevance of child language to the theory of UG concerns the fact that even if we would be able to investigate the properties of a particular phenomenon in a particular stage of language acquistion (L(Si)), we would probably be able to do so only by making a comparison with the final stage (L(Sn)). In that case the properties of the intermediate stage tell us something about the difference between L(Si) and L(Sn), and thus about what has to be acquired yet at L(Si). It does not directly tell us something about L(S0). Given that it is not clear yet in which way properties of UG become available to the child (are all properties of UG already available from the beginning on, or is there some kind of maturation that governs the availability of UG-properties during the process

of acquisition?), it is not at all evident that the grammar of L(Si) is more relevant to the study of L(S0) than L(Sn).

Above I have given a number of reasons why the study of language acquisition is not as dominant within generative linguistics as we would expect it to be. However, many studies in this domain can be found. In the majority of cases, studies in language acquisition are intended to explain a part of the acquisition process by using a theoretical model as a device to structure the available information. In these studies the theoretical model is used as an instrument to reach the goal of understanding a part of the intriguing phenomenon of first language acquisition. From such an instrumental point of view the suitability of a particular theory to obtain this goal determines its relevance to the field of language acquisition. It is interesting to see that the relationship between generative theory and language acquisition in the past thirty years has been largely dependent on the question whether the current version of generative theory was suitable for the analysis of child language data. In the past six years we have seen a rise in studies of language acquisition from a generative point of view, running strikingly parallel to the introduction and expansion of the theoretical distinction between lexical and functional structure. Apparently this distinction is very useful in analysing succeeding stages in acquisition.

From a theoretical perspective the success of a particular model with respect to the analysis of child language is relevant as well, since it may extend the scope of the theory to a new domain of facts. If the theory is successful in the analysis of child language, it is considered to be independent evidence supporting the theory. If the theory is not successful with respect to language acquisition, it is often not considered to be a disadvantage since other, unknown factors may disturb the extension of the theory to a different domain of facts. For instance, the very general and central observation that the child proceeds without having access to a substantial amount of negative evidence hasn't had much influence on the theoretical proposals we find in the literature. Next to the instrumental view on the relation between theory and acquisition, we thus have the supportive view as well.

In this paper I will discuss a third approach to the relation between theory and acquisition. It concerns a view in which acquisition data and generalizations are taken as facts that should be considered as relevant to linguistic theory as data from the adult language. In this particular case I will argue that data from language acquisition allow us to make a choice between two possible theoretical analyses. The data are thus not only used to support a particular analysis, but also to discredit an alternative analysis. The main difference between data from child language and data from adult languages is the fact that child language data and generalizations are much harder to establish, but in this sense they do not differ much from data and generalizations from the domains of historical linguistics and language impairment.

2. The Linguistic Problem

An important and central issue in linguistic theory is the question about the status of the notion 'word' (cf. Di Sciullo & Williams 1987). The definition of word that is most general is the definition that takes words to be syntactic atoms. This is expressed by the principle of Lexical Integrity (cf. Lapointe 1979) that states that words are lexical units that cannot be separated or decomposed by syntactic operations. In this paper I will discuss a famous Dutch (German / Afrikaans) construction that is crucial to this discussion: Particle Verbs. The standard name of the construction already indicates its relevance to this discussion: *separable compound verbs*. Verbs are words; compound verbs are verbs that

are derived by means of the morphological operation of compounding; but separable verbs are constructs of which the constituing parts can be separated by a syntactic operation. It thus appears to be a 'contradictio in terminis'. Let me first illustrate the problem with the sentences in (1).

(1) a. dat Jan zijn vrouw [*opbelt*]
that John his wife up-calls
b. Jan *belt* zijn vrouw *op*
John calls his wife up

The verb in the embedded clause in (1a) seems to be *opbelt*, a finite form of the verb *opbellen*. It is generally assumed that *opbellen* is a word. However, in (1b) we see the result of the syntactic operation of Verb Second, that moves the finite verb to the second position in root clauses. We observe that *belt* is obligatorily separated from *op* through a syntactic operation. A somewhat similar observation can be made for the English sentences in (2).

(2) a. I [*call up*] John
b. I *call* John *up*

There are two ways to approach this problem. First we may take *opbellen* and *call-up* as words. In the light of (1b) and (2b), this would lead us to give up Lexical Integrity as the defining characteristic of the notion word. On the other hand, we may stick to Lexical Integrity. This would imply that *opbellen* and *call-up* do not qualify as words, and should be analysed as syntactically complex.

Dutch Particle Verbs have been the subject of a lot of discussion in the past decades. Relevant references in this respect are Baayen (1986), Bennis (1992, 1993), Booij (1990), Groos (1989), Hoeksema (1991), Koster (1975), Le Roux (1989), Model (1991), Neeleman (1994), Neeleman & Weerman (1991), Van Riemsdijk (1978), de Vries (1975).

Below I will show that each of the two views can be supported by various theoretical arguments. After the presentation of the two opposite theoretical positions with their arguments, I will show that data from language acquisition are able to settle the issue in favour of the analysis in which particle verbs are taken to be syntactically complex.

2.1. Particle Verbs as units

A first, and intuitively reasonable argument for the word-status of particle verbs is the fact that particle verbs often have a non-compositional meaning, as is indicated in (3).

(3)	a.	*op-scheppen*			b.	*over-slaan*
		up-ladle				over-hit
		compositional	:	'ladle out'		'hit across'
		non-compositional	:	'swank'		'pass over' / 'omit'
	c.	*aan-passen*				
		on-fit				
		compositional	:	'try on'		
		non-compositional	:	'adapt'		

The second interpretation of the particle verbs in (3) cannot be derived from the meaning of the constituing parts in a straightforward way. Consequently, these particle verbs must be listed in the lexicon. Moreover, there are cases in which the only available interpretation is non-compositional, as in (4).

(4)	a.	*voor-stellen*	b.	*mee-maken*
		before-put		with-make
		'propose', 'introduce'		'go through'

Related to the non-compositionality is the fact that there are cases in which the verbal part of the particle verb combination does not occur on its own, as in (5).

(5)	a.	*uit-breiden*	b.	*aan-wakkeren*	c.	*op-kalefateren*
		out- ?		on - ?		up - ?
		'extend'		'stir up', 'stimulate'		'furbish up'

If we take the lexical elements in (5) to be syntactically complex, we have to assume that **breiden*, **wakkeren*, and **kalefateren* occur as verbs in the lexicon.

Another argument for the word-status of particle verb combinations is the fact that the combination can be the input of morphological rules. This is not so evident in the case of inflection, but absolutely clear in cases of derivation or compounding, as is illustrated in (6) and (7).

(6) **derivation**

	a.	in-wijd-ing	b.	uit-vouw-baar	c.	door-zett-er
		in-augurate-ing		out-fold-able		through-carry-er
		'inauguration'		'unfoldable'		'hustler'

(7) **compounds**

	a.	over-slag-haven	b.	bij-zet-tafel-tje
		over-*hit*-port		*with*-put-table-*diminutive*
		'port of transhipment'		'occasional table'

The complex words in (6) and (7) are created by morphological rules such as *-ing* affixation. If morphological rules operate on syntactically simplex elements only, i.e. a wordbased morphology, it leads to an analysis in which the particle verb, which is undoubtedly a constituing part of the derivation or the compound, is a single word.

A final argument in favour of the analysis in which particle verbs are taken to be single words, is the fact that particles may join the verb in Verb Raising, a process that is generally taken to be a case of head movement of V. This is shown in (8).

(8)	a.	... dat Jan de bal wil in-gooien
		(... dat Jan de bal in wil gooien)
		... that John the ball wants in-throw
	b.	*... dat Jan de bal wil in het veld gooien
		(... dat Jan de bal in het veld wil gooien)
		... that John the ball wants in the field throw

The acceptability of (8a) demonstrates that the particle and the verb together may appear to the right of a modal verb, a position in which a PP-V combination does not occur (8b). If

the process of Verb Raising in (8) is an instance of V-movement, particle and verb must constitute a verbal unit.

We thus have seen that arguments from different domains of the grammar – lexical, morphological, and syntactic arguments – can be used to support the claim that particle verbs are syntactically simplex units.

2.2. Particle Verbs as complexes

There are various arguments that indicate that the Particle Verb combination is best analysed as a syntactically complex unit. Again these arguments come from different linguistic domains.

A first argument to distinguish particle verbs from morphologically complex verbs concerns the stress pattern. Without exception particle verbs have their main stress on the particle. In prefixed complex verbs that are not separable the main stress is on the verb, and not on the prefix.[1] This is demonstrated in (9).

(9)		SEPARABLE	NON-SEPARABLE
	a.	*Overkomen*	*overKOmen*
		'come over'	'befall'
	b.	*VOLvoeren*	*volVOEren*
		'feed full'	'fulfil'
	c.	*BIJvallen*	*beVALlen*
		'support'	'please'

In addition to the fact that the data in (9) show that separable verbs behave different from complex verbs with respect to stress assignment, the fact that the stress in separable verbs is on the particle can be related to the fact that in Dutch the main stress within VP is on the complement of V, and not on V itself, as is shown in (10).

(10) a. dat Jan het boek op de TAfel legt
that John the book on the table puts
b. dat Jan een BOEK leest
that John a book reads
c. dat Jan dat boek verVElend vindt
that John that book boring considers

If we take the particle to be part of the complement of V, instead of being a prefix, the main stress on the particle is predicted as a consequence of the more general phenomenon that is illustrated in (10).[2]

A morphological consideration that supports the complex view on particle verbs is the fact that the inflectional prefixes *ge-* – in the case of past participle formation – and *te-* – in the case of infinitive formation[3] – do not appear in front of the complex, but in between the particle and the verb. This is demonstrated in (11) - (14)

(11) a. *UIT-ge-breid* / **(ge)-UIT-breid*[4]
'extended'
b. *Over-ge-komen* / **(ge)-Over-komen*
'come over'

(12) a. **be-ge-VALlen / be-VALlen*
'pleased'
b. **over-ge-KOmen / over-KOmen*
'befallen'

(13) a. *UIT-te-breiden / *te-UIT-breiden*
'to extend'
b. *Over-te-komen / *te-Over-komen*
'to come over'

(14) a. **be-te-VALlen / te be-VALlen*
'to please'
b. **over-te-KOmen / te over-KOmen*
'to befall'

The analysis in which particle verbs are simplex units leads us to an analysis in which either inflectional prefixes are attached to the verbal root before derivational prefixes in the case of particle verbs only, or to an analysis in which these verbs require inflectional affixes to be infixes. Both analyses are completely ad hoc. If we take particle verbs to be syntactically complex we expect inflectional affixes to attach to the verb, and thus to appear in between particle and verb.

A third argument in favour of complexity is the fact that it allows us to stick to the principle of Lexical Integrity as a defining property of the notion word, as was discussed above. As is shown in (15b), morphologically complex verbs are moved to the second position in root clauses as a whole, whereas particle verbs (15a) require stranding of the particle.

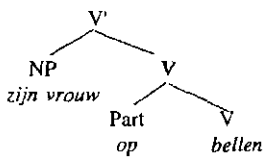
(15) a. Dat vliegtuig komt steeds over / *overkomt steeds (Over-komen)
That plane comes continuously over
b. Dat *komt mij steeds over / overkomt mij steeds (over-KOmen)
That befalls me continuously

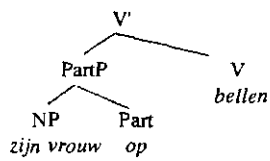
The phonological, morphological, and syntactic arguments presented in this paragraph support the view that particle verbs are syntactically complex.

2.3. Two hypotheses

We thus may conclude that the facts appear to support two competing analyses of the particle verb combination. Structurally these two analyses can be represented as in (16b) and (16c).

(16) a. (dat Jan) zijn vrouw op belt
that John his wife up calls

b.


c.


In the complex verb analysis in (16b) *op* and *bellen* constitute a verbal complex. The NP *zijn vrouw* is the object of the complex verb. The view in which the particle verb is a syntactic complex gives rise to an underlying structure such as the one in (16c), in which the particle is a separate constituent in the underlying syntactic representation. The NP *zijn vrouw* is an argument of the particle structurally. I will call (16b) the Complex Verb (CV) analysis, and (16c) the Small Clause (SC) analysis.[5]

Let us conclude this paragraph with a comparison of the two views:

Hypothesis I: Particle verbs are morphologically complex (**CV-analysis** in 16b)

pro:	- non-compositionality	*contra*:	- stress
	- input to derivation and compounding		- no input to inflection
	- Verb Raising (VR)		- Verb Second (V2) / Lexical Integrity

Hypothesis II: Particle verbs are syntactically complex (**SC-analysis** in 16c)

pro:	- stress	*contra*:	- non-compositionality
	- inflection		- derivation / compounding
	- V2		- VR

Given the fact that particle verbs have properties of morphological and syntactic complexes, it is not surprising that the literature presents us with analyses that try to build in this somewhat paradoxical property. In Baayen (1986), Booij (1990), Groos (1989), Koster (1975), Le Roux (1989), Model (1991) and De Vries (1975) we find analyses that are based on the view that particle verbs are hybrids, in between a word and a phrase. The problem with these analyses is that the difficulty that particle verbs present for the theory is solved by defining a new, hybrid entity, exclusively for particle verbs. The strongest position is that either hypothesis I or hypothesis II is maintained. In paragraph 3 I will argue that hypothesis II is supported by psycholinguistic evidence. In paragraph 4 I will show that the arguments against hypothesis II are not as strong as they may appear.

3. Psycholinguistic evidence for syntactic complexity

Below I will provide two different psycholinguistic arguments that support the view that particle verbs should be analysed as syntactically complex. The first argument is related to lexical access, and is completely based on experiments that are carried out by Schreuder and his colleagues. The second argument is crucial to this article in the sense that it shows that data from language acquisition are relevant in determining the choice between the two competing analyses of particle verbs.

3.1. The lexical access of particle verbs

In Schreuder (1990) and Schreuder et al. (1990) it has been shown that the way in which particle verbs are recognized in language processing differs from the way morphologically complex verbs are recognized. The processing difference between particle verbs and verbs with bound prefixes has been demonstrated in a priming experiment. The results of this experiment are exemplified in Table 1.

Table 1. Bound prefixes vs. particles (Schreuder 1990:73)

	bound prefix (*be-vallen*)	particle (*aan-vallen*)
NO PRIMING	538	500
VERB PRIMING	519 [19]	472 [28]
PREFIX/PARTICLE PRIMING	516 [22]	463 [37]

*mean naming latencies (in ms) for the three conditions, for the two different types of verbs. The amount of priming obtained is shown in brackets.

Table 1 shows that the time necessary for the lexical access of a particular verbal complex can be influenced by showing the verbal part (verb priming) or the prefix/particle first. This priming effect is significantly larger for particle verbs than for prefixed verbs in both priming conditions (19 vs 28 and 22 vs 37). It thus shows that the representation of particle verbs in the mental lexicon is different from the representation of prefixed verbs. From this Schreuder concludes:

> "These examples suggest that the special problem for the language processing system raised by verbs with separate particles can only be resolved through the combined efforts of both the lexicon and the syntactic processing system. The details of this interaction are a matter for further research, not only because they shed light on the processing of particle verbs (e.g. how syntactic processing can be interfaced with the MI model of lexical access), but also because they may shed light on the processing of idiomatic expressions in general." (Schreuder 1990:76/77)

Without going into detail, the conclusion of Schreuder contains two important observations. First, he concludes that the syntactic processing system is involved in the lexical access of particle verbs, but not in the case of prefixed verbs. Second, he compares particle verbs with idiomatic expressions. Since idiomatic expressions are syntactically complex lexical items, this stresses the same point: syntactic complexity is involved in particle verbs.

The results of Schreuder's experiment and his conclusions favour an analysis of particle verbs in which the particle and the verb are related through syntax. It thus constitutes an argument in favour of the SC-analysis in (16c), and against the CV-analysis in (16b).

3.2. Evidence for syntactic complexity from language acquisition[6]

From the two hypotheses on the structure of particle verbs we may derive the following predictions:

- if particle verbs are morphologically complex, they should emerge as units in the process of language acquisition;
- if particle verbs are syntactically complex, there is no a priori expectation on the co-occurrence of particle and verb.

In order to see which of the predictions is correct we have looked through all the available data of Dutch children in the CHILDES database (MacWhinney & Snow 1990). Moreover, we have included some data from Jasmijn.[7] We have counted all the occurrences of particles, and have indicated in which context each particle appears: standing alone, in

combination with a preceding noun phrase, in combination with a verb. Examples of the different contexts are given in (17).

(17)				
	Prt	*uit*	'off'	[Jasmijn 1.9.1]
	NP-Prt	*tiktak uit*	'clock off'	[Jasmijn 1.9.0]
	NP-NP-Prt	*Cynthia soene uit*	'Cynthia shoes off'	[Jasmijn 1.9.1]
	NP-Prt-V	*sokken uit-doen*	'socks off-take'	[Jasmijn 1.9.1?]

The data from the CHILDES database showed that particles alone appear very early. We found an occurrence of a particle standing alone in the first available file of each child. The data from Jasmijn showed the early appearance of particles as well. This is demonstrated in Table 2.

Table 2. The *first occurrence* of particles * = 1st file

CHILD	SOURCE	AGE OF 1st PARTICLE
Diederik	Schaerlakens	1;10.18 (22.8) *
Katelijne	„	1;8.29 (20.29) *
Gijs	„	1;8.29 (20.29) *
Joost	„	1;8.29 (20.29)*
Jasmijn	Jordens	1;3.30 (15.30)
Laura	vKampen	1;9.26 (21.26) *
Sarah	„	1;7.8 (19.8) *

In order to see how the development of *the particle* construction takes place in acquisition, we have studied the occurrence of particles in Jasmijn's early files. This is shown in Table 3.

Table 3. Distribution of particles in %

JASMIJN	Part alone	Part + N	Part + V
1;2.30 - 1;5.4	94	6	—
1;5.5 - 1;7.3	48	45	2
1;7.9 - 1;8.26	21	61	15
1;8.27 - 1;9.29	15	45	38
1;10.4 - 2;0.27	8	11	62
2;0.30 - 2;2.4	—	11	87
2;2.5 - 2;3.17	1	8	88
2;3.19 - 2;4.19	4	5	89

Table 3 provides a clear picture of the development of particle constructions. The particle first shows up alone. The proportion of particles alone decreases quite rapidly, and has almost disappeared in the final files in Table 3. The next stages show the addition of a noun (*soene uit*). The number of N-Part combinations increases rather fast. This combination disappears again in the later files. The Part-V combination shows just the opposite of the Particle standing alone. In the first files it is non-existent; in the later files the particle appears predominantly in combination with a verb.

The observed pattern does not support the view that particle verbs are units, because it would lead us to expect that the Part-V combination shows up right from the beginning. The pattern is more in line with a view in which the order Part > N-Part > (N)-Part-V is a sign of an increasing complexity.[8] That is precisely what the SC-analysis predicts. The Particle alone is a simplex predicate. Adding a noun to the predicate results in a basic subject predicate structure. The addition of a verb creates a structure with two predicates, a verbal matrix predicate, and the particle as a secondary predicate. It is rather evident that complexity is added by the combination of two predicates in one construction.

If this is correct we expect to find the occurrence of particles alone before particle verbs with all children. We also expect simplex verbs to occur before particle verbs. With respect to the children that are included in this study, it indeed appears to be the case, as is evident from table 4 and table 5.

Table 4. Particles before particle verbs * = 1st file

CHILD	SOURCE	AGE OF 1st PARTICLE	AGE OF 1st PART+V
Diederik	Schaerlakens	1;10.18 (22.8) *	2;0.19 (24.19)
Katelijne	,,	1;8.29 (20.29) *	1;11.27 (23.27)
Gijs	,,	1;8.29 (20.29) *	1;10.29 (22.29)
Joost	,,	1;8.29 (20.29)*	2;0.12 (24.12)
Jasmijn	Jordens	1;3.30 (15.30)	1;6.1 (18.1)
Laura	vKampen	1;9.26 (21.26) *	1;11.22 (23.22)
Sarah	,,	1;7.8 (19.8) *	1;11.9 (23.9)

Table 5. Verbs before particle verbs * = 1st file

CHILD	AGE OF 1st VERB	AGE OF 1st PART+V
Diederik	1;10.18 (22.18) *	2;0.19 (24.19)
Maria	1;10.18 (22.18) *	2;0.19 (24.19)
Katelijne	1;8.29 (20.29) *	1;11.27 (23.27)
Gijs	1;8.29 (20.29) *	1;10.29 (22.29)
Joost	1;8.29 (20.29) *	2;0.12 (24.12)
Laura	1;9.29 (21.26) *	1;11.22 (23.22)
Sarah	1;7.8 (19.8) *	1;11.9 (23.9)

The late occurrence of particle verbs has also been observed in the literature. Braine (1963) provides data that demonstrate that the N-Part combination shows up in the two word stage. He gives the following data from Andrew [1;7-2;0]: *boot off, light off, pants off, shirt off, shoe off, water off*. In Braine's analysis the particle *off* is a pivot occurring in the two word stage.

An even more clear confirmation of our findings can be found in a paper by Bowerman (1974), as the following quotation shows:

> "A striking finding is that between 21 and 22 1/2 months, when sentences 3 and even 4 words long were frequent, there were no constructions which explicitly expressed a link between an action and an effect on a patient, such as "put shoe on," "take coat off," "eat cereal allgone," and "turn light off." [...] Thus, there were sentences like "mommy push baby," and those like "baby fall," but none like "mommy push baby down," or even simply "push baby down." Similarly, there were sentences like "mommy eat," "eat yoghurt" and "yoghurt allgone," but none like "eat yoghurt allgone." (Bowerman 1974:166)

The fact that particle verbs appear rather late – later than expected on the basis of the lenght of the utterance or the presence of the constituing elements – can be made to follow from the fact that the combination of particle and verb implies the creation of a syntactic structure that expresses a structurally complex predicate, as in (16c). In order to demonstrate that it is indeed the complexity of the predicate that causes the particle verb to appear rather late, we should compare the appearance of particle verbs in child language with the appearance of other instances of complex predication. The SC-analysis leads us to expect a correlation between different instances of complex predication.

We did not yet analyse the available data for Dutch to check whether this correlation obtains. However, Stromswold & Snyder (1994) have analysed similar English data. They studied the acquisition of a number of different constructions that might be analysed as complex predicates: double object datives, *put*-constructions, small clause constructions and V-NP-Particle constructions. Examples of these construction types are given in (18).

(18) DOD : John gives [Mary a present]
Put-locatives : John puts [the book on the table]
SC : John sees [Mary leave]
V - NP - Prt : John calls [Mary up]

In the literature these constructions have all been analysed as involving secondary predication by a small clause complement of the matrix verb (a.o. Stowell 1981, Hoekstra 1984, Kayne 1984, Den Dikken 1995). The acquisition of these four constructions runs remarkably parallel, as is clear from table 6.

Table 6. First occurrence of secondary predicates (Snyder & Stromswold 1994)

	V-NP-Part	DOD	SC	*Put*-locatives
Adam	2;3.1	2;3.1	2;4.1	2;3.1
Nina	1;11.5	2;0.0	2;0.8	2;0.6
Eve	1;9.0	1;7.9	1;7.9	1;9.0
Mean	2;2.7	2;2.5	2;4.9	2;2.9

Snyder and Stromswold conclude: "In this paper we have demonstrated that double object datives, *put*-constructions, "small clause" constructions with verbs of causation and perception, and V-NP-Particle constructions were all acquired concurrently by 12 children in the course of learning English." (Stromswold & Snyder 1994). Although Snyder & Stromswold have a different structural account of the observed correlation,[9] it is clear that this correlation supports a view in which particle verbs are taken to be structurally complex predicates. If particle verbs were a special class of simplex verbs, we would not be able to explain the correlations in table 6.

Let me summarize the generalizations that can be formulated with respect to the acquisition of particle verbs:

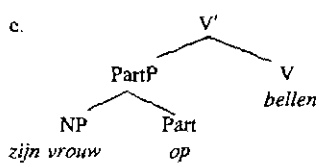
- particles occur alone before they appear with verbs;
- particles appear with other categories (nouns) before they appear with verbs;
- verbs appear without particles before particle verbs emerge;
- particle verbs emerge at the same time as syntactically complex predicates.

These generalization leads us to one conclusion only: the analysis of separable compound verbs as syntactically formed complexes (hypothesis II) is supported by early acquisition data. There is no clear way to account for these generalization if we assume that hypothesis I is correct.

4. The structure of particle verb combinations

The arguments in paragraph 3 show that we should adopt an analysis for particle verbs in which the particle and the verb are separate syntactic categories, as in (16c).

(16) c.



In paragraph 2 it was argued that such an analysis is problematic in the following respects:

- it does not provide us with a straightforward explanation of the fact that the particle verb combination often shows a non-compositional semantics;
- it is not predicted that particle verbs can be the input of derivational morphology and compounding;
- it does not follow that the particle verb combination can be the input of head movement operations such as Verb Raising.

In line with the theory we may assume that the particle itself can be moved to the verb through the process of head movement. The resulting complex may then itself be subject to head movement in the case of Verb Raising. The third objection thus can be removed quite simply. However, we have now created a new problem. In paragraph 2 it was observed that particle verbs are not subject to Verb Second:

(19) a. Jan belt zijn moeder op
John calls his mother up
b. *Jan op-belt zijn moeder

If the particle can be moved to the verb in order to create a complex that might be subject to Verb Raising (VR), we expect the same complex to be the target of Verb Second (V2) as well. The difference between VR and V2 is that the verb is inflected in the case of V2, and uninflected in the case of VR. As we have seen in paragraph 2 inflection cannot be attached to particle verbs in the case of *te*-infinitives and participles (cf. 11-14). We now may extend this generalization to the inflection of finite verbs. This leads to the following reformulation of the problem: particle and verb may constitute a syntactically created complex head that cannot be the input of inflectional rules; this complex head may be the input of derivation and compounding.

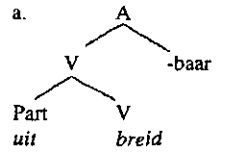
If syntactically formed complexes are the input of derivational rules, we have to reconsider the standard model of the grammar in which morphology is ordered before syntax in such a way that syntactic rules cannot feed morphological rules. This would involve that we also give up the Lexicalist Hypothesis (Chomsky 1970, Chomsky 1995), which introduces a strict distinction between the structure of words and the structure of phrases. From the perspective of economy (Chomsky 1995) it would be optimal to drop the Lexicalist Hypothesis since it introduces an artificial distinction between two components of the grammar. Empirically there is no convincing evidence to stick to the view that wordformation and structure building are completely separated into two unrelated subsystems. Until recently it has been common practice to consider inflection as the result of head movement. There are also various proposals (a.o. Borer 1991) that argue that there is interaction between morphology and syntax in such a way that derivational rules may operate on syntactic phrases. The fact that particle verbs are the input to derivation is another illustration of the same phenomenon.

If that is correct, the explanation of the differential behaviour of particle verbs with respect to morphological rules, must be due to the difference between inflection and derivation. I will propose a solution along those lines. It is generally assumed that the affix is the head of a derivational complex, given that the affix determines the syntactic properties of the derived word, such as the categorial status. This is not true for inflectional affixes: an inflected verb is still a verb. If that is correct, we can capture the behaviour of particle verbs by the following principle (cf. Bennis 1992).[10]

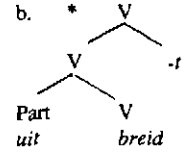
(20) *The Complexity Constraint*
A syntactic complex cannot be the head of a (complex) word

The principle in (20) restricts the syntax-morphology interaction substantially. It is outside the scope of this paper to discuss the consequences and the scope of this constraint, and to show that it may be derived from more general principles. However, it is clear that (20) makes the required distinction between inflection and derivation. In (21a) the derivational affix *-baar* ('-able') is the head of the complex word. The particle verb complex may appear as a sister without a violation of (20).

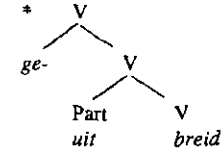
(21) a.



b.



c.



In (21b) and (21c) the particle verb is the head of the inflected verb. These constructs thus violate (20). We now have developped a system in which syntactic complex constructs

may enter the morphological component. It is easy to see why particle verbs often have a non-compositional meaning.

5. Conclusion

In this paper I tried to show that arguments from the domain of language acquisition are important for linguistic theory. Not only by providing independent evidence for an existing theoretical proposal, but also by making a choice between competing hypotheses. Data from the acquisition of Dutch and English provide arguments to consider the verb particle construction to be syntactically complex, to stick to the principle of Lexical Integrity as a defining property of the notion word, to give up a strict separation between syntax and morphology, and to abandon the Lexicalist Hypothesis.

Notes

*. A substantial part of this paper is the result of collaboration with Marcel den Dikken, Peter Jordens, Susan Powers and Jürgen Weissenborn. Another part of this research has been published as Bennis et al. (1995). A second joint publication is in preparation. I want to thank Krista Wessel for her analysis of the data. Different versions of this paper have been presented in Nijmegen, Tromsø, and Stellenbosch. I want to thank the audiences for useful suggestions and discussion.

1. The non-separability of these complexes can be demonstrated by the behaviour of the complex in root clauses. Non-separable verbs are moved as a whole to the second position (i), whereas separable verbs show the stranding of the particle, as was demonstrated in (1).

   (i) Dat overKOMT hem / *Dat komt hem over
   That befalls him

2. The stress on the particle is not due to a strict phonological property distinguishing particle verbs from prefixed verbs. This is evident in the case of particle verbs that belong to the class of psychological verbs. Present participles of those verbs may have the main stress on the verb. As is discussed in Bennis & Wehrmann (1990) the position of the main stress in these verbs is dependent on syntactic proprerties. If the present participle is in predicative or adjunct position the stress must be assigned to the verbal part of the complex. If the present participle is in attributive position the stress may be assigned either to the particle or to the verb (ib), depending on whether the present participle is internally verbal (stress on particle, (ic)) or adjectival (stress on verb, (id)).

   (i) a. Dit is opVALlend / *OPvallend
   This is striking
   b. een opVALlende / OPvallende gebeurtenis
   a striking event
   c. een mij *opVALlende / OPvallende gebeurtenis
   a me striking event
   d. een on-opVALlende / *on-OPvallende gebeurtenis
   a un-striking event

   The fact that position and categorial status are relevant to determine stress assignment in (i), supports the view that the stress on particle verbs in (9) is determined by structural considerations.

3. I will take the Dutch infinitival marker *te* ('to') to be a prefix, contrary to the traditional analysis. I will not go into this in detail here, but the fact that *te* is always adjacent to the verb it belongs to (contrary to English), and the fact that there is no solid argument against a prefix status of *te*, make an analysis along those lines attractive.

4. As is also evident from (12), in past participles of prefixed complex verbs the participial prefix *ge-* is left out. However, in particle verbs *ge-* cannot added to a position in front of the particle, nor left out. It should appear in between particle and verb.

5. This analysis does not imply that all particles are the head of a SC, as in (16c). It claims that the particle is a separate constituent. Aspectual particles, such as *door* ('on') may appear as bare complements to unergative, intransitive verbs, as in *door-werken* ('work on').

6. This paragraph is based on work in cooperation with Marcel den Dikken (Vrije Universiteit Amsterdam), Peter Jordens (Vrije Universiteit Amsterdam), Susan Powers (Potsdam) and Jürgen Weissenborn (Potsdam). This collaboration has resulted in Bennis et al. (1995), and will result in a more detailed and theoretically explicit version of this paper.

7. The data of Jasmijn are diary data collected by Peter Jordens (cf. Jordens 1990, Bennis et al. 1995).

8. It might be objected that the occurrence of particles alone before particle verb combinations is due to phonological reasons. It is clear that children omit non-stressed syllables in early speech. It has been observed in paragraph 3 that stress is assigned to the particle in particle verb combinations. Dropping non-stressed syllables from particle verbs would result in the appearance of the particle alone. However, such an explanation does not hold. As has been argued by Fikkert (1994), children indeed drop non-stressed syllables but almost exclusively in case the non-stressed syllables preceed the stressed syllable. A word such as *baNAAN* 'banana' is often found as *NAAN* in early child language, but we hardly find cases in which a word such as *KAmer* 'room' is realized as *KA(AM)*. Given that particle verbs have the main stress on the initial syllable, we do not expect the non-stressed verb to be omitted for phonological reasons. Such an analysis would not be able to provide an explanation for the very consistent observations in the tables 2-4.

9. Snyder and Stromswold argue in favour of complex predicate formation along the lines of Larson (1988). Although I think that their arguments for doing so are not convincing, I will not go into this discussion here. This subject will be discussed in Bennis et al. (in progress).

10. The Complexity Condition is reminiscent of the No Phrase Constraint proposed in Botha (1981). The crucial difference is that the Complexity Constraint allows phrases in non-head position only.

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