Verbs and Subjects before Age 2: The Earliest Stages in Germanic L1 Acquisition

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1. Introduction

Clahsen (1991) and Clahsen & Penke (1992) have argued that young children acquiring German show variation in the placement of finite verbs until they acquire the second person singular (2SG) suffix. In contrast, Poeppel & Wexler (1993) argue that finite verbs are always correctly raised from the beginning. In this paper, we present new evidence in support of early knowledge of verb placement based on two German children who are several months younger and have a more impoverished inflectional paradigm (lacking the 2SG suffix) than the child investigated by Poeppel & Wexler. On the other hand, the absence of CP-related constructions suggest that these children maximally project an IP in finite clauses, contrary to Poeppel & Wexler's proposal. Moreover, the preponderance of empty subjects in non-finite clauses suggests that such utterances reflect a bare VP-structure, following Roeper & Rohrbacher (1994). We present additional evidence in support of the IP- and VP-analyses of young children's finite and non-finite clauses based on the distribution of overt and empty subjects in the speech of two Swedish children. The Swedish data are interesting in another respect: There is an initial stage (apparently lacking in German, but previously observed for Dutch, cf. Wijnen 1994) where only non-finite utterances are produced, suggesting that children acquire phrase structure gradually, starting with VP as their first 'clausal' projection.

The data discussed in this paper come from the Wagner and Strömqvist corpora (Wagner 1985, Strömqvist et al. 1993) in the CHILDES database (MacWhinney 1991). The German children Katrin and Nicole were 17 and 20 months old when their naturalistic production data was collected, during one recording session each. The Swedish children Markus and Anton were 15 and 23 months old when their natural production data started to

be collected, during one to three recording sessions each per month. We analyzed Markus' first 12 files until age one year and eleven months and Anton's first eight files until age two years and four months. We handcoded all sentences containing a verb, excluding direct imitations, immediate repetitions and unanalyzable utterances.

2. Inflectional morphology in child Germanic

2.1. German

Table 1 provides sample paradigms for adult German regular main verbs, modals and the copula.

	main verb		modal		auxiliary	
INF	schreib-**en** 'to write'		könn-**en** '(to) can'		sein 'to be'	
	SG	PL	SG	PL	SG	PL
1st	schreib-**e/Ø**	schreib-**en**	kann-**Ø**	könn-**en**	bin	sind
2nd	schreib-**st**	schreib-**en**	kann-**st**	könn-**en**	bist	seid
3rd	schreib-**t**	schreib-**en**	kann-**Ø**	könn-**en**	ist	sind

Table 1. Adult German verb paradigms

Unlike adults, Katrin and Nicole frequently produce matrix sentences containing just a non-finite main verb bearing the infinitival suffix *-en* and no finite verb.[1] Such a pattern has also been observed in other studies on child German, such as Clahsen & Penke (1992) and Poeppel & Wexler (1993).[2] Unlike the German children previously discussed in the literature, Katrin and Nicole produce non-finite declaratives very frequently, as shown in Table 2. The distribution of Katrin's and Nicole's suffixes according to verb type is provided in Table 3.

	finite main Vs	*non-finite main Vs*
Katrin	49 (42%)	68 (58%)
Nicole	52 (32%)	112 (68%)

Table 2. Finite vs. non-finite main verbs

	main verbs					modals			copula			all
	-n	*-t*	*-Ø*	*-V*[3]	all	*-Ø*	*-st*	all	*ist*	*bist*	all	
Katrin	68	39	10	0	117	14	8	22	16	1	17	156
Nicole	112	10	16	26	164	4	0	4[4]	36	0	36	204

Table 3. Distribution of verb suffixes

Based on Katrin's and Nicole's production data, there is thus evidence for portions of the German finite singular paradigms; compare the child paradigms in Table 4 with the adult paradigms in Table 1 and note in particular the absence of the 2SG suffix *-st* from the early Child German main verb paradigm.

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1 Although modals and the copula have non-finite forms in adult German, they only occur in finite forms in Katrin's and Nicole's data.

2 For a general discussion of non-finite root clauses in early child languages, see Wexler (1994).

3 *-V* represents an affix that is transcribed variably as *-a*, *-e* or *-i* in Nicole's data. Due to its distribution, we will consistently treat *-V* as a finite marker.

4 For ease of exposition, we have grouped Nicole's single auxiliary verb with her three modals (Katrin produced no auxiliaries).

	main verb		modal		auxiliary	
INF	schreib-**en** 'to write'		-- '(to) can'		-- 'to be'	
	Katrin	Nicole	Katrin	Nicole	Katrin	Nicole
1st	schreib-**Ø**	schreib-**Ø**	kann-**Ø**	kann-**Ø**	--	--
2nd	--	--	kann-**st**	--	bist	--
3rd	schreib-**t**	schreib-**t**	kann-**Ø**	kann-**Ø**	ist	ist

Table 4. Katrin's and Nicole's finite singular affixes

Table 2 indicates that like children acquiring Italian, another richly inflecting language, German children produce finite forms of main verbs in the earliest observed stage of their development. This state of affairs contrasts sharply with that found with English children, who acquire the 3SG present tense marker *-s* notoriously late (Brown 1973). The latter fact could perhaps be attributed to the relatively low frequency of *-s* in the input. It is interesting in this respect to consider the situation in Dutch and Swedish, languages where overt finite markers are as frequent as but less distinctive than their counterparts in German.

2.2 Dutch

Compare the Dutch main verb paradigm in Table 5 with the German main verb paradigm in Table 1.

inf.	nem-**en** 'to take'	
	SG	PL
1st	nem-**Ø**	nem-**en**
2nd	nem-**t**	nem-**en**
3rd	nem-**t**	nem-**en**

Table 5. Dutch main verb paradigm

Although Dutch and German have the same amount of overt finiteness marking, second person is distinctively marked only in German but not in Dutch. While both German and Dutch have strong finite morphology in terms of frequency of finite markers, only German but not Dutch has strong agreement in terms of the distinctive marking of the person features (cf. Rohrbacher 1994). Under this approach, Italian also has strong agreement and English has weak agreement. Interestingly, Dutch behaves like English and unlike German (and Italian) when it comes to the acquisition of finiteness. As shown in Table 6, the Dutch child Peter produced no finite verbs at age 1;9, i.e. well after Katrin and Nicole produced them in substantial numbers (cf. Table 2).[5] The same is true for children acquiring Swedish, as we will show in the next subsection.

files	finite Vs	non-finite Vs
1-4 (age 1;9-1;10)	4 (3%)	137 (97%)
5-8 (age 1;11)	20 (8%)	222 (92%)
9-13 (age 2;0-2;2)	301 (66%)	155 (34%)
14-16 (age 2;3-2;4)	669 (97%)	23 (3%)

Table 6. Finite vs. non-finite verbs in early Dutch: Peter
(adapted from Table 5a in Wijnen 1994)

5. Note that Wijnen's data in Table 6 include all finite verbs, while Table 2 (as well as Tables 8 and 9 below) only contains only finite *main* verbs. However, excluding modals and auxiliaries from Table 6 would further *decrease* the proportion of finite verbs in Peter's data.

2.3 Swedish

The Swedish main verb paradigm in Table 7 shares central properties of the Dutch main verb paradigm in Table 5: The infinitival and present tense forms all bear overt suffixes (finite morphology is strong), but person is never distinctively marked (agreement is weak).

inf.	komm-**a** 'to come'	
	SG	PL
1st	komm-**er**	komm-**er**
2nd	komm-**er**	komm-**er**
3rd	komm-**er**	komm-**er**

Table 7. Swedish main verb paradigm

The parallel between Swedish and Dutch extends beyond the weakness of agreement to a delay in the acquisition of finiteness. As shown in Tables 8 and 9, the Swedish children Anton and Markus -- similarly to the Dutch child Peter, cf. Table 6 -- produced no finite clauses at a point in time when the German children Katrin and Nicole had already produced them in substantial numbers (cf. Table 2).[6]

files	finite	non-finite
1-2 (age 1;11-2;0)	0 (0%)	27 (100%)
3-8 (age 2;0-2;4)	1 (2%)	57 (98%)

Table 8. Finite vs. non-finite main verbs in early Swedish: Anton
(data from CHILDES Database; cf. Strömqvist et al. 1993)

files	finite	non-finite
4-6 (age 1;7-1;9)	0 (0%)	17 (100%)
7-8 (age 1;9-1;10)	3 (7%)	41 (93%)
9-11 (age 1;10-1;11	24 (22%)	83 (78%)
12 (age 1;11)	26 (54%)	22 (46%)

Table 9. Finite vs. non-finite main verbs in early Swedish: Markus
(data from CHILDES Database; cf. Strömqvist et al. 1993)

An interesting generalization emerges. In languages like English, Dutch and Swedish, where not all person features are distinctively marked, the earliest observed stage lacks finite main verbs. In languages like German and Italian, where all persons are distinctively marked, the earliest observed stage exhibits finite main verbs. Rohrbacher (1994) argues that in the first type of languages finite affixes are not instantiated until PF and are hence syntactically inactive and that in the second type of languages finite affixes are already listed in the lexicon and are hence syntactically active. If this is so, then syntactically active finite affixes are easier to acquire than syntactically inactive finite affixes. At present, we have no explanation for this generalization which nevertheless points to a fundamental distinction between the two types of affixes in terms of their acquisition.

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6 Unlike later tables referring to the finiteness/non-finiteness distinction in Markus' speech, Tables 8 and 9 include some forms with the *-a* suffix (listed as non-finite) which are ambiguous between the infinitive and the imperative. Note that Markus' files 1-3 (age 1;3-1;6) contain no verbs and were therefore disregarded.

3. Verb placement

3.1. Swedish

In adult Swedish, finite verbs raise to a left-headed functional projection and surface in the second position of the clause while non-finite verbs stay *in situ* within the left-headed VP and surface in clause-medially. Many simple sentence types (e.g. SVO) are ambiguous between the raising and the *in situ* analyses, and it is therefore not surprising that data from Anton and Markus provide little evidence for or against the early knowledge of verb placement. However, in sentences such as (1) the verb has clearly not raised to the highest functional head (located between the topic and the subject). Whether it has moved to an intermediate functional head below the subject or whether it has remained in its underlying position cannot be determined. Examples of this type are very rare but seem to be restricted to non-finite utterances. Conversely, in sentences like (2) the verb has clearly raised out of the VP past the subject to a functional head. We will address the nature of this head in section 4. Examples of this type are relatively well attested: 17 (or 29%) of Markus's 58 finite utterances (including modals and auxiliaries) in files 9 to 12 display this pattern. The 7 (or 7%) of his 105 non-finite utterances in the same files which also show the verb in front of the subject and thus suggest verb movement might represent production errors.[7] In any event, the frequency of the VS order is much higher in finite than in non-finite utterances (29% vs. 7%) and that is as expected if Swedish children have (some) knowledge of verb placement as soon as they produce finite and non-finite verbs.

(1) dae Ia aaka [Anton 2;4]
there I drive-INF

(2) koep-te vi den [Markus 1;11]
buy-PAST we that

3.2. German

In adult German, finite verbs raise to a left-headed functional projection and surface in the second position of the clause while non-finite main verbs stay in situ within a right-headed VP and surface clause-finally. Due to the right-headed nature of VP, verb movement is easier to detect than in Swedish. A simple SVO sentence, such as the one in (3), for example, unambiguously involves verb movement since the verb does not occupy the clause-final position. The same is true when the verb precedes a non-sentential adverb, direct or indirect object, predicate adjective, locative phrase, or separable verb prefix.

(3) Nekoll nimmt -- eine -- Am. [Nicole 1;8]
Nicole take-3SG an arm

However, if nothing follows the verb, it is sometimes unclear whether the verb has raised or not. SV examples and one word utterances are of this type. Furthermore, since adult German is a V2 language in which any phrasal element can be topicalized, two-word utterances such as (4) where the finite verb is clause-final and is preceded by e.g. an object are ambiguous between verb raising plus topicalization and V in situ.

(4) Wust, wust ham [Nicole 1;8]
sausage have-INF

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[7] This is reminiscent of Clahsen and Penke's (1992) finding that the German child they investigate occasionally raises a non-finite verb form, although verb raising is generally restricted to finite verb forms for this child.

On the other hand, if two phrases precede the verb, this could no longer be an instance of topicalization plus verb raising, and thus the verb would clearly be located in the VP. It is striking that we find no finite examples of this type in Katrin's data, and very few such examples in Nicole's data, as shown in Table 10. These tables also show that 60-65% of Katrin's and Nicole's finite main verbs are clearly raised, by the word order criterion described above. Recall that the ambiguous cases are also consistent with a verb raising analysis. An even clearer picture emerges in the case of the modals and the copula, which are always finite and virtually always clearly raised. This is shown in Table 11.

	Katrin			Nicole		
	raised	not raised	unclear	raised	not raised	unclear
-t	27 (69%)	0	12 (31%)	5 (50%)	1 (10%)	4 (40%)
-Ø	5 (50%)	0	5 (50%)	12 (75%)	1 (6%)	3 (19%)
-V	0	0	0	14 (54%)	2 (8%)	10 (38%)
TOTAL	32 (65%)	0	17 (35%)	31 (60%)	4 (8%)	17 (33%)

Table 10. Position of Katrin's and Nicole's finite main verbs

	Katrin			Nicole		
	raised	not raised	unclear	raised	not raised	unclear
modal	22 (100%)	0	0	4 (100%)	0	0
copula	14 (82%)	0	3 (18%)	36 (100%)	0	0
TOTAL	36 (92%)	0	3 (8%)	40 (100%)	0	0

Table 11. Position of Katrin's and Nicole's modals and the copula

The distribution of Katrin's and Nicole's finite main verbs, modals and the copula supports an analysis according to which finite verbs raise to a left-headed functional projection.[8] We will address the nature of this functional projection in section 4.

Using the same word order criterion as before, we find that unlike finite verb forms, the non-finite verb form marked with the suffix *-en* is almost never clearly raised and often clearly not raised, as shown in Table 12. A clear non-raising example is given in (5). However, there are many ambiguous cases due to the nature of a V2 language at the two-word stage. Recall that although VO clearly shows verb raising, OV could be either an instance of V-in-situ or verb raising plus topicalization.

	raised	not raised	ambiguous
Katrin	2 (3%)	6 (9%)	60 (88%)
Nicole	6 (5%)	24 (21%)	82 (73%)

Table 12. Katrin's and Nicole's non-finite verbs (to be revised)

(5) Kokoll Dil ham. [Nicole 1;8]
Nicole shield have-INF

Thanks to a suggestion by Ken Wexler, we were able to use the expected rate of topicalization to reduce the number of cases listed as ambiguous in Table 12. Among the latter, there are 19 examples in Katrin's data and 39 in Nicole's data in which a clause-final

[8] Based on anecdotal evidence from clause-final finite verbs in multi-word utterances, Deprez (1994) argues that finite verb raising to the left is optional rather than obligatory in early child German. But as shown in Table 10, the percentage of clearly non-raised finite main verbs is too low to warrant this conclusion. In all likelihood, the few relevant examples are production errors and finite verb raising is obligatory in children's grammar of German.

non-finite verb was preceded by exactly one topicalizable non-subject. Of these, we take 12 (Katrin) and 38 (Nicole) examples not to involve topicalization; they, too, are thus clear cases of non-raised non-finite verbs. The rationale behind this conclusion is as follows.

The rate of topicalization in Katrin's and Nicole's finite declaratives containing a topicalizable non-subject is 35% (17 out of 48) and 7% (1 out of 14), respectively.[9] Under the conservative assumption that the proportion of topicalization in non-finite clauses is at most as high as it is in finite clauses, we expect that no more than 35% (9 instances) and 7% (4 instances) of all of Katrin's and Nicole's non-finite clauses containing a topicalizable non-subject exhibit actual topicalization. We find two clear examples of non-subject topicalization in unambiguous V-in-situ non-finite clauses for Katrin and three such examples for Nicole. Deducting these actual cases of topicalization from the expected cases, we predict that only 7 of Katrin's 19 examples and 1 of Nicole's 39 examples that are ambiguous with respect to verb movement actually involve topicalization, allowing (but not requiring) verb raising of the non-finite verb. Using this method, Table 12 can be revised as shown in Table 13. Table 13 provides clear evidence that as in adult German, non-finite verbs do not raise to a functional head in Katrin's or Nicole's speech.

	raised	not raised	ambiguous
Katrin	2 (3%)	18 (26%)	48 (71%)
Nicole	6 (5%)	62 (55%)	44 (39%)

Table 13. Position of Katrin's and Nicole's non-finite verbs (revised)

We have argued in this subsection that there is a correlation between verb raising and inflectional morphology in the data of these two very young children. Since the vast majority of their non-finite forms are consistent with the non-raising analysis, whereas the vast majority of their finite forms are consistent with a raising analysis, we assume that these children's grammars generate raised finite forms and non-raised non-finite forms.

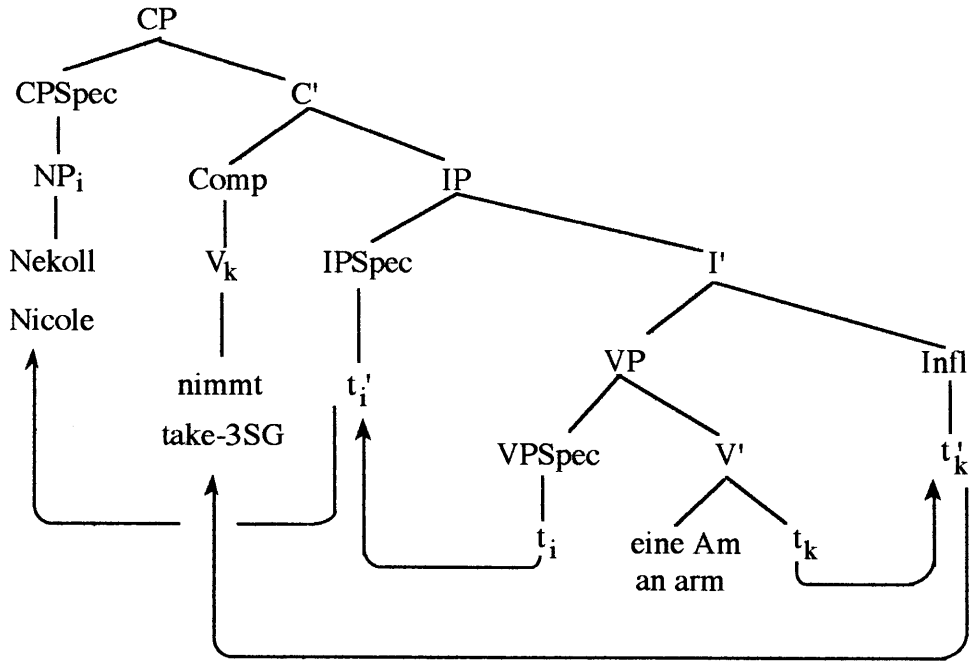
4. Finiteness and clause structure

The consistent fronting of finite verbs in Katrin's and Nicole's data shows that at age 1;5 and 1;8, these children already make use of a left-headed functional projection above VP. The question now arises as to which functional projection is involved in early verb raising examples such as (3). One possibility is to follow Poeppel & Wexler (1993) in assuming that the verb moves to Comp as in the adult language (cf. (6) on top of the next page and den Besten (1983)). Another possibility is to follow Clahsen (1991) in assuming that unlike in the adult language, Comp is absent and that the verb moves only to clause-medial Infl (cf. (7) in the middle of the next page).

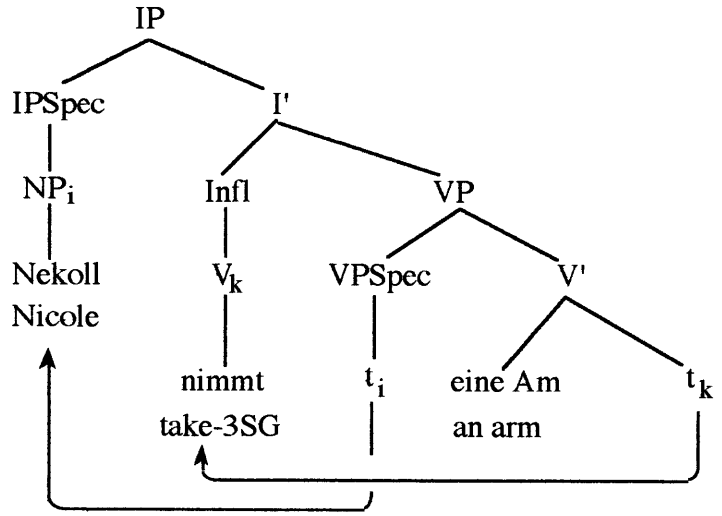
The fact that potential CP-related constructions (other than verb fronting) are exceedingly rare in Katrin's and Nicole's data leads us to believe that (7) instead of (6) is the correct structure, i.e. that these children move finite verbs to clause-medial Infl and do not yet project the CP-level. First, neither child produces any embedded clauses whose overt complementizer would provide independent evidence for the head of CP. Second, neither child produces any wh-questions with main verbs which would provide independent evidence for the specifier of CP. Third, whereas topicalization of non-subjects (which under the standard analysis also depends on the availability of CPSpec as a landing site, but

[9] Except for three cases of object topicalization, Katrin's 17 cases of non-subject 'topicalization' involve adverbs and locative phrases, i.e. adjuncts which may or may not involve movement to CPSpec. Thus the figures in the text reflect the maximal rather than the actual amount of topicalization.

(6)



(7)



see fn. 9) occurs in about 40% of all adult Germanic matrix declaratives (cf. Gerritsen 1984), it is found in only 7% of Nicole's finite clauses and there are only three cases of object topicalization in Katrin's finite clauses. If CP were available for verb fronting, it is mysterious as to why this projection would not also be available for subordination, wh-movement and topicalization. We conclude that CP is in fact absent from Katrin's and Nicole's grammar and that finite verb fronting reflects movement to a clause-medial Infl.

Markus' data suggests that the same is true for early child Swedish. Recall from section 3.1 that in early child Swedish, the evidence for verb raising consists of examples such as (2) with post-verbal subjects. What is striking is that in files 9 to 11, all examples of this type involve a pronominal subject and not one involves a full NP subject. The first

post-verbal full NP subjects appear in file 12, which also contains the first genuine embedded clause. Table 14 summarizes the distribution of Markus' overt subjects.[10]

	finite (n = 43)				non-finite (n = 18)			
	file 9	file 10	file 11	file 12	file 9	file 10	file 11	file 12
V^S_{pro}	2	4	2	6	1	1	0	4
V^S_{NP}	0	0	0	3	0	0	0	1
S_{pro}^V	2	5	4	12	0	1	1	3
S_{NP}^V	1	1	0	1	1	1	4	0

Table 14. Position of Markus' overt subjects in files 9-12 (age 1;10-1;11)

It is unclear whether the absence of post-verbal full NP subjects from files 9-11 is significant, given that full NP subjects are rare in these files (8 cases), especially in finite clauses (2 cases). Assuming that it is significant, we would like to explain it as follows. Suppose that while pronominal subjects can receive (oblique) Case in their underlying position in VPSpec (cf. Vainikka 1993/1994), full NP subjects must receive (structural) Case in IPSpec. In files 9-11, where the absence of genuine embedded clauses indicates that the CP level has not yet been acquired, the verb raises only to Infl. It thus always follows a full NP subject or pronominal subject in IPSpec[11] but precedes a pronominal subject in VPSpec. In file 12, where the appearance of the first genuine embedded clause suggests that CP has been acquired, the verb now raises all the way to Comp. It thus precedes either a full NP subject in IPSpec or a pronominal subject in VPSpec or IPSpec.[12] The idea that young children acquiring Swedish raise the verb to Infl is problematic in light of the fact that V to Infl movement does not occur in adult Swedish, which has only V to Comp movement (cf. Rohrbacher 1994). We will not pursue this question in this paper. Instead, we now return to the implications of the IP analysis of early child German finite clauses.

Given that the adult German IP is usually assumed to be right-headed as shown in the tree in (6), we are now faced with the following two questions: (a) Why is IP left-headed in early child German? and (b) How does the child attain the adult pattern? As far as the first question is concerned, the absence of CP -- argued for above on the basis of independent evidence -- forces the child to posit a left-headed IP in order to accommodate the V2-pattern that is salient in the input data. As far as the second question is concerned, we propose in the spirit of Roeper & Weissenborn (1990) that embedded clauses provide the crucial trigger for the switch in headedness. In particular, the child's recognition of finite verbs in a clause-final embedded position, combined with raising of finite verbs to Infl in the child's grammar, will motovate a reorganization of clause-structure along the suggested lines.[13]

For the non-finite child German utterances such as (5) in which the verb does not raise from its underlying position, we propose that they involve a bare VP projection that lacks both the CP and the IP level, as shown in (8). This structure also covers the

[10] Table 14 (as well as Tables 16-17 below) contains only those forms with the *-a* suffix that are unambiguously non-finite, i.e. where the morphology or the context precludes an imperative reading (cf. fn. 6).

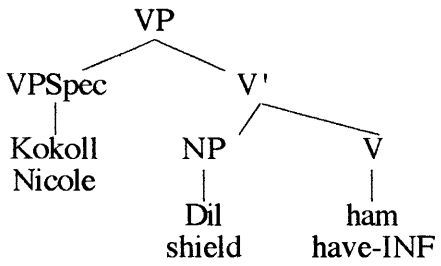
[11] In files 9-11 there were 6 cases of non-subject topics immediately preceding the verb and 2 cases of wh-words immediately preceding the verb. We assume that like full NP subjects, these elements are located in IPSpec.

[12] The verb may of course also follow a pronominal or full NP subject in CPSpec.

[13] This scenario is supported by the finding in Rothweiler (1990) of an early stage in the development of embedded clauses without an overt complementizer (i.e. without a CP) but with finite verbs in the sentence-final position (i.e. with a right-headed IP), contra the proposal in Clahsen (1991) according to which CP and a right-headed inflectional projection crucially emerge at the same point in development.

corresponding child Swedish utterances such as (1), assuming VP-adjunction of the locative phrase.

(8)



The availability of this structure accounts for the widespread occurrence of non-finite matrix clauses (without verb raising and without modals or auxiliaries) in early child German, in contrast to adult German where non-finite clauses are restricted to embedded contexts. Rizzi (1994a) proposes that both the full (finite) CP-tree in (6) and a reduced tree such as the (non-finite) VP-tree in (8) are available in early child language. However, the Dutch and Swedish data discussed in subsections 2.2 and 2.3 of this paper suggest that there is an early stage where only the (non-finite) VP tree is available, as has been proposed for English by Radford (1988) and others within a maturational framework and by Vainikka (1993/1994) within a trigger-based framework.[14] The early German data discussed here -- and perhaps data from the Optional Infinitive Stage (cf. Wexler 1994) in general -- thus reflect a more advanced, transitional stage where the VP-tree in (8) is still dominant but the IP-tree in (7) is already becoming available. In the following section, we will show how the distribution of empty subjects in Katrin's and Nicole's as well as Anton's and Markus' data can be elegantly captured using the structures just proposed.

5. Empty subjects and clause structure

Although adult German and adult Swedish are non-pro drop languages, the German children Katrin and Nicole and the Swedish child Markus frequently omit the subject, a phenomenon commonly observed with children acquiring non-pro-drop languages. Some relevant examples are listed in (9) through (11).

(9) Tift haben. [Katrin 1;5]
pen have-INF

(10) Baije hon [Nicole 1;8]
pen fetch-INF

(11) laegga daer [Markus 1;10]
lay-INF there

Early null subjects in non-pro-drop languages have been attributed to a production bottleneck that severely limits utterance length (see Bloom 1990) or to a process which drops a clause initial topic (see Hyams 1994 and Rizzi 1994b). Neither the bottleneck theory nor the topic drop theory can explain why Nicole, Katrin and Markus omit the subject much more often in non-finite than in finite clauses, as shown in Tables 15 and 16. Similar results are reported for older children acquiring German, Flemish, Dutch and English in Poeppel & Wexler (1993), Krämer (1993), Haegeman (1994), Wijnen (1994) and Sano & Hyams (1994).

[14] See also Platzack's (1990) analysis of child Swedish and Wijnen's (1994) analysis of child Dutch, both of which posit an early stage without functional projections.

	finite clauses	non-finite clauses
Katrin	56 (64%)	11 (16%)
Nicole	59 (64%)	41 (37%)

Table 15. Overt subjects in early German: Katrin & Nicole

	finite clauses	non-finite clauses
files 9-11	21 (66%)	10 (20%)
file 12	22 (85%)	8 (47%)

Table 16. Overt subjects in early Swedish: Markus

Both the bottleneck and the topic drop theory predict that young children omit not only pronominal subjects, but also (or maybe even predominantly) NP subjects. As shown in Table 17, this prediction is wrong (see also Hyams & Wexler 1993). In the data from Markus, the proportion of full NP subjects stays constant across finite and non-finite clauses. Pronominal subjects on the other hand are much more common in finite than in non-finite clauses, apparently as a direct result of the rate of null subjects being much lower in finite than in non-finite clauses. All of the additional null subjects in non-finite clauses (which in fact constitute half of all null subjects produced by Markus) must be identified as empty pronouns. Neither the bottleneck nor the topic drop theory can explain why none of these additional null subjects can be identified as empty NPs.

	empty	pronoun	NP	TOTAL
finite clauses	15 (26%)	37 (64%)	6 (10%)	58
non-finite cl.	49 (73%)	11 (16%)	7 (10%)	67

Table 17: Subject types in early Swedish: Markus, file 9-12 (age 1;10-1;11)

Further evidence against the topic drop analysis comes from child English, cf. the frequent omission of the subject in Adam's non-finite wh-questions, where topic drop is not an option (cf. Roeper & Rohrbacher 1994). The relevant proportions are given in Table 18.[15] Note that in finite wh-questions, empty subjects are very rare. The contrast between an empty subject in a non-finite wh-question and an overt subject in a finite wh-question is illustrated by the minimal pair in (12) and (13).

files	finite clauses	non-finite clauses
1-11 (2;3-2;8)	1 (20%)	65 (83%)
12-15 (2;8-2;10)	3 (6%)	18 (51%)
16-18 (2;10-2;11)	2 (3%)	15 (16%)

Table 18. Missing subjects in Adam's wh-questions
(adapted from Roeper & Rohrbacher 1994)

(12) Where go? [Adam 2;8, file 11 line 913]

(13) Where dis goes [Adam 2;8, file 11 line 914]

As alternatives to the bottleneck and topic drop theories, it has been proposed that early null subjects should be identified as PRO (Sano & Hyams 1994) or *pro* (Roeper & Rohrbacher 1994 and much work in the wake of Hyams 1986). The PRO analysis main-

[15] The calculations in Table 18 are based on non-subject questions containing either an overt pronominal subject or a missing subject, but not a full NP subject.

tains that subjectless non-finite matrix clauses are full-fledged CPs which lack AgrS-features. As a consequence, the verb does not have to move to AgrS at LF and AgrSPSpec remains ungoverned, thus constituting a possible site for PRO. The *pro* analysis of Roeper & Rohrbacher (1994) maintains that subjectless non-finite matrix clauses are bare VPs in which the specifier position constitutes a possible site for *pro* (see below). While both theories are compatible with the data presented in Tables 15 through 18, only the *pro* analysis is compatible with the reduced structure for non-finite root clauses proposed in the previous section. In the remainder of this section, we therefore concentrate on the *pro* analysis.

The theory of child *pro*-drop developed in Roeper & Rohrbacher (1994) in connection with Adam's data is modeled on the theory of adult *pro*-drop of Speas (1994). Speas follows Rohrbacher (1994) in assuming that languages with overt agreement fall into the two classes in (14a,b) and adds to these a third class for languages without overt agreement (cf. (14c)).

(14) a. Languages with strong overt agreement have an AgrS-node that is filled at D- and S-structure.

b. Languages with weak overt agreement have an AgrS-node that is empty at D- and S-structure.

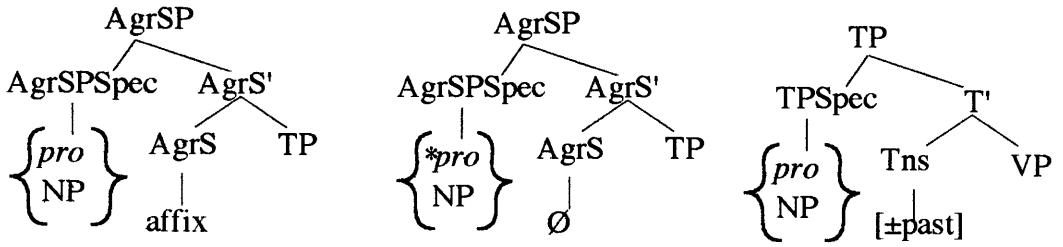
c. Languages without overt agreement do not have an AgrS-node.

In addition, Speas proposes a Principle of Economy of Projection amounting to a prohibition against vacuous projections which we have reformulated in (15).

(15) Project XP only if its head X as independent semantic or phonetic content at D-structure or its specifier XPSpec has such content at S-structure.

It follows that small *pro* is possible in languages like Italian with strong agreement where AgrS is filled (cf. (16a)). Conversely, small *pro* is impossible in languages like English with weak agreement where AgrS is empty (cf. (16b)). In languages like Japanese with no agreement where AgrS is missing, the highest inflectional projection is TP whose head has independent semantic content in the form of tense features which will satisfy the Principle of Economy of Projection. Accordingly, small *pro* is possible in these languages (cf. (16c)).

(16) a. b. c.

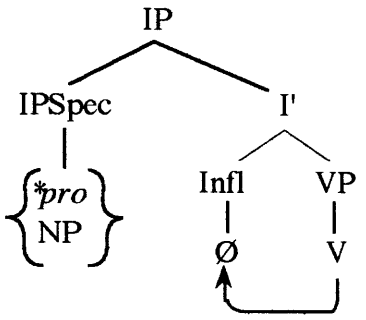


The finite clauses of the German children Katrin and Nicole have weak agreement according to the criteria laid out in Rohrbacher (1994) because their (main) verbs are never distinctively marked for second person (cf. Table 4).[16] The finite clauses of the Swedish child Markus also have weak agreement because as in adult Swedish, no person feature is

[16] Since only strong but not weak AgrS gives rise to verb raising to this position (cf. Rohrbacher 1994), we are assuming that Katrin's and Nicole's verb raising to Infl is motivated by whatever motivates verb raising to Comp in the adult grammar.

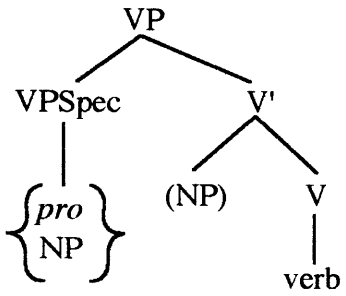
ever distinctively marked in his verbal morphology (cf. Table 7). Therefore, Infl is phonetically empty at D-structure in the finite clauses of all these children. Furthermore, there is no clear tense distinction evident in Katrin's, Nicole's and Markus' data and it is therefore reasonable to assume that Infl is also semantically empty. We arrive at the structure in (17) for early Germanic finite clauses which corresponds most closely to that in (16b) where AgrSPSpec/IPSpec must be filled by an element with independent semantic or phonetic content, i.e. an overt subject.[17]

(17)



We proposed in section 4 that Katrin's, Nicole's and Markus' *non-finite* verb forms reflect a bare VP structure. The situation is thus similar to the Japanese one (cf. (16c)) in that VP satisfies the Principle of Economy of Projection via the semantic and phonetic content contributed by the verb, and VPSpec can be occupied by an element without independent semantic or phonetic content such as *pro*, as shown in (18) for child German.

(18)



In child Swedish, a head-medial VP with an empty specifier will give rise to a V1 structure. The proposed analysis of null subjects hence predicts a correspondence between V1 structures and subjectless sentences in child Swedish non-finite clauses. This prediction is borne out by the facts, as a comparison of Table 19 with Table 16 shows. Notice that this correspondence is found not only in non-finite clauses but also in finite clauses because topic drop -- which we hold responsible for the residue of null subjects in child Swedish finite clauses, cf. fn. 17 -- also results in V1 structures.

	finite clauses	non-finite clauses
files 9-11	20 (62%)	9 (18%)
file 12	21 (81%)	8 (47%)

Table 19. Non-V1-clauses in early Swedish: Markus

[17] We assume that the residue of missing subjects in Katrin's, Nicole's and Markus' finite clauses (cf. Tables 15 and 16) is due to topic drop, a process that is independently attested in adult German and adult Swedish and that is distinct from *pro*-drop.

Licensed in accordance with the theory of Economy of Projection, *pro* in child Germanic is identified via a discourse mechanism which is generally available for grammars without agreement (as in e.g. adult Japanese). Overt subjects in VPSpec are assigned structural oblique Case by V as has been argued by Vainikka (1993/1994) for child English (see also Vainikka 1993 for a similar analysis of adult Finnish). Thus both empty and overt subjects at this stage reflect options available in UG for adult languages. Note that according to this approach, there is no *pro*-drop parameter. Instead, the agreement morphology and clause structure of a grammar together with the Principle of Economy of Projection determine whether small *pro* is licensed or not.

6. Conclusion

The new data from very early Swedish discussed in this paper in conjunction with the Dutch data from Wijnen (1994) suggest that prior to the Optional Infinitive stage of Wexler (1994), there is an Obligatory Infinitive stage during which finiteness is entirely absent. On the other hand, the new data from very early German discussed in this paper fail to exhibit the Obligatory Infinitive stage. This difference correlates with the types of agreement paradigms found in the adult languages. As soon as finiteness is attested, Germanic children make a reliable distinction between finite and non-finite utterances with respect to the position of the verb and the distribution of empty and overt subjects. We attribute the sequence of Obligatory and Optional Infinitive stages to the incremental acquisition of phrase structure, where root infinitives are identified with bare VP-structures and early finite clauses are identified with an IP structure that lacks the CP-level.

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