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1.0 General Introduction

In this paper we examine the properties of the CP system and the acquisition of V2 in early child German. This is an area where the notion that child grammar contains all the principles of UG has been repeatedly challenged. In an earlier paper (Whitman, Lust and Lee, 1990) we proposed the "strong continuity hypothesis," shown in (1) which predicts that variation between child language and adult language parallels variation between grammars of adult languages.

1. ".. a satisfactory analysis of the data requires positing grammatical representations fundamentally identical to the representations proposed by syntacticians for the corresponding adult structures. In each case the appropriate representations have included functional categories and/or their projections"

We have proposed, as a corollary of the strong continuity hypothesis, the "functional projection hypothesis." It states that examples (a) and (b) under (2) are structurally identical to the corresponding adult sentences; that is, they contain functional heads and their projections, but the head and specifier nodes of these projections remain empty at S-structure.

2. a. Jem want [$_{IP}$Mummy [$_{I}$ e [$_{V}$ take] it out]
(cf., Radford 1990)

b. [$_{CP}$[$_{C}$ e] [$_{IP}$ [$_{NP}$ e] [$_{I}$ e] [$_{VP}$ doing what there]]]?

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Despite the abundance of syntactic evidence for the role of the CP system in early child grammar (e.g., Lust, 1983; Lust & Mangione, 1983; Lust & Chien, 1984; Lust, in prep.; Kwee-Ock Lee, 1991; Murasugi, 1991; Demuth, 1991; Roeper & Weissenborn, 1990; Boser, Lust, Santelmann, & Whitman, 1991; Verrips, 1991; Weissenborn, 1991), much recent acquisition research has argued for the opposite conclusion. On the basis of surface data from the acquisition of English, these researchers propose that the categorial inventory of early child grammar is an impoverished version of that of the adult. Specifically, they claim that children lack functional categories (e.g., I zero, and C zero) and their projections at the early stages of acquisition (Radford, 1987, 1990; Lebeaux, 1989; Ouhalla, 1991; Platzack, 1990). These proposals raise two empirical issues about the strong continuity hypothesis: (i) they require us to defend the proposition that there <u>are</u> empty functional heads, and (ii) that empty categories (using the term generally here) in early child language are licensed by the principles of UG.

We first review evidence showing that the child demonstrates the full grammar of V2 in German from the earliest ages studied (21 mos), including CP, the specifier of CP and obligatory I to C movement. In this part we will refer to results of an earlier paper (Boser et al., 1991). Next, we will examine an important sentence pattern in early child German (ECG) where C° appears to be empty, with a non-finite lexical verb in sentence-final position. We argue that in this pattern C° is occupied by a null auxiliary. We further argue that the recoverability of this empty functional category in German is provided by a theory of licensing in UG.

We propose that Spec-head agreement between the null auxiliary in C° and Spec,CP licenses a null auxiliary in C°. We show that our account both predicts and explains the obligatoriness of an overt verb or auxiliary in C° in non-subject topic sentences, a constraint we observe in ECG.

2.0 <u>Evidence for Obligatory I to C</u>

Following den Besten (1979/1983) and many others, we assume in our discussion that German is SOVI and that V2 word order is derived by verb raising through I° to C°. Given this account of V2, children who give evidence of knowledge of the V2 paradigm must have knowledge of the functional categories I and C, as well as the principles governing X-zero movement.

The basic data on which the study is based are summarized in (3a) and (3b) (Boser, in prep). They consist of (1) 30 children from 21 to 34 months whose natural speech was studied in detail and (2) 40 children from 2-4 years of age who were studied in two experimental elicited imitation studies.

3a. Natural Speech Summary
(Boser corpus Collected in Freiburg, Germany)

Group	#Sub	Age	Avg Utt	TotUtt	Avg w/ Verb	Tot w/Verb	Avg>2 const w/verb	Tot>2 const w/verb
1	6	21-27	107	641	39	234	23	140
2	8	28-30	110	883	62	496	47	372
3	8	31-32	106	846	63	502	55	439
4	8	33-34	153	917	101	607	89	532
	30	21-34	476	3,287	265	1,839	214	1,483

3b. Elicited Imitation Summary

Group	#subjects	age range	mean age
I	11	2,08-3,05	2,09
II	11	3,06-3,11	3,10
III	7	4,01-4,05	4,03
IV	11	4,06-4,11	4,09
TOTAL	40	2,08-4,11	3,33

Each child's sample demonstrated extremely productive verb movement to C°. In Group I 80-100% of the children's utterances showed evidence of verb movement. For sixteen of the forty children, moved verb utterances comprise 99-100% of their simple utterances. There was no child, even in the youngest group, who did not show verb movement. Some examples are given in 4.

4. a. Hab ein hier. (KS 1,9)
have one here.
b. Das geht da (MS 1,9)
That goes there.
c. Die geht, geht einkaufe (BS 2,5)
She goes, goes shopping.

Questions and topicalizations, structures that involve movement to CP, provide clear evidence that CP is available in the child grammars even at the earliest ages studied. Overall 20-66% of the children's samples consist of questions. Only one child did not produce any questions, yet that child did produce topicalized constructions. Examples of typical questions are given in 5.

5. a. Ist der Bär da? (MS 1,9)
Is the bear there?
b. Was hat der Bärle? (AK 2,2)
What has the bear?

Evidence for topicalization was also found throughout all ages. Many different types of phrases are topicalized, including noun phrases, adjective phrases, prepositional phrases and adverbs. Over all the groups, 6-34% of the sample consist of topicalized structures. Group I, the youngest children, exhibit between 15%-33% topicalized structures within any one child's corpus. Examples of topicalized sentences are given in 6.

6. a. Da ist der. (MS 1,9)
There is he.
b. Rot ist 'sel (KS 1,9) ['sel = ampel]
Red is traffic-light
c. Mit der papa fährt Anita (AK 2,2)
With the papa goes Anita.

The V2 phenomenon is a general and productive one, covering several types of inflection on the verb as well as different types of lexical items. There is also a wide range of auxiliaries that appeared in each child's corpus, including modals, haben (have), sein (be), and tun (do-dialectical). Examples of this range of data are given in 7.

7. a. Nimmt sofort! (KS 1,9)
Take immediately
b. Hebe tut sie. (KS 1,9)
Lifting does she.
c. Des habem ma' scho'mal geseht (AK 2,2)
That have we already once seen-participle
d. Auf mag nicht, auch aua (MS 1,9)
Open want not, also ow.

Furthermore, there is always a correlation between verb position and the finiteness features of INFL. The data show that in utterances where the verb has been moved, the verb is always finite. Because unambiguous finite verb final utterances are absent, we argue that the child has knowledge of obligatory V-I-C. This suggests that whenever V-I has been realized, I-C follows. The complete absence of non-finite verb second further substantiates the claim that V raising must always move through I.

Auxiliaries always appear in V2 position; they never appear verb finally, and they are always tensed in the second position. (In Boser et al. 1991, we have labelled this "Boser's Generalization.") If I to C were only optional, then we would have expected to find at least some occurrences of finite verb final, including auxiliaries in this position. Finally, if the auxiliaries occur with a verbal complement, this complement is always sentence final and non-finite, indicating that the children know that if an element is already in C° then movement to C° through I° is blocked.

Section 3: The Null Auxiliary Hypothesis

3.0 The Problem

One last pattern of data exists which on first inspection seems problematic for our proposal. Examples of problematic data are given in 8, and a summary of the data is given below in 9.

8. a. nur die buch mal sehen (KS 1,9)
only the book once see (-inf)

b. so tschu schuhe aufen (VG 1,11)
so scho shoes open (-inf)
c. ein baer da putzen (HW 2,4)
a bear there clean (-inf)
d. der eine hose anziehen (GM 2,4)
he a pants on-put (-inf)

In all of these examples, the verb is final and non-finite, suggesting that V to I has not applied to the lexical verb, in contrast to the data discussed in Section 2. (In fact, data like these have often been taken as critical evidence for an 'extended verb final stage' in ECG, e.g., Clahsen and Muysken, (1986).) These examples raise the question: how are they consistent with the strong theory we have just proposed, namely, obligatory raising (V-I-C) in the grammar of Early Child German? We will argue that these few apparent counterexamples do cohere with the strong continuity theory when their syntax is carefully examined.

9.

Group	# with "missing" aux	Range of "missing" aux in simple utt: %	Mean
1	4	2-20%	8.9%
2	6	1-17%	8.6%
3	4	2- 7%	4.0%
4	5	1- 5%	4.4%
	19	1-20%	6.5%

3.1 Our hypothesis

In section 2 above, we have shown that the children know that the lexical verb always moves through I to C unless something blocks that movement. For all children, when a lexical verb occurs with an auxiliary, the lexical verb is V-final and non-finite, as is the case in adult German.[2] An example of this type of utterance is:

10. Die geht, geht einkaufe (BS 2,5)
She goes, goes shopping.

The examples of non-finite verb final utterances in 8 look and behave just like those in which an auxiliary has blocked the movement of the verb from V°, as seen in 10. Thus we propose that this pattern in ECG results from the presence of a non-overt auxiliary in C° at S-structure, with a corresponding structure in 11.

11. $[_{CP}$ der$_j$ $[_{C^o}$ $e_{INFL}]$ $[_{IP}$ t_j $[_{VP}$ eine hose anziehen$]$ $[_{I^o}$ $t_{INFL}]]]$
he a pants onput-inf.

[2]We assume a broad definition of the category auxiliary, one which includes any element which can take a non-finite complement. These include modals, haben (have), sein (be), tun (do), machen (make/do), and gehen (go).

We claim specifically that the identity of the empty COMP in 11 is the following:

12. The null aux hypothesis
In contexts containing a non-finite verb form and no overt tensed auxiliary, such as 8, C° is occupied at S-structure by a phonetically null auxiliary moved from its position in I°. This auxiliary contains the phi-features inserted in I°, including tense and agreement features, and is an empty pronominal category. The features of this empty pronominal category are recoverable under the general licensing conditions for null pronominals.[3]

This hypothesis, which we have labelled the "Null aux hypothesis" has substantial empirical and theoretical support. After providing evidence for the existence of null pronominal auxiliaries in ECG in Section 3.2, we will demonstrate that the formal licensing conditions for null pronominal X° categories can be collapsed with the general licensing condition for null pronominals in section 4. We will also demonstrate that these licensing conditions receive cross-linguistic support from adult data.

3.2 Evidence for the hypothesis

3.2.1 Knowledge of auxiliaries in C°

First, it is important to note that the V-final non-finite pattern does not represent a discrete "stage" of any child's production. It is present in 19 of 30 children in all age ranges, as shown in 9 above, and accounted for from 1.26% to 20% of the children's simple utterances which were longer than 2 constituents. While there is a decrease in the use of these forms as the children get older, it is still present in an average of 2.3 % of the utterances of the oldest age group.

In addition, the evidence for knowledge of movement to C° is overwhelming. For over half the children (16/30) utterances with verbs in the moved (V2) position comprised 98-100% of their simple utterances. At least 80% of any one child's simple utterances was comprised of moved verb utterances with an average of 97% over all the 30 children studied.

More specifically, this means that all of the children who demonstrated the null aux utterance type also demonstrated evidence of V2 in other parts of their speech sample. All subjects who produced

[3]For ease of exposition, when we talk about null aux, we imply that the null aux is generated in I°. We realize, however, that there is evidence (e.g., infinitival forms, occurring with zu) that auxiliaries in German are generated under V° (as part of a complex VP). The null aux we hypothesize could equally well be generated under V°, so long as it is subsequently associated by head movement with phi-features in INFL.

null aux also produce overt lexical aux in their samples, as seen in the examples in 13. This demonstrates that the child clearly knows that aux can be overtly realized in the C° position. These utterances do not reflect a grammatical deficit in the children, or lack of knowledge about V2 movement.

13. a. overt: nei will hebe hebe.
no want lift lift. KS (1,9)
null: nur die Buch mal sehen.
only the book once see.

b. overt: Ist des gemacht. (VG 1,11)
is that made.
null: so zuh schue aufen.
so scho shoe open.

c. overt: d' Bohnen kann man sicher essen. GM (2,4)
the beans can one certainly eat.
null: der eine Hose anziehen.
he a pants on-put

d. overt: Bär tut da hänge aufhängen. HW (2.4)
bear does there hang up-hang.
null: ein Bär da putzen.
a bear there clean.

3.2.2 Null Aux Insertion

Empirical support for the null aux hypothesis is also provided by the phenomenon of "aux insertion" discovered by Boser (1989) in the course of her elicited imitation experiments. Boser found that children, starting at the youngest age group in her experimental sample (2,8-3,5), and continuing up through age 4,11, frequently inserted auxiliaries in V2 position, in response to stimulus sentences that contained no auxiliaries whatsoever. In the youngest group of children in Boser's elicited imitation study, aux insertion occurred approximately 16% (12/64) in the one clause response tokens. Representative examples include the following:

14. a.stimulus: Daß Stephan einen Bleistift hatte, zeigte Johann dem Daniel.
That Stephan a pencil had, showed Johann the Daniel.
child: Die Ines geht dem Daniel das zeigen.(ii, 12; 3,5)
The Ines goes the Daniel that show.
b.stimulus: Suzanne warf den Ball als Manfred den Schneeball warf.
Suzanne threw the ball as Manfred the snowball threw.
child: Suzanne tat den Schneeball werfen.
Suzanne did the snowball throw. (ii,12; 3,5)

c.stimulus: Daß Stephan einen Bleistift hatte, zeigte Johann dem Daniel.
That Stephan a pencil had, showed Johann the Daniel.
child: Julia hat den Stift funde und zeigt es.
Julia has the pen found and showed it.
(iii, 6; 3,9)

The inserted auxiliaries include both modal auxiliaries such as können (can) wollen (want) and semantically empty dummy auxiliaries such as tun (do), gehen (go) and machen (make). The aux insertion data give further evidence of the children's mastery of V2 since auxes are invariably inserted in second position, and are invariably non-finite.

What is most interesting about the aux insertion phenomenon however, is that children also produce examples of **null** aux insertion, as in 15. This child inserted both a lexical and a null auxiliary in this coordinate structure.

15.
Stimulus: Sonja kochte den Kaffee, weil Rita den Tee kochte.
Sonja boiled the coffee, because Rita the tea boiled.

child: Sonja Kaffee e kochen, und der Mann tut Tee kochen.
Sonja coffee boil, and the man does tea boil.

A parallel phenomenon can be seen in the natural speech data. The child may insert both a lexical and a null auxiliary, as in the following example.

16. child: Aber des reinmache, Kann ma da reinmache. (AB, 2,9)
But that inside-make, can one that inside-make.

Examples 15 and 16 provide concrete evidence that production of null auxiliaries parallels production of overt auxiliaries in both elicited imitation and natural speech.

3.2.3 Selection

Further evidence for the existence of null aux comes from the variety of non-finite verb forms which can appear in these contexts. In 15 and 16 above, the non-finite verb is an infinitive form, such as would be selected by a dummy auxiliary (tun) or a modal. However, infinitivals are not the only non-finite forms used with null auxiliaries, in the following two examples the children use participial forms.

17. a.child: nur wenns so ein kleiner Schiff gebaut, dann muss..
only when such a small ship built, then must.. (SP,2,7)
b.child: reh gelauf (HW, 2,4)
Deer run(participle)

In 17a, the participial form is one that would be selected for by a passive auxiliary, while in 17b the participle is one that would be selected for by an aspectual auxiliary. The child clearly marks the features of a participle by using the prefix 'ge'. The appearance of these participial forms would be inexplicable if the child was not positing an independent auxiliary. The children are aware that auxiliaries select different forms of non-finite verbs, either infinitival or participial, and that different auxiliaries have distinct lexical content (e.g., tense, aspectual, modal). Instead of using the adult INFL as a strict anaphor, the children are insertingan appropriate null auxiliary, one that can select for infinitives or participles. This is evidence that the null auxiliary has independent reference and thus behaves like a null pronominal (not an anaphor).

3.2.4 Parallels to null pronominal XPs

In this section we shall present evidence showing that the content of the null auxiliaries is generally recoverable from discourse. This behavior parallels the behavior of null pronominals, which are also required to be recoverable. In the next section we will show that these null auxiliaries are also subject to the formal licensing conditions for null pronominals.

The null aux utterances were found in several different discourse contexts. In the majority of cases (73%) null auxiliaries occur in contexts where there was a clear antecedent in the preceding discourse. The most prevalent of these (50% of the null aux utterances) was a question/answer context between adult and child, where the child seemed to use the finite verb in the adult utterance as an antecedent for the empty auxiliary in their own utterance. For example,

18. adult: Was tut der Hase? Schau mal.
What does the rabbit. Look!
child: Der Teller mahnen. [mahlen].
He plate paints. (GM 2,4)

Using the auxiliary from the surrounding linguistic environment as an antecedent also occurs when the child or adult utterance was a statement (23% of the null aux contexts.) There are two forms this context can take. One form is self-correction, in which the child repeats a previous utterance in corrected form, a phenomenon also found adult discourse (cf Tracy 1989). A second form is when the child makes reference to an overt aux in an initial utterance, which is then omitted from subsequent utterances. It is as if the first utterance contains the antecedent for all empty auxes which follow, for example,

19. Child: Der Affe ist pusputt
The ape is broken.
Adult: Was ist kaputt? Der Arm ab?
What is broken? The arm off?

Child: Affe, der niedere Arm gemache, der Affe putt gemacht.
Ape, the lower arm made-part, the ape broken made-part. (JH 2,7)

3.2.5 Conclusion of evidence

The characteristics of null auxiliary utterances which we have outlined above behave consistently across all children who produce them. Furthermore, null aux utterances comprise a very small percentage of the total samples. The phenomenon of 'null aux insertion' found in the imitation data illustrates how salient both the overt and the null auxiliary is in the children's grammars. In addition, the child appears to chose verbs which are selected by particular auxiliaries where no overt auxiliary is produced. Finally, the child does not merely adopt the word from the adult speech, rather it adopts a set of abstract features, which encompass finiteness and person features. This can be seen in the following example:

20. Adult: sag's ihm, guck mal.
Tell it him, look.
Child: Dein Teddybär auch sagen.
Your teddy bear also say. (JT 2,6)

This is clearly parallel to the behavior of other null pronominals. We believe that although this the numbers of this utterance type are not large, their presence indicates a part of the 'language' which needs to be learned: The child needs to learn what types of null pronominals are allowed in its language.

4.0 Licensing Null Aux

We have used the preceding arguments to motivate the null aux analysis. This brings us to the question: What is the nature of this element and how is this element licensed? We propose that this null auxiliary in ECG is licensed by mechanisms available in UG (adult grammar). Specifically, we propose that null auxiliaries are licensed through Spec-head agreement in the same manner as pronominal empty categories. This predicts that in addition to null Specifiers being licensed by an X° head, pronominal X° heads can be licensed by their specifier, as formalized in 21:

21. Licensing under Spec-head agreement

a. The null aux consists of a complex of features, including phi-features. It is pronominal.

b. The Licensing of pronominal empty categories under Spec-head relation is symmetric.

c. Licensing under Spec-head agreement: (Adapted from Rizzi 1986)

i. Where *pro* is an instance of X° or XP, *pro* stands in a Spec-head relation with X^n_y.
ii. Let X be the licensor of an occurrence of the *pro* then *pro* has the specifications on the features of X co-indexed with it.

This formalization for licensing null categories adopts Rizzi's (1986) licensing condition for empty pronominals, with one modification: We have modified the Spec-head licensing to be symmetrical.

The empirical prediction of 21 is that a null pronominal specifier can be licensed by an overt X° head sharing the relevant set of feature specifications, and symmetrically, a null pronominal X° category can be licensed by an overt specifier sharing its relevant feature specifications. 21 predicts, therefore, that cases where either head or specifier or both are overt will occur across languages. But instances where both head and specifier are null are not licensed by 21. This prediction is borne out by the data from a variety of languages, examples of which can be seen in 22:

22. a. English Conditionals
1. I'll go [$_{CP}$ e [$_{C}$ if] you go.] (Spec null)
2. I'll go [$_{CP}$ whether or not [$_{C}$ e] you go.] (C° null)

b. Sentential Subjects
1. [$_{CP}$ e [$_{C}$ That John works] is unclear. (Spec null)
2. [$_{CP}$ where$_i$ [$_{C}$ e] John worked t_i is the problem. (C° null)

c. Finnish Questions
1. Olet-ko sinä kotona?
Are- Q you home-at? (Spec null)
[$_{CP}$ e [$_{C}$ Oletko]$_i$ [$_{IP}$ sinä [$_{I}$ t_i] [$_{VP}$ [$_{V}$ t_i] [$_{NP}$ kotona]]]]

2. Mitä sinä teet?
What you do? (C° null)
[$_{CP}$ Mitä [$_{C}$ e] [$_{IP}$ sinä [$_{I}$ teet$_i$] [$_{VP}$ [$_{V}$ t_i]

In the English conditional, either Spec,CP can be null as in the (a) example, or the head can be null as in the (b) example. Note that the same paradigm holds for the Sentential Subject sentences. The Finnish question paradigm shows that this symmetric licensing is not restricted to English (or Germanic languages).

4.1 A Prediction for ECG

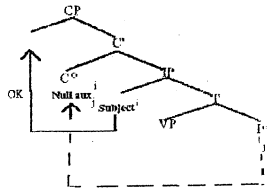
In support of our proposal, we return to ECG and note a final interesting pattern in the ECG data. Namely, we have shown that the children produce non-subject topicalized sentences, and they produce null aux sentences. However, remarkably, the two patterns do not

overlap. That is, there are no instances in the data of a non-subject initial sentence with a null auxiliary. This is exactly the distribution we would have predicted from our claims that (i) I to C is obligatory and (ii) null auxiliaries are licensed by Spec-head agreement. That is, we do not expect to find (and did not find) utterances such as 23 with a clearly topicalized element and a null auxiliary.

23. * Im Bett *e* Bär schlafen.
In bed bear sleep.

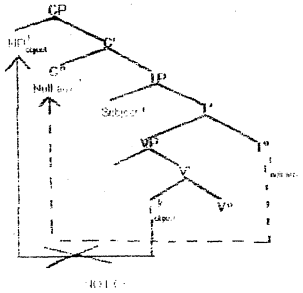
If null auxiliaries are licensed by Spec-head agreement as we propose, then the non-overt auxiliary is licensed by the sharing of phi-features with the subject, as shown in 24.

24.



Since we have shown that children have obligatory I to C movement with overt auxiliaries, we will predict that the non-overt (null) pronominal auxiliary will also undergo I to C movement. Once in C°, the null auxiliary must once again be licensed through Spec-head agreement (since there is other way to license the auxiliary in this position.) If the null auxiliary in C° shares features with the Spec,CP through Spec-head agreement, the null aux will be licensed and the sentence will be well formed. This is precisely the configuration shown in 24, where the subject is topicalized.

25.



Consistent with our proposal a number of researchers of V2 languages have recently claimed that there is no agreement relation between the non-subject element in Spec,CP and the inflected verb in C°. (Deprez 1989, 1991; Rizzi 1990, Haegeman, 1991). There are several approaches to implementing this generalization; it might be hypothesized that the non-subject element actually does not occupy the Spec,CP position, as claimed by Deprez, or alternatively, that it does, as claimed by Rizzi and Haegeman, but that no agreement relationship holds between C° and the non-subject element in Spec,CP.In either case, the absence of a Spec-head agreement relationship will fail to license an empty element in C° in the case of a non-subject topic, such as shown in 25.

5.0 Conclusion

In this paper we have argued for the following conclusions about the grammar of ECG. First, the grammar of ECG includes the full grammar of movement found in adult German, including obligatory I to C movement. There is no period of finite verb-final. Contexts where the finite auxiliary appears to be "missing" in ECG in fact involve a null auxiliary, licensed in a manner generally available for null pronominal categories. In section 3 we have shown that there is empirical support in ECG for the 'null aux hypothesis' which we have proposed. Section 4 demonstrated that the 'null auxiliaries' follow the licensing conditions for empty pronominals. This hypothesis is also theoretically desirable. Positing a null auxiliary accounts for the non-finiteness of the lexical verb in this pattern, since I° is occupied by the trace of the null auxiliary, which blocks raising of the verb to tense. It accounts for the failure of non-finite verbs to occur in second position, since to do so, they would have to raise to C° through I° which is occupied by the null auxiliary and its trace respectively.

These results support our proposal that the grammar of ECG includes the full inventory of functional categories, in particular CP, that are found in the adult grammar. There is a change in the language of the children with regard to the phonetic realization of Aux, but this change is not in the grammar of V2. The learning that the children are undertaking will be in the elements that exhibit cross-linguistic variation, such as the content and phonetic realization I° features.

Although several previous proposals in the acquisition literature appear to agree with ours in part (e.g., Miller 1988; Clahsen, 1990; Weissenborn 1990; Deprez and Pierce, to appear), we think that our results lead to a stronger conclusion than has been drawn before. Our analysis attributes to the child the complete grammar of V2 in German, including obligatory I to C verb movement.

6.0 Appendix: On Optionality and Learnability

The fact that children who are acquiring German know about obligatory I to C movement is desirable with regard to learnability. For the child's grammar to change from optional to obligatory I to C movement would be arguably unlearnable, because the data will always under-determine 'obligatoriness'. Although optionality could be learned on the basis of irregular evidence, there is no way that 'obligatoriness' can be determined by the experienced data. The Strong Continuity hypothesis, wherein UG principles are available to the Initial State, resolves this learnability paradox.

Our evidence has, at the same time, however, revealed that the 'language' of the child may not totally accord with the 'language' of the adult model, even while UG is continuous. While we have shown that the null aux examples can be licensed in a manner consistent with UG, most of these utterances are still judged not acceptable in the

adult language. This contrast presents us with another learnability problem: The child begins with the optionality of null aux and must someh ow 'learn' obligatoriness of overt aux for its language. While the problem of optional realization of overt aux may seem to reflect a paradox similar to the one presented by optional I to C, this is not the same type of learnability problem. Rather, obligatory realization of overt aux can be learned on the basis of positive evidence alone.

The lexical-phonetic realization of aux is a property of language as opposed to grammar. The learner must determine whether and when a language requires an overt lexical realization of the features in aux, and which lexical realization is appropriate to a given context. For example, as is well known, languages such as Russian and Arabic allow null copulas in the present tense, but English and German do not. Even within German, the Badish dialect (Southern German) in which our data was collected has productive use of the dummy auxiliary tun, whereas other dialects do not. The lexical realization of aux is thus clearly language-specific, and cannot be directly derived from UG. It must involve lexical learning.

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