

Minding the Absent: Arguments for the Full Competence Hypothesis

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1. Introduction

The status of functional projections in early child language is currently subject to much controversy. According to one major school of thought, all functional projections including both CP and IP are absent in the early grammar (Guilfoyle & Noonan 1988, Radford 1990, among others). Alternatively, lower functional projections like IP are initially present, but not the higher ones like CP (e.g. Meisel & Müller 1992). A third variant of this approach holds that young children have a single, underspecified functional projection (cf. Clahsen's 1991 F[unctional]P, see also Hoekstra, Hyams & Becker 1996 for underspecification of NumP). What unifies these three approaches is the assumption that the array of functional projections is not fully available initially and develops over time. Following Deprez (1994), we call this the Gradual Development Hypothesis. According to the opposing perspective, all functional projections, including CP and IP, are present and fully specified from the beginning (see Poeppel & Wexler 1993 and Boser et al. 1992, among others). Following Poeppel & Wexler (1993), we call this the Full Competence Hypothesis.

Arguments for the Gradual Development Hypothesis are typically based on the early absence of morpho-phonological material associated with functional projections. Thus the absence of complementizers from early subordinate clauses (cf. (1a), based on Meisel & Müller 1992) has been interpreted as evidence for the early absence of CP. Similarly, the absence of auxiliaries (cf. (1b)) and agreement markers (cf. (1c), based on Radford 1990) as well as the occurrence of non-nominative subjects (cf. (1d), based on Vainikka 1993) have been taken as evidence for the early absence of IP. (1c,d) further illustrates the early absence of determiners, taken to indicate that DP is initially missing. The tree in (2) is a (simplified) fully projected (adult) tree. The underlined nodes, taken to dominate functional material, are thus assumed to be absent in the early grammar:

- (1) a. pa' auf teddy tombe pas.
watch out teddy falls not
'Watch out that the Teddy doesn't fall.' (German/French: Ivar 2;4)
- b. I not honey, I Adam Smith.
'I'm not honey, I'm Adam Smith.' (English: Adam 2; 11)

c. ADULT: What does the pig say?

CHILD: Pig say oink.

'The pig says oink.'

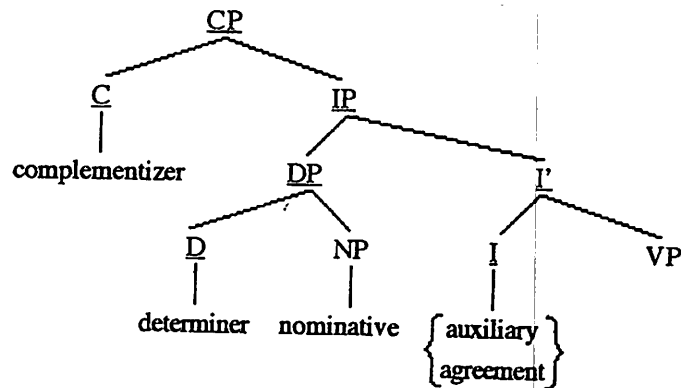
(English: Claire 2;1)

d. Me love boat.

'I love the boat.'

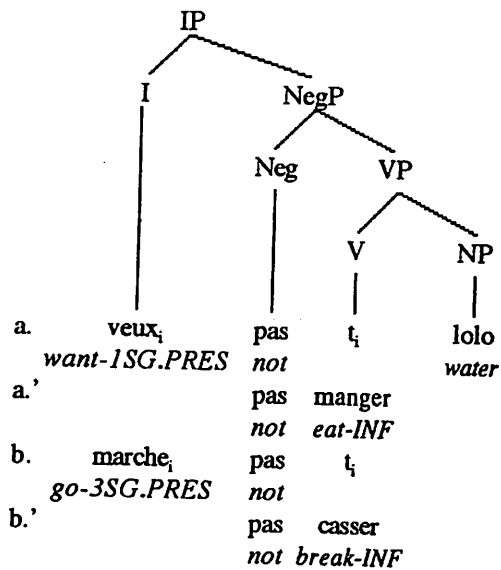
(English: Naomi 2;3)

(2)



In contrast, arguments for the Full Competence Hypothesis are typically based on the early presence of syntactic movement linked to functional structure. Thus the consistent adult-like distinction between finite-V^NEG and NEG^nonfinite-V word order in early child French (cf. (3) and Table 1 based on Pierce 1992) has been interpreted as evidence for the early presence of IP since it is V to I movement which derives this word order distinction in adult French.

(3)



(Nathalie 2;0)

(Nathalie 1;9)

(Daniel 1;8)

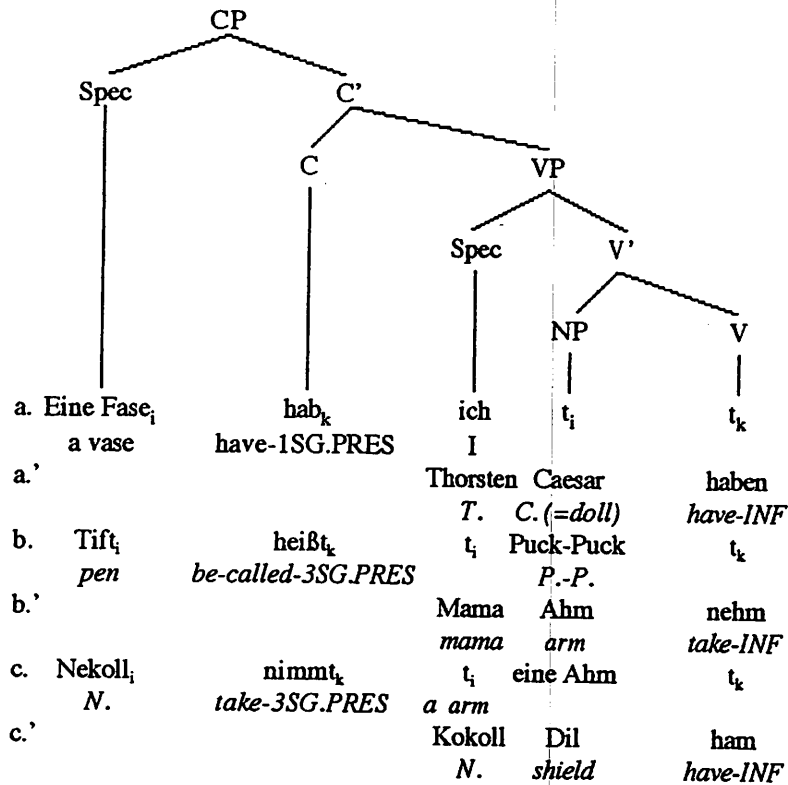
(Daniel 1;8)

	Nathalie (1;9-2;3)		Daniel (1;8-1;11)	
	+ finite	- finite	+ finite	- finite
Verb-Neg	68	0	53	1
Neg-Verb	3	82	3	36

Table 1: Relative Order of Negation and Finite and Non-Finite Verbs in Child French (Based on Pierce 1992)

Similarly, the consistent adult-like distinction between V2 finite verbs with the possibility of topicalization and V-final nonfinite verbs without the possibility of topicalization in early child German (cf. (4a) from Poeppel & Wexler 1993 [Andreas, age 2;1], (4b,c) from Rohrbacher & Vainikka 1996 [Katrin, age 1;5 and Nicole, age 1;8], and Table 2) has been taken to indicate the presence in the early grammar of structures like (4), which contain a fully projected CP, since it is typically V to C movement which is analyzed as deriving V2 in the adult grammar.

(4)



	Andreas		Katrin		Nicole	
	+ finite	- finite	+ finite	- finite ²	+ finite	- finite ²
V2	197 (95%)	6 (14%)	68 (77%)	2 (3%)	71 (77%)	6 (5%)
Vf	11 (5%)	37 (86%)	0	6 (5%)	4 (4%)	24 (21%)

Table 2: Relative Position of Finite and Non-Finite Verbs in Child German
(Based on Poeppel & Wexler 1993 and Rohrbacher & Vainikka 1995)

Proponents of the Full Competence Hypothesis typically do not have a direct account for the prevalent absence of functional material in early child language. However, in this paper, we address directly the absence of functional material in the early language from the Full Competence Hypothesis perspective, arguing that it is precisely this absence which provides, in itself, evidence FOR, rather than AGAINST, the existence of functional structure in the early grammar, and hence for the Full Competence Hypothesis. Our argument focuses on AgrSP, but we assume that it extends to TP and other functional projections as well.³ In section 2, we show that contrary to the claims of its proponents, the Gradual Development Hypothesis doesn't predict the absence of inflectional markers in the early grammar, but rather, the random use of inflected forms, accompanied by multiple errors involving overt agreement markers. In section 3, this prediction is shown to be wrong: when young children use overt agreement markers, they overwhelmingly use them correctly. In view of this, the absence of overt agreement markers exemplified in (1c) appears to be motivated by the desire to avoid incorrect forms whose morpho-phonology has not been fully acquired. In turn, this avoidance in itself is a strong indication of implicit knowledge, therefore supporting the early presence of functional structure. Section 4 demonstrates that unlike children, agrammatic aphasic patients, for whom the loss of functional projections has been independently argued (cf. Grodzinsky 1990), do make random agreement mistakes. The striking contrast between child and agrammatic speech reinforces our conclusion that children have access to functional projections from the beginning. In section 5, we offer an analysis of Root Infinitives (cf. Wexler 1994) as finite structures involving a participle and null copulas, or auxiliaries, in accordance with our conclusion that all functional projections are present from the start (a similar approach is advocated in Phillips (1996), but see footnote 18 below for further discussion).

2. Morphology and syntax: predictions of Gradual Development vs. Full Competence

It is sometimes suggested that the acquisition of functional projections is triggered by the acquisition of the corresponding functional morphemes, i.e. that the knowledge of morpho-phonology precedes, and triggers, the knowledge of syntax. Upon a closer inspection, however, this assumption turns out to be extremely problematic. In the absence of a pre-existing notion of grammaticalized tense, it is hard to see why the child would be driven to segment a phonological string into a lexical stem and a discrete tense morpheme. Considering, specifically, the multiplicity of phonological representations corresponding to past tense in English, how could the child realize that the distinction between the forms in (5a) and their counterparts in (5b) is an inflectional one, reflecting a (potentially subtle) difference in tense, and not a substantive, lexical one, reflecting a difference in the action denoted? Differently put, only if the child has a *prima facie* reason to assume that differences between present and past are morpho-phonologically marked will she attribute to tense the difference between *move* and *moved*, *run* and *ran*, and *go* and *went*. In the absence of such *prima facie* reason, the inductive acquisition of a syntactic tense node on the basis of morpho-phonological evidence is no more plausible than the assumption that the pairs in (5) reflect semantically related concepts such as *move* and *move quickly*, *run* and *run slowly*, etc. Our argument here is therefore a strictly Cartesian one: Unless the child knows to look for a tense marker, it remains a mystery how she can extract the knowledge of its existence from the alternation in (5) alone:

(5)	a. /mu:v/	b. /mu:vd/	/d/-suffix
	/wɔ:k/	/wɔ:kt/	/t/-suffix
	/ʃift/	/ʃiftəd/	/d/-suffix
	/sey/	/sɛd/	glide deletion + /d/-suffix
	/rʌn/	/ræn/	ablaut
	/gɔw/	/wɛnt/	suppletion

Nor are phonological clues helpful here. Suppose for the moment that the child does conclude, on the basis of the input, that the (underlying) phonological string /-d/ corresponds to a semantic notion of tense. In the absence of any knowledge of a syntactic TP and its grammaticalized semantic features, why would the child then proceed to actually project such a TP in order to license the identified phonological string? Alternatively, if the child assumes that any semantically coherent phonological string must project, why do the data in (6) not tempt the child, in a similar fashion, to extract a nose-related /sn/ string and project it as the head of a Proboscis Phrase?

- (6) sneeze, sniff, snivel, snoop, snooty, snot(ty), snore, snort, snout, snuff

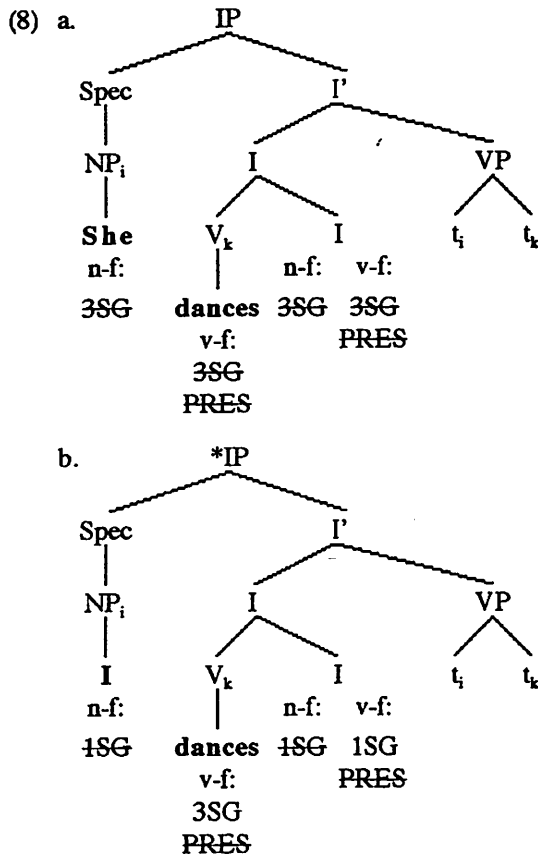
Even if we concede that there are universal semantic categories of which tense is one and “nose-related” is possibly not, the question remains: how does the child know that some universal semantic categories are syntactically instantiated through a categorial projection but others (e.g. flexible vs. rigid) are not. The only possibility is that the child knows which universal semantic categories are grammaticalized, and is thus never tempted to project Proboscis Phrase, no matter how much phonological material might suggest its existence. However, attributing to the child the knowledge that tense will turn out to project, but proboscis will not, amounts to saying that the child has active knowledge that functional categories such as tense exist, and it is this syntactic knowledge which is instrumental in morphologically segmenting strings such as those in (5b), determining the existence and function of affixal material, rather than the other way around.

Assuming that this is on the right track and that the existence of functional structure necessarily precedes the knowledge of its morphological realization, then for each functional projection FP, the following developmental stages are conceivable, depending on whether one subscribes to Gradual Development or the Full Competence. The Gradual Development Hypothesis claims that the acquisition of functional structure for all or some functional projections starts with stage (7a). In contrast, the Full Competence Hypothesis claims that the acquisition of functional structure for all functional projections starts with stage (7b).

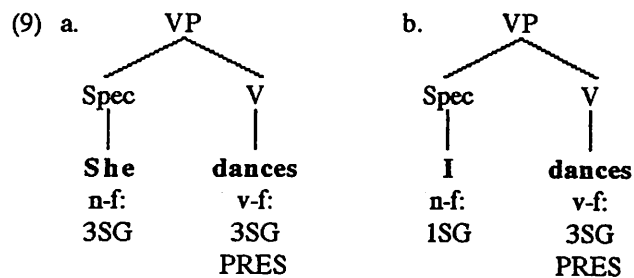
- (7) a. FP absent
- b. FP present but no knowledge of corresponding functional morpheme(s)
- c. Acquisition of morpheme(s), adult performance

Consider now the ramifications of the Gradual Development Hypothesis and the Full Competence Hypothesis when viewed within a particular grammatical model. According to the Minimalist Program of Chomsky (1993), the main verb α has “inflectional features in the lexicon as an intrinsic property...; these features are then checked [after V to I movement, B&R] against the inflectional element I in the complex [α I]. [footnote omitted, B&R] If the features of α and I match, I disappears and α enters the PF component under Spell-Out; if they conflict, I remains and the derivation crashes at PF...” (Chomsky 1993:195).⁴ More generally, lexical items are inserted into the syntactic structure fully inflected. During the derivation, the appropriateness of the inflection is checked, via movement, against the content of functional heads. Crucially, inflection is checked only in the presence of functional structure. To illustrate, in (8), subject and verb are inserted into Spec,VP and V, respectively. Both are fully inflected and carry a set of n- or v-features corresponding to their inflection. In addition, I carries a set of n-features and a set of v-features that do not clash with each other. Concretely this means that the person and number n-features and the person and number v-features of I are identical. The subject and

the verb then move to Spec,IP and I, respectively, where the n-features of the subject are checked against the n-features of I and the v-features of the verb are checked against the v-features of I. In (8a), where all relevant features match, I disappears and the derivation enters the PF component under Spell-Out. In (8b), where one of the v-features of I conflicts with one of the v-features of the verb, I remains and the derivation crashes at PF.⁵ In both structures, check-off of matching features is indicated by strike-through.



According to the quote in the previous paragraph, what rules out (8b) is not the presence of non-matching (n- or) v-features on (the subject or) the verb, but rather the presence of non-matching (n- or) v-features on I. Accordingly, if a grammar without I were possible, this grammar would allow not only (9a), the counterpart of the grammatical (8a), but also (9b), the counterpart of the ungrammatical (8b). Neither of these structures contains I at PF (or any other level), and therefore neither of these structures crashes at PF.



Notice that within the Minimalist program, in the absence of I in (9) agreement between the verb and the subject cannot be ensured: the person and number v-features on the verb cannot be (directly) checked against the person and number n-features on the subject, as there is no one node projected (i.e., I) in which these features are compared. Further, even if it were possible to check the features of Spec,VP against those of V, surviving non-matching features on the verb and the subject would not lead to a crash of the derivation at PF. It is only with a projected I, as in (8), that (indirect) agreement between the verb and the subject can be insured because the person and number n- and v-features on I are identical and must vanish before PF. Similarly, checking of the tense feature on the verb occurs only in structures like those in (8) with I but not in structures like those in (9) without I. Thus without IP, the syntactic appropriateness of fully inflected forms cannot be checked, nor can syntactically inappropriate forms be excluded. A grammar without IP should therefore allow well-formed morphological forms to be distributed randomly, as the system designed to check their appropriateness in a specific syntactic context is non-existent. This rationale predicts that without an IP, children should make tense and agreement errors, failing to check base-generated finite forms against the properties of T and AgrS in the appropriate functional heads, be it I, or alternatively, distinct T and AgrS (cf. footnote 3). Within a checking model, then, the Gradual Development Hypothesis predicts that at stage (7a), randomly distributed inflected forms should abound in the child's speech.

The Full Competence Hypothesis makes a different prediction. Since all functional projections including IP (or alternatively AgrSP and TP) are present from the start, functional morphology such as agreement and tense inflection can always be checked. Consequently, no significant overuse of agreement, tense and other markers should ever occur. At stage (7b), when the child has identified the presence of an inflected form but has not yet matched the inflection with the appropriate functional features (e.g. /-d/ = [+past]), she is plausibly avoiding the use of inflected forms, so as to preempt a potential feature clash when checking takes place. Concretely, she will use a form uninflected for the feature or category in question, and, as a result, fail to move the form to the relevant functional head in which that feature is to be checked. Starting with a minimal well-formed morpho-phonological unit (stage 7b), she will add on morphemes as

they are learned, checking them appropriately, culminating in the adult-like paradigm of checking and movement (stage 7c). In turn, the prediction is that when morphemes are used, they are used correctly, as they are subject to adult-like grammatical checking. When their correct use is in doubt, inflected forms - and checking/movement - are avoided, precisely because of the presence of the functional projections against which that inflection can be checked. Thus whereas Gradual Development predicts random inflection, the Full Competence Hypothesis predicts morphological avoidance.⁶ Let us now turn to the data and check these predictions. Recall that we will be comparing early utterances with utterances of agrammatic patients whose speech has been independently argued to reflect missing functional projections.

3. Verbal inflection in child language

In English, where the bare verb stem occurs in tenseless, non-agreeing contexts (i.e. infinitives) as well as in tensed, agreeing ones (i.e. non-3sg present), it is often difficult to tell whether a child's utterance is finite or non-finite. There are, however, two environments in which this situation is disambiguated: finite non-subject wh-questions and finite negative declaratives. In both environments, an overtly tensed and agreeing auxiliary is obligatory, but younger children typically omit this auxiliary and produce only the bare stem (cf. table 3). It is reasonable to assume that here the bare stem represents a tenseless, non-agreeing form. At the same time, when tense and agreement morphology is used in early English, it is used correctly. Thus Harris & Wexler (1996) show that in the speech of 10 children acquiring English, the 3sg present marker *-s/* was employed in only 3 (.02%) out of 1352 sentences with a 1sg subject and corresponded to a non-present tense interpretation in only 19 (4%) out of 437 sentences in which it appeared.

Wh-questions: Adam Roeper & Rohrbacher (1995)		Negatives: 10 children Harris & Wexler (1996)	
age 2;3-2;8	5% (4/82) finite	age 1;6-4;1	56% finite
age 2;8-2;11	46% (108/234) finite		

Table 3: Finiteness in child English questions & negative declaratives

In German, where the bare verb stem may occur in a tensed, agreeing syntactic context (i.e. 1sg present, cf. (4a)), children typically nevertheless prefer the tenseless, non-agreeing infinitive suffixed with *-en/* (cf. (4a')). As a result, the proportion of finite root clauses is initially quite low (cf. table 4). On the other hand, when the same German-speaking children do use agreement markers, they use them correctly (cf. table 5 and similar data in Clahsen & Penke 1992).

age	Andreas	age	Katrin	age	Nicole
2;1	82% (231/282)	1;5	42% (49/117)	1;8	32% (52/164)

Table 4: % finite utterances in child German
(Based on Poeppel & Wexler 1993, Rohrbacher & Vainikka 1995)

	Andreas (2;1)	Katrin (1;5)	Nicole (1;8)
1SG -e	21/22 (95%)	-	-
2SG -st	8/8 (100%)	11/11 (100%)	-
3SG -t	22/23 (96%)	25/25 (100%)	2/2 (100%)

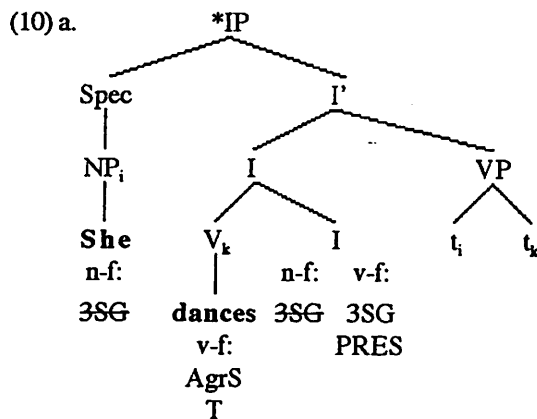
Table 5: Correct use of present tense affixes in child German
(Based on Ingram & Thompson 1996)

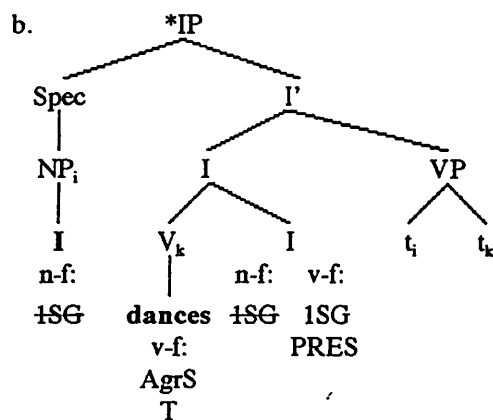
Note that the similarity between the use of a bare stem in early English and the use of an affixed infinitive in early German strongly discounts an explanation of the early performance based on the simple deletion of morphological material. The preference for bare stems in child English, like the preference for “root infinitives” (cf. Wexler 1994) in early German, can be explained if we assume that the (mis)use of tense and agreement morphology is systematically avoided by children who have not yet attained perfect knowledge of the feature values for the morphological finiteness marker(s) in question. Instead of choosing a finite form which must be checked/moved and whose use could lead to a feature clash between V and I (and subsequently to the crash of the derivation at PF), children chose a non-finite form that does not run into this problem because it lacks the relevant features, and, as a consequence, need neither move nor check (see section 5 for the details of our analysis of children’s non-finite forms).

This avoidance strategy attributes considerable syntactic and morphological knowledge to these children. Regarding their syntactic knowledge, these children must have an adult-like IP because, as we saw in section 2, without this projection, no feature clash could ever occur and there would then be no reason to avoid finite verb forms. Regarding their morphological knowledge, these children cannot freely assign (or omit) tense and agreement features to the finiteness markers whose feature values they have not yet fully acquired. If, for example, English-speaking children could freely assign the features 1sg and present to the verb *dances* in (8b), these features could check the corresponding v-features on I and there would again be no reason to avoid finite verb forms.⁷ If, conversely, English-speaking children could freely omit all tense and agreement features from the verb *dances* in (8b), then they should treat this inflected form on a par with the bare stem (or the “root infinitive”) and since under this treatment, no features would have to be checked, there would once more be no reason to avoid finite forms. Instead, the children’s knowledge that *dances* and other finite forms ARE inflected paired with their inability to assign any fully

specified features to this verb and finite forms in general leads them to avoid finite verb forms altogether.

The same idea can be implemented by assuming that in the absence of full knowledge of the feature values of inflectional markers, children initially assign unspecified person, number and tense v-features to finite, inflected verbs. I on the other hand must have fully specified person and number n-features to match those on the subject⁸ and, since the person and number n- and v-features on I are always identical (cf. section 2), I then has fully specified person and number v-features, too. In addition, we assume that I must have fully specified tense v-features in order to be interpreted. Under the reasonable assumption that unspecified features cannot check fully specified features, the person, number and tense v-features of I survive until PF where the derivation crashes. In other words, being unable to distinguish between the features of varying inflected forms, present but unspecified inflection will always lead to a derivational crash. As children cannot chose the grammatical finite (adult) structure in (8a) over the ungrammatical finite (adult) structure in (8b), they only have the equally ungrammatical finite structures in (10a) and (10b) at their disposal and that is why they tend to avoid finite verb forms. In (10), unspecified person and number features are denoted as *AgrS* and unspecified tense features are denoted as *T*.





We will turn to the structure of the uninflected, apparently non-finite clauses which are so predominant in early child language in section 5. As for the few and almost invariably correctly used inflected verbs in early child language, these occur in grammatical adult-like structures such as the one in (8a). In these cases, we claim, the child has already successfully assigned fully specified v-features to the inflected verb although she is not yet able to do so in general. Under the strong lexicalist hypothesis advocated in Chomsky (1993), according to which finite verbs are listed fully inflected in the lexicon, it is not unexpected that the learning of v-feature assignment proceeds case by case and that verb forms with unspecified or partially specified v-features (i.e., not fully learned feature values) can coexist for a while alongside verb forms with fully specified v-features. What is crucial for our argument is that the avoidance of tense and agreement mistakes and the correct use of finite verb forms points to the early presence of the corresponding functional projection(s), IP (or TP and AgrSP).

Consider now Greek, where the bare verb stem is not a morphologically well-formed word and syntactic infinitives do not exist. Here, children initially prefer verb forms bearing the suffix /-i/ (cf. table 6). In the adult language, these forms, depending on the stem in question, are sometimes unambiguous finite 3sg forms. At other times, they are ambiguous between finite 3sg forms and non-finite, non-agreeing participle forms. Younger children often use /-i/-forms in non-3sg contexts (cf. (11); table 6), therefore appearing to make agreement mistakes. However, upon closer scrutiny it turns out that these apparent "agreement mistakes" only occur with those forms which, for adults, are ambiguous between the agreeing 3sg reading and the non-agreeing participle reading. In other words, apparent agreement mistakes can always be explained away as instances of the non-agreeing participle employed in root contexts, precisely to avoid such agreement mistakes. Unambiguous agreement mistakes in environments which do not allow a participle construal do not occur (see Varlokosta, Vainikka & Rohrbacher 1996 for discussion).

- (11) anitsi!
 open-3SG.PERF.SUBJ / open-PERF.PART
 'open it!'

(Greek: Janna 1;11)

	Spiros 1;9	Janna 1;11	Janna 2;5
-i	76% (n=96) (38 [40%] non-3sg)	51% (n=45) (17 [38%] non-3sg)	35% (n=62) (0 non-3sg)
other	24% (n=31)	49% (n=43)	65% (n=116)

Table 6: Verb inflection in early child Greek
 (Based on Varlokosta, Vainikka & Rohrbacher 1996)

Within a Minimalist approach to feature checking, the child Greek pattern, like the child English and child German patterns just discussed, constitutes strong evidence for the early presence of functional categories, in particular IP.

French provides yet another confirmation for the Full Competence Hypothesis. Children acquiring French initially produce few finite utterances with agreement (cf. table 7), preferring instead non-agreeing non-finite ones with verbal forms that are either ambiguous between infinitives and participles (cf. (3a',b')) or are clearly participial (cf. (12)). When finite utterances are produced, subject clitics (i.e. agreement markers, cf. Roberge 1990) are rare. When finite forms and clitics do occur, they are correct.

- (12) sorti les vaches
 left-PART the cows
 'The cows have left.'

(French: Philippe 2;2)

Nathalie		Daniel	
age	% finite	age	% finite
1;9	4 (3/81)	1;8	40 (42/104)
2;2	54 (70/129)	1;10	58 (125/217)
2;3	90 (152/168)	1;11	78 (156/199)

Table 7: Development of finiteness in child French
 (Based on Pierce 1992)

Finally, agreement mistakes are very rare in early Italian (table 8; cf. Torrens 1995 for similar results in Spanish and Catalan). As in Greek and French, bare past participles (with absent auxiliaries) are common early on (cf. Volterra 1976 and discussion in section 5).

	age	utterances	errors
Martina	1;8-2;7	478	1.6%
Diana	1;10-2;6	610	1.5%
Guglielmo	2;2-2;7	201	3.3%
Claudia	1;4-2;4	1410	3%
Francesco	1;5-2;10	1264	2%
Marco	1;5-3;0	415	4%

Table 8: Agreement errors in child Italian (Based on Guasti 1994, Pizutto & Caselli 1992, Hoekstra, Hyams & Becker 1996)

In sum, the overuse of tense and agreement morphology in inappropriate contexts predicted by the Gradual Development Hypothesis does not occur in child language. Instead, children avoid tense and agreement errors by using a minimal untensed and non-agreeing (well-formed) form: the bare stem in English, the infinitive in German, and a participle in Greek, French and Italian. When tense and agreement morphology is used, it is used correctly. The widespread avoidance of inflected forms, coupled with correct use of tense and agreement, is exactly what the Full Competence Hypothesis predicts.

4. Verbal inflection in agrammatic speech

Interestingly enough, tense and agreement errors of the kind predicted by the Gradual Development Hypothesis do occur, but not in the speech of children. Rather, they occur in the speech of agrammatic aphasic patients, and it has been independently argued that they reflect the loss of functional structure (cf. Grodzinsky 1990, Friedmann & Grodzinsky 1997). Thus one of the two French speaking aphasic patients analyzed by Nespoulous et al. (1990) produced the wrong subject clitic in 5 (14%) of 36 cases and the wrong object clitic in 3 (22%) of 14 cases. The error rate for the other patient was slightly lower (8%). The example in (13a) contains a subject clitic mistake involving either person or number, depending on the interpretation of *on* as a (formal) 3sg pronoun or an (informal) 1pl pronoun. The example in (13b) contains a subject clitic mistake involving gender. The examples in (14a-c) contain person, number and gender mistakes with object clitics, respectively. Erroneous forms are underlined.

- (13) a. J' ai mangé. On a mangé.
 I have-1SG eaten one have-3SG eaten
 'I have eaten. I have eaten.'
- b. Le loup demande au où il va.
 the wolf asks to-the where he go-3SG
 'The wolf asks Little Red Riding Hood where she is going.'

- (14) a. Y frappe et avant me déguiser avec chaperon.
 he knock-3SG and before myself disguise-INF with hood
 'He knocks after he disguises himself in the little red riding hood.'
- b. Après ça le loup déguise ... et ... les couche.
 after that the wolf disguise-3SG and themselves put-to-bed-3SG
 'After that the wolf disguises himself and puts himself to bed.'
- c. Elle voit qu' il dort. Elle la réveille.
 she see-3SG that he sleep-3SG she her wake-up-3SG
 'She sees that he is sleeping. She wakes him up.'

If, indeed, French clitics are agreement markers (see above), these examples are agreement errors, indicating that agrammatic patients make such agreement errors considerably more often than children. Crucially, neither patient had comparable problems with non-clitic pronouns (error rate: 2% and 3%, respectively) which, unlike clitic pronouns, are lexical phrases and are hence not expected to be affected by the loss of functional projections.

Results of Italian studies are similar. An Italian patient studied by Miceli & Mazzuchi (1990) used the wrong inflection on 12% of his main verbs, with agreement errors most frequent (16 cases, cf. (15)). Another patient used the wrong inflection on 7% of his main verbs, with agreement errors (2 cases), tense errors (3 cases) and incorrectly used non-finite forms (2 cases) equally distributed. A third Italian patient, studied by Miceli & Caramazza (1988), violated subject-verb in as many 45 (55%) of 82 cases (cf. (16)).

- (15) a. Il ladro rubano rubo i soldi e oro.
 the thief steal-3PL steal-1SG the moneys and gold
 'The thief steals the money and the gold.'
- b. Il lupo vicino scruto.
 the wolf nearby watch-1SG
 'Nearby, the wolf watches.'
- c. L' il lupo corre corre corre e corre al
 the the wolf run-3SG run-3SG run-3SG and run-3SG to-the
 casa sua della nonna e uccido la nonna.
 house hers of-the grandmother and kill-1SG the grandmother.
 'The wolf runs to the house of the grandmother and kills her.'
- (16) a. Poi ritorna la mia casa.
 then return-3SG the my house
 'Then I return to my home.'
- b. Poi telefono, riceve, fare.
 then telephone-1SG receive-3SG make-INF
 'Then I phone, I receive or make calls.'
- c. O poi fare il pranzo perche' ... io vive solo!
 or then make-INF the lunch because I live-3SG alone
 'Or then I prepare lunch because, dear doctor, I live alone!'

Unlike children, agrammatic patients display "no particular tendency to produce one particular inflection as a preferential substitute for several targets" (Miceli & Mazzuchi 1990: 729). Note the random distribution of errors in (15) and (16): whereas some of the verbs in (15) substitute first person for third person, some of the verbs in (16) substitute third person for first person. This random behavior is expected if words are drawn fully inflected from the lexicon, but their inflection cannot be checked against a syntactic environment due to the absence of functional projections. Conversely, the non-random behavior of young children who either avoid agreement or use it correctly but do not make agreement mistakes indicates that these children project AgrSP. Unlike the Gradual Development Hypothesis, the Full Competence Hypothesis is compatible with this behavior.

Agrammatic patients also make the sort of tense mistakes that are unattested in the speech of young children. Friedmann & Grodzinsky (1997) ran sentence repetition and sentence completion tests on a Hebrew-speaking agrammatic patient and found that this patient substituted the target tense marker on verbs with another tense marker in 34 (23%) and with an infinitive marker in only 4 (3%) of all 156 cases. Echoing Miceli & Mazzuchi's observation regarding the agreement mistakes made by Italian-speaking agrammatic patients (cf. the previous paragraph), Friedmann & Grodzinsky (1997:403) note that there was "no preferred or default form" among the tense substitutions made by their Hebrew-speaking agrammatic patient. As before, this random behavior is expected if words are drawn fully inflected from the lexicon, but their inflection cannot be checked against a syntactic environment due to the absence of functional projections. Consequently, Friedmann & Grodzinsky conclude that TP is (at least partially) absent from the grammar of their patient.⁹ The behavior of young children contrasts with that of agrammatic patients. Unlike the latter, they substitute the target tense marker on verbs only very rarely with another tense marker (recall Harris & Wexler's finding that only 3 (.02%) of all 1352 uses of the 3sg present tense marker /-s/ in the speech of ten children acquiring English are in non-present tense contexts) but do so quite often with a non-finite marker (cf. table 3, 4, 6 and 7). While the random behavior of agrammatic patients is entirely compatible with the loss of functional projections, the contrast between agrammatic patients and children strongly supports the claim that in the early grammar, these functional projections are present.

Although tense and agreement mistakes tend to be randomly distributed in the speech of agrammatic patients, their performance is nevertheless almost always better than chance: except for one Italian patient, all patients discussed above produce the correct tense and agreement markers in more than 50% of all cases. Moreover, patients often perform better on some tasks than on others. Thus the same Hebrew-speaking agrammatic patient who produced a substantial number of tense mistakes in sentence repetition and sentence completion tasks was virtually error-free in her grammaticality judgments involving tense (cf.

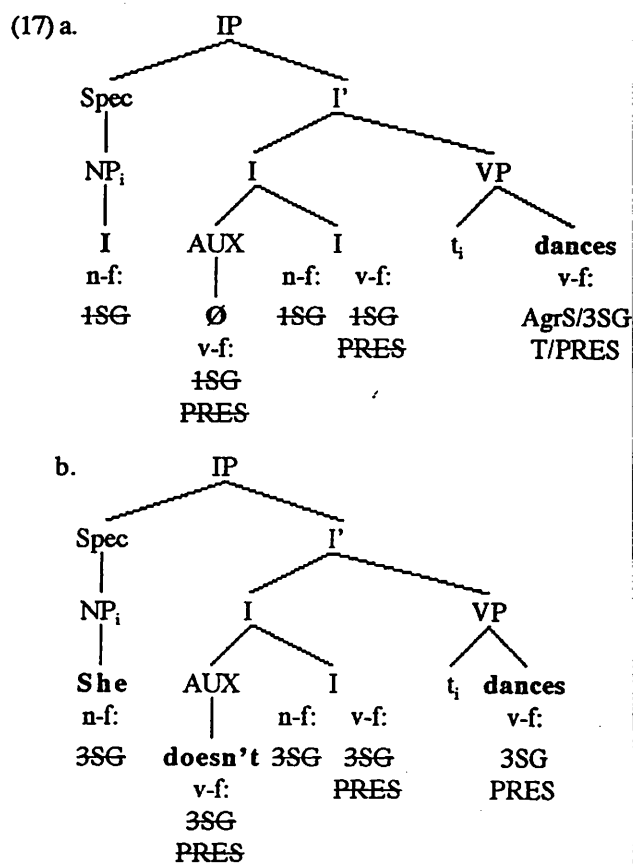
Friedmann & Grodzinsky 1997). Finally, whereas the agrammatic patients discussed above (unlike children) often use a wrong finite form of the verb, other patients (like children) often use a non-finite form of the verb. Neither of these facts diminishes the force of our argument, which does not rest on the (erroneous) assumption that loss of (access to) a functional projection is absolute, extends to all grammatical components and occurs with all agrammatic patients.¹⁰ Rather, our argument is based on the observation that (access to) a functional projection is *SOMETIMES* absent from *SOME* grammatical component of *SOME* agrammatic patients but it is *ALWAYS* present in *ALL* grammatical components of *ALL* (normally developing) young children. In other words, the data discussed in this paper supports the conclusion that agrammatic patients sometimes use structures like the ones in (9) without I (as predicted, although for children, by the Gradual Development Hypothesis) and that young children always use structures like the ones in (8) or (10) with I (as predicted by the Full Competence Hypothesis).

If the breakdown of tense and agreement in the speech of agrammatic patients reflects the loss of functional structure, then one might expect these patients to also have problems with word order phenomena that depend on functional structure. The facts, however, do not appear to confirm this expectation. Penke (1996) found substantial numbers of inflection-related mistakes in the spontaneous speech of two of the five German-speaking agrammatic patients she studied. The individual error rates were 6%, 6%, 8%, 21% and 29%, the overall error rate was 11%. She however found no substantial numbers of word order-related mistakes in the spontaneous speech of these patients: finite verbs underwent V2 in more than 98% of all cases, and non-finite verbs always remained in their clause-final *in situ* position. Recall from (4) that V2 is caused by verb movement to C. The survival of the V2-effect in German-speaking agrammatic patients therefore suggests that CP is unimpaired. Note however that this conclusion is not necessarily problematic for our analysis: if functional projections can be selectively affected in agrammatic aphasia as suggested in footnote 9, then it is entirely conceivable that AgrSP and TP were damaged in two of the German patients (accounting for their problems with inflection) but CP was undamaged in all of these patients (accounting for their success with word order).¹¹ It would be more problematic if it turned out that French-speaking agrammatic patients who have trouble with tense and agreement nevertheless have no trouble with word order and consistently place finite verb before and non-finite verbs after the negation marker, since in normal speakers this word order difference involves AgrSP and TP (cf. (3)). Even if this turns out to be true, it does not in itself militate against our analysis, since in agrammatic patients word order might very well be due to successful serialization strategies rather than unimpaired use of functional projections. Note finally that the consistent distinction which German-speaking agrammatic patients make between finite and non-finite verbs is compatible with our analysis: we are not

saying that the verb forms of agrammatic patients are featureless, but rather that these features cannot always be checked by AgrS and T. If CP is projected and its head has a finiteness feature that needs to be checked, then a finite verb can move to C in order to check this feature, regardless of whether AgrSP and T are projected or not.

5. The structure of “non-finite” root clauses in child language

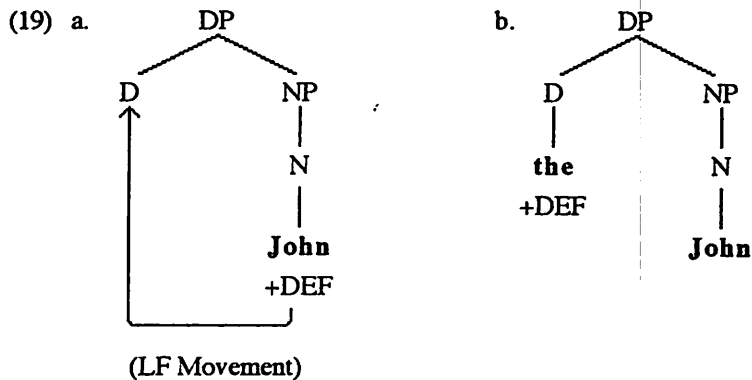
Let us now turn to the analysis of the apparently non-finite utterances that are preferred by young children. Recall that we assumed in section 3 that all utterances must have a fully specified tense feature in I in order to be interpreted,¹² and this feature must be checked in order to avoid crashing at PF. Non-finite verb forms do not have a tense feature, but it is quite plausible that in “root infinitives”, the tense feature is checked by a phonologically-null finite auxiliary rather than by the phonologically realized unmoved non-finite main verb (cf. Boser et al. 1992). However, within a strict interpretation of the checking model of Chomsky (1993), the presence of a finite, null auxiliary reintroduces the possibility of agreement mistakes: nothing in the model rules out a derivation in which the child inserts the right phonologically-null finite auxiliary (bearing the appropriately specified v-features) into I and the wrong phonologically realized finite main verb (bearing unspecified or inappropriately specified v-features) into V (cf. (17a)). Note in particular that the survival of unchecked v-features on the main verb does not cause the derivation to crash at PF. Agreement mistakes of this sort are however exceedingly rare in child language as we have shown in section 3. The problem is in fact a more general one and is independent of the acquisition issue and of the phonologically-null vs. phonologically realized nature of the auxiliary: nothing in Chomsky’s checking system of checking rules out a derivation in which the adult inserts both a phonologically realized finite auxiliary under I and a phonologically realized finite main verb under V. With the finite auxiliary checking the features in I as required, there remains no way to exclude the additional, unchecked tense marking on the main verb (cf. (17b)). Double marking of tense and agreement is however ungrammatical in adult English.



The fact that the structures in (17) are not well-formed indicates that functional features can be specified either on the functional head or on the lexical head but not on both. A look at the nominal system further supports this view. In English, in the absence of a determiner, a proper name acts as such and refers to a unique individual but in the presence of a determiner, it acts as a common name and refers to a property. Thus whereas in (18a) *John* refers to a unique individual, in (18b) it refers to a member of the [john] set. This contrast is easily captured by the assumption that the interpretational feature associated with definiteness or uniqueness can be specified either on the lexical head, i.e. the noun, or on the functional head, i.e. the determiner, but not on both, and that in the absence of these interpretational features from *John*, as in (18b), *John* becomes a common name, rather than a proper name..

- (18) a. $[_{DP} [_D \emptyset] [_{NP} [_N \text{John}_{def}]]]]$
 b. $[_{DP} [_D \text{the}_{def}] [_{NP} (\text{young}) [_N \text{John}]]]]$

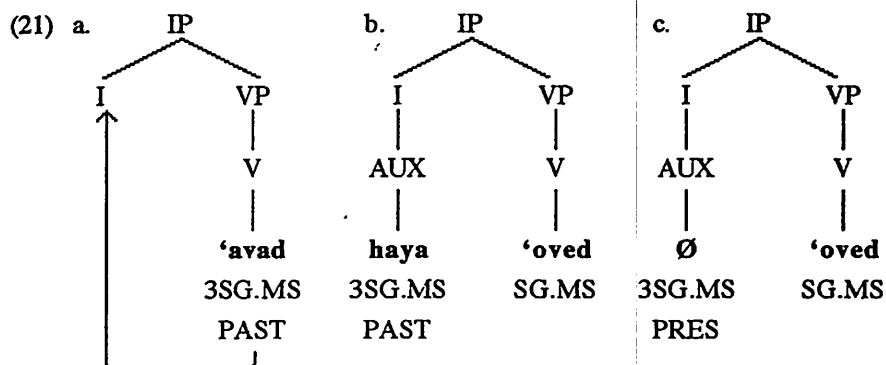
The nominal system illustrates another important aspect of the distribution of functional features over functional and lexical heads. Longobardi (1994) presents compelling evidence that in Italian, proper names raise to D (and therefore precede NP-modifiers) but common names stay in situ (and therefore follow NP-modifiers). If we again assume that features such as $\pm\text{Def}$ are specified on the lexical head in the case of proper names (cf. (19a)) but on the functional head in the case of overt determiners (cf. (19b)), we arrive at the conclusion that lexical heads move if and only if they carry functional features.¹³



Within the verbal system, the same situation can be illustrated. In addition, it becomes clear that a feature-bearing functional head does not have to be phonologically realized in order to block movement of the non-feature-bearing lexical head. Thus if a verb is fully inflected for tense and agreement, but not so the functional heads T and AgrS, the verb must move to T and AgrS. On the other hand, if the verb is not inflected for these features, no movement takes place, regardless of whether the functional heads are overtly filled with elements bearing the features in question. Again, an language-internal illustration is available from a highly inflected language. Consider the following example from Hebrew:

- (20) a. Rani 'avad mi-Seva 'ad 'eser.
R. work-3SG.MS.PST from-7 until 10
'Dani worked from seven to ten'
- b. bi-*tkufat* ha-*limudim*, Rani *haya* 'oved kol
during school R. be-3SG.MS.PST work-SG.MS every
boker mi-Seva 'ad 'eser.
morning from-7 to 10
'During school, Ran was working every morning from seven to ten.'
- c. Rani 'oved kol *boker* mi-Seva 'ad 'eser.
R. work-SG.MS every morning from-7 until 10
'Rani works every morning from seven to ten.'
- (Hebrew)

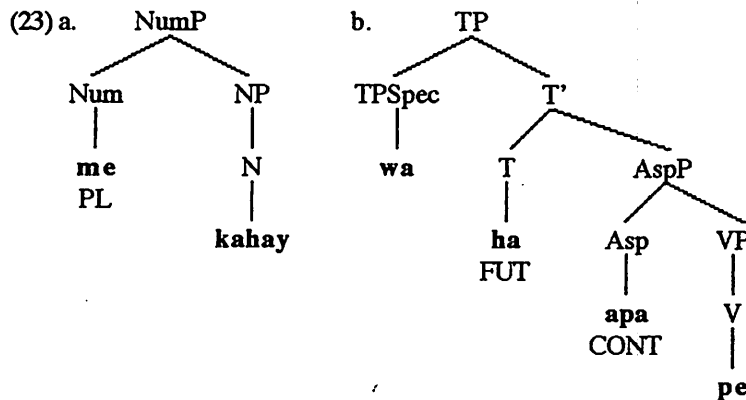
While in (20a) the main verb is fully inflected for tense and agreement, in (20b), the main verb occurs in a participial form which only displays gender and number agreement but not person agreement or tense, and the copular verb *haya* 'be' is inflected for the full agreement paradigm, including person, and for past tense. Independent evidence in Modern Hebrew suggests that while the main verb in (20a) moves to I (or T), this is not the case in (20b). In turn, Dechaine (1993) and Shlonsky (1996) argue convincingly that even when the participle is not accompanied by an overt copula, as in the present tense sentence in (20c), a null copula fully specified for present tense is present in the structure. The three structures associated with (20a-c) respectively are thus as in (21a-c):¹⁴



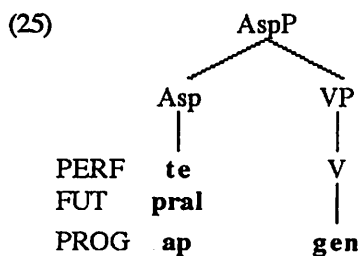
Grammars which make extensive use of the situation in (21b), both in the nominal system and in the verbal system, are clearly attested, and strikingly, from an acquisition perspective, are especially common in morphologically impoverished contexts and in Creoles. Thus consider the following examples from Kraho, an Amazonian-Indian language spoken in Brazil (see Souza 1990), and from Haitian (see Dechaine 1993), where various functional features are realized as separate functional heads and the main verb remains uninflected:

- (22) a. me kahay
 PL woman
 'women'
 b. Wa ha apa pe.
 I FUT CONT work
 'I will be working.'

(Kraho)



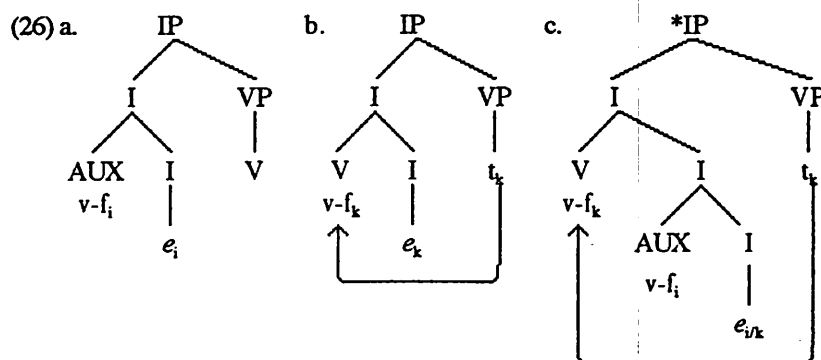
(24) Nou te gen tonton nou ki te boko.
 we PERF have uncle we REL PERF sorcerer
 'We had an uncle who was a sorcerer.' (Haitian)



Returning to the issue of verbal inflection and finite forms, functional features can be specified either on a functional head (via an overt auxiliary as in (21b) or a covert one as in (21c)) or on a lexical head (via a finite main verb as in (21a)), but not on both functional and lexical heads (cf. (17)). When the functional features are specified on the lexical head, the latter must move to the functional head (which, subsequently, must be null), but when the functional features are specified on the functional head, the lexical head must stay in situ.

We believe that this correlation between feature specification and head movement holds the key to the prohibition against double marking of inflection on both an auxiliary and a main verb which remains mysterious within the Minimalist checking system of Chomsky (1993). Let us assume that functional heads dominate (phonologically unrealized) variables and that the interpretation of these functional heads is dependent on being bound by appropriate operators. Specifically, a node such as T will dominate a variable which must be bound by a tense operator to be interpreted, a node such as D will dominate a variable that must be bound by an appropriately specified \pm Def to be interpreted, and a node such as Agr dominates a variable that must be bound by a nominal element with

the appropriate φ features.¹⁵ Let us further assume that functional feature bundles on auxiliaries and main verbs are in fact operators that may, an indeed must bind appropriate variables or vacuous quantification would result. When such a feature bundle is realized on an auxiliary or a determiner (whether overt or null) that is adjoined to a functional head of the right kind, it binds the functional variable and the structure is well-formed (cf. (26a)). When such a feature bundle is realized on a main verb, or on a noun such as *John*, this lexical head must adjoin to the correct functional head in order to bind the functional variable (cf. (26b)). It follows that when a feature bundle is realized on both an auxiliary and a main verb (or, alternatively, on both a determiner and a noun), the operator features of the auxiliary (or the determiner) and the operator features of the main verb (or the noun) must both bind the same functional variable (and both adjoin to the same functional head, cf. (26c)). Assuming, in turn, that a variable can be bound by at most one operator, the resulting configuration is ruled out as vacuous quantification. As a consequence, double marking of functional features on both a functional head such as an auxiliary and a lexical head such as a main verb is impossible.



The value of the functional feature bundles carried by lexical verbs and phonologically realized auxiliaries is determined already in the lexicon, in accordance with the strong lexicalist hypothesis (cf. section 2). We propose now that the value of the functional feature bundles of null auxiliaries is determined by D(iscourse)-linking. A similar assumption was made by Hyams (1996).¹⁶ Our specific proposal follows directly that made by Dechaine (1993) for the licensing of \emptyset -tense. Dechaine explicitly argues that “the temporal reference of a bare sentence [i.e. a clause with \emptyset -tense, B&R] is mediated by discourse principles” (p. 437). While a full review of the conditions on tense D-linking proposed in Dechaine is outside the scope of this work, it is clear that such a system is essential in order to account for the typically unambiguous temporal interpretation of \emptyset -tense sentences which are attested in languages such as Haitian, Chinese, and numerous others (see Dechaine 1993 for a detailed

argumentation for the presence of a \emptyset -T node in these sentences). Thus in (27,28), the (a) examples with a bare plural object are always interpreted as generic, the (b) examples with a definite direct object (marked through the aspectual marker *le* in Chinese) and a telic verb are always interpreted as past, while the (c) examples with a static verb are interpreted as present tense.¹⁷

- (27) a. Pyè vann bèf.
P. sell beef
'Pyè sells cattle.'
- b. Pyè vann bèf yo
P. sell beef DET
'Pyè sold the cattle.'
- c. Sisi renmen chat.
S. like cat
'Sisi likes cats.' (Haitian)
- (28) a. Jingqi chi pingguo.
J. eat apple
'Jingqi eats apples.'
- b. Jingqi chi *(le) nei ge pingguo.
J. eat ASP DEM CL apple
'Jingqi ate that apple.'
- c. Jingqi xihuan mianbao
J. like bread
'Jingqi likes bread.' (Chinese)

Returning to the "root infinitives" of early child language, we would like to propose that these structures are in fact finite: the child projects a full functional structure, but the functional nodes may remain phonologically-null, resulting in structures such as the one in (26a), but with null copulas, or null auxiliaries, as proposed by Boser et al. (1992).¹⁸ In our account, the feature content of these null auxiliaries is determined by D-linking.¹⁹ Since D-linking in effect specifies the features of null auxiliaries that are left unspecified on the main verb or on a phonologically realized auxiliary (neither of which has access to D-linking), a null auxiliary may have a richer feature specification than a phonologically realized one. We believe that this explains why children acquiring non-pro-drop languages often omit the subject in "root infinitives" but do so only very rarely in overtly finite clauses (see note 8). Finite verbs in these languages presumably fail to carry some feature that is needed for the licensing or identification of empty subjects, a fact that is reflected in their relatively impoverished inflection. The missing feature can be supplied to the phonologically-null auxiliaries of young children's "root infinitives" via D-linking, and this possibility allows for the licensing and identification of empty subjects in these (and only these) clauses. The details of this part of our analysis remain to be worked out, and this task goes well beyond the scope of the present paper, but even at this embryonic stage, the new theory of null subjects in child language sketched in this paragraph appears promising.²⁰

Recall that the D-linking of \emptyset -tense sentences results in a present tense interpretation if the sentences are stative, in a past tense interpretation if the sentences are accomplishments, and in a generic interpretation with a bare plural object. If the D-linking available in the early grammar is similar in nature to the one proposed by Dechaine, we expect \emptyset -tense sentences in the early grammar to display a similar interpretational correlation. Strikingly, there is actually some evidence that this is indeed the case. First, it has been independently reported that children use participial forms with null auxiliaries and with past tense interpretation in both French (cf. (29) from Pierce 1992) and Italian (cf. (30) from Volterra 1976), lending support to our analysis:

- (29) a. fermee la fenetre
 closed-PTC the window
 b. cassees les jambes
 broken-PTC the legs
 c. morte Marie
 dead-PTC M.
 d. sorti les vaches
 left-PTC the cows
(French)
- (30) a. alluccio pottato papa
 horse taken daddy
 b. apetto Checco
 opened C.
 c. peso cacche Checco, peso cacche
 taken keys C., taken keys
(Italian)

Further, Antinucci and Miller (1976) report that at the stage which they investigated (2;0-2;6), children use bare participles with a past tense (“passato prossimo”) interpretation, but they do so selectively only for accomplishment verbs, but not for activity verbs or stative verbs, as illustrated by tables 9 and 10:²¹

Unclear	Activity or change of state w/ no result	Change of state w/ clear result	State
sedere* (sit) dire * (tell, say) fermare (stop) raccontare* (tell) capire* (understand) mangiare* (eat)	volare (fly) camminare (walk) correre (run) bere (drink) accompagnare (accompany) toccare (touch) spingere (push) giocare (play) dormire* (sleep) saltare (jump) suonare (play, ring) scopare (sweep) girare (spin around) cercare (look for) piovere (rain) ballare (dance) piangere (cry) scrivere (write) leggere (read) funzionare (function, work) cantare (sing) aspettare* (wait for)	dare (give) aprire (open) accendere (light) venire* (come) cascare* (fall) cadere* (fall) prendere* (take) tenere (take) mettere* (put) trovare* (find) uscire (go out) partire (leave) arrivare* (arrive) buttare* (throw) andare* (go) chiudere* (close) aggiustare (fix) comprare* (buy) pulire (clean) bruciare (burn) scendere* (climb down) bagnare* (wet) regalare* (give) sporcare* (dirty) rompere* (break) tagliare* (cut) portare* (carry) scappare (escape) levare (lift up)	volere (want) sentire (hear) piacere (like) chiamarsi (be called) vedere (see) sapere (know) ricordare (remember)
* appears in past tense			

Table 9: Total list of verbs for Claudia classified by type, modal and auxiliary verbs omitted (From Antinucci & Miller 1976)

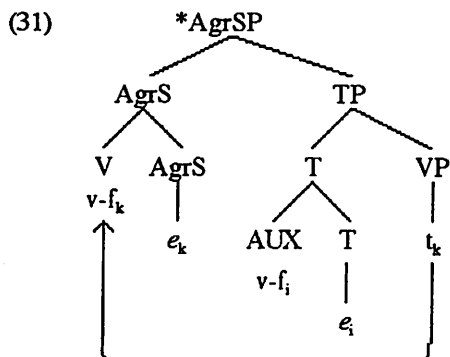
Unclear	Activity or change of state w/ no result	Change of state w/ clear result	State
sedere (sit) dire* (tell) sbagliare (mistake) castigare (scold) mangiare* (eat) piacere* (like)	dormire (sleep) spingere (push) urtare (fight) giocare (play) cantare (sing) piovere (rain) volare (fly) passare (pass by) sputare (spit) piangere* (cry) ridere (laugh) girare (spin around) graffiare (scratch) picchiare (fight) camminare (walk) suonare (play, ring) nuotare (swim) marciare (march) ballare (dance)	portare* (bring, carry) cascare* (fall) cadere* (fall) venire* (come) andare via* (go away) prendere* (take) arrivare (arrive) chiudere (close) perdere (lose) partire (leave) comprare* (buy) dare* (give) bruciare* (burn) rompere (break) bagnare (wet) coprire (cover) mettere* (put) pulire (clean) sporcare* (dirty) regalare* (give) portare via (take away) fare* (do, make) tornare (return) aggiustare (fix) spostare* (move) preparare (prepare) buttare* (throw) scappare* (escape) lavare* (wash) imparare* (learn)	volere (want) sapere (know) bisognare (need to) scottare (burn with fever) vedere (see) sentire (hear)
* appears in past tense			

Table 10: Total list of verbs for Paduan children classified by type, modal and auxiliary verbs omitted (From Antinucci & Miller 1976)

Antinucci and Miller (1976) conclude from this picture that the ability of children to comprehend past events without a tangible present result is flawed.

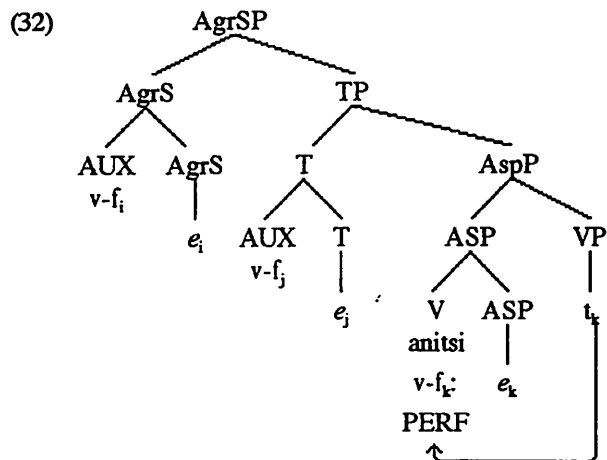
Crucially, however, at the reported stage overt auxiliaries are never present. If, indeed, the D-linking of null tense results in a past tense interpretation in accomplishments only, the use of non-finite accomplishments with past tense interpretation is explained. Likewise, the absence of the non-finite participles of activity and stative verbs in past tense is accounted for: in the absence of an overt auxiliary, D-linking will never result in a past tense interpretation for these participles.

Finally, our theory makes a prediction concerning the order of morpho-phonological acquisition, as determined by structural syntactic constraints. Suppose that functional structure is fixed by UG for all languages and assume for the sake of the discussion that it includes at least AgrS, TP and Asp, in that hierarchical order. We predict that aspect marking must be acquired before tense marking and tense marking must be acquired before agreement marking. As a consequence, the child must progress from a grammar with no (overt or covert) verb movement through a grammar with (overt or covert) short verb movement to Asp and (somewhat later) T to a grammar with long (overt or covert) verb movement to AgrS. The reasoning here is as follows: as long as an inflectional marker has not yet been acquired, the corresponding functional variable is bound by a null auxiliary which is adjoined to the appropriate functional head. As soon as an inflectional marker is acquired and is specified on the main verb, the verb must move at least as high as the relevant functional variable node, or vacuous quantification results. Now if, agreement marking were to be acquired before tense marking, the main verb would have to move to AgrS across the null auxiliary in T as shown in (31), in violation of the Head Movement Constraint.²² Tense marking must therefore be acquired before agreement marking and the child must follow a conservative movement strategy.²³



This predicted order of acquisition is directly confirmed by child Greek. Here there are no well-formed uninflected verb forms which have no functional features altogether. As a result, the child chooses the participial /i/ form, i.e. the least inflected verb form marked only for aspect. This form undergoes short verb

movement to Asp. The higher functional heads are occupied by null auxiliaries whose feature content is determined via D-linking.



To conclude, we have shown that there is direct evidence for the Full Competence Hypothesis from precisely the evidence traditionally put forth against it: the absence of functional material. If functional structure is indeed missing in the early grammar, we showed, a random behavior is anticipated. Such random behavior is indeed found, but not in the speech of children. Rather, it exists in the speech of agrammatic patients. Its existence in the speech of these patients lends credibility to the possible existence of grammars without functional structure, but also strongly argues against the hypothesis that early grammars are deficient in this particular fashion. On the other hand, a gradual acquisition of morpho-phonological knowledge, needed in any acquisition theory, together with a UG-compatible structure incorporating null auxiliaries and no movement, directly accounts both for the early performance and for the actual developmental sequence.

Notes

¹ The authors would like to thank audiences at the 21st Annual Boston University Conference on Language Development and at Northwestern University as well as Kirrie Ballard and Cynthia Thompson for helpful comments. Special thanks to Collin Phillips for comments on an earlier draft of this paper.

² Most of Katrin's and Nicole's non-finite clauses are ambiguous and could be analyzed either as V2 or as V-final structures. By contrast, all of Andreas's non-finite clauses are unambiguous and must in their overwhelming majority be analyzed as V-final structures. The difference is due to the fact that whereas Katrin and Nicole are for the most part still in the two-word stage, Andreas is already in the multi-word stage. In the two-word stage of a SOV V2 language, the order VX clearly indicates that verb movement has taken place but the order XV is ambiguous between verb movement plus topicalization and V in situ. In the multi-word stage of such a language, the orders XVY and VXY clearly indicate that verb movement has taken place and the order XYV unambiguously indicates V in situ. What is most important in Katrin's and Nicole's data is that the VX order is almost always associated with finite forms, providing ample evidence for verb movement in finite clauses. These data therefore suggest that Katrin and Nicole display the same pattern as Andreas and adult speakers of German: whereas finite verbs move to C, non-finite verbs most likely stay in situ. See Rohrbacher & Vainikka (1996) for further discussion.

³ We will continue to refer to the functional node(s) dominating agreement and tense as IP where the distinction between AgrSP and TP is immaterial.

⁴ This is the scenario for strong I(-features). Weak I(-features) are legitimate at PF but their presence at LF causes the derivation to crash at this level, therefore forcing LF movement. It follows that whereas strong features must be checked by Spellout, resulting in overt V to I movement, weak features are checked only at LF, giving rise to covert V to I movement. For the purposes of our paper, however, the distinction between overt and covert movement is immaterial: both types are triggered by the need to check functional features, and hence both are predicted to not occur in the absence of functional structure. We are therefore abstracting away in (8) from the covert nature of V to I movement in English. Here, as in our subsequent trees, movement should be taken to mean either overt or covert movement, as dependent on the properties of the particular language, and as distinct from non-movement. See Rohrbacher (1994) and Vikner (1995) for different views regarding the trigger for overt V to I movement.

⁵ Alternatively, one of the n-features of I conflicts with one of the n-features of the subject. The outcome is the same: I remains and the derivation crashes at PF.

⁶ We will suggest in section 5 below that in the absence of movement, the n- and v- features of I are licensed in the early grammar through null

auxiliaries. If, however, I is licensed in this fashion, there is nothing, within standard Minimalist assumptions, to exclude the generation of a fully inflected form under V, which is subsequently neither moved nor checked. We return to this point in great detail in section 5. Note that this is a general problem for the 1993-version of the Minimalist Program, where the presence of (overt) auxiliaries renders inflection on the verb uncheckable. Modifications of the Minimalist Program that we will suggest below will thus resolve not only the acquisition problem, but also the more general checking problem.

⁷ By the same token, it must be impossible for the child to freely assign the feature 3sg to the subject *I* in (8b). This was pointed out to us by Collin Phillips (p.c.).

⁸ For this argument to go through, the n-features of the subject must be known to the child as soon as she starts using subjects, as was pointed out to us by Collin Phillips (p.c.). During the "root infinitive" stage, children acquiring non-pro-drop languages often omit subjects in non-finite clauses and it is less clear that these subject-less sentences contain specific n-features on the empty category in subject position and, by extension, on I. Note, however, that children acquiring non-pro-drop languages almost never omit subjects in finite clauses, i.e. the type of sentence under consideration in this paragraph.

⁹ The same patient substituted the target agreement marker on verbs with another agreement marker in only 5 (4%) of 127 cases. Friedmann & Grodzinsky conclude from the low rate of agreement mistakes that unlike TP, AgrSP survives unaffected in this patient. It is not surprising, however, (and has no consequences for the argument made in this paper) that brain damage resulting in agrammatic aphasia affects functional projections in a selective fashion. See below for a discussion of related issues.

¹⁰ A discussion of the representation of functional categories in the brain goes well beyond the scope of this paper, but it should be clear that there is no a priori reason to believe that each functional category is strictly localized in the brain, or that it is accessed by all grammatical components in the same fashion. For that matter, there is no reason to believe that the loss of structural representation would give rise to an identical behavior to the loss of access to a potentially undamaged or partially damaged representation. Although virtually nothing is known about these issues, the partial loss of (access to) a functional projection (resulting in variable performance) is an entirely feasible scenario. Finally, the nature of the brain damage sustained by patients diagnosed as suffering from agrammatic aphasia is anything but uniform and we should therefore not be surprised that their symptoms vary a great deal, too. For this

reason, it suffices for our purposes that there is a significant difference between the behavior of some agrammatic patients some of the time and the behavior of children.

¹¹ Note further that it is not obvious that any inflectional features are checked in C, or that CP is a functional projection in the same sense that TP or AgrSP are. An alternative account would be that C is a lexical head of sorts, making V to C movement an instance of incorporation, on a par with, say, a noun incorporating into a governing verb. This kind of operation, note, is not predicted to be impaired in the absence of functional structure.

¹² This requirement affects not only indicatives which refer to a specific event, but also propositions that express a desire, an obligation, an ability etc. This is relevant because it is often claimed that “root infinitives” have a “modal” interpretation (see e.g. Hoekstra 1994).

¹³ See Borer (1996) and Borer (in progress) for further elaboration on the relationship between marking on lexical heads and on functional heads.

¹⁴ In Borer (1995) it is argued that the (past) tensed verb in Hebrew may, but need not move overtly (or may undergo only short overt movement), thus making it perhaps akin to the tensed verb in English. However, for these cases, movement at LF is plausible. When we turn to the participle in (20c), however, a more complex picture emerges. On the one hand, the participle has important properties in common with the participle in (20b) and with adjectives, showing the same pattern of agreement and the same pattern of negation, as distinct from that attested in cases like (20a). On the other hand, in some cases it appears that the participle in cases such as (20c) does move to I, contra our expectations if there is a null copula or auxiliary in I. While at first glance these diagnostics appear contradictory, a closer scrutiny shows this not to be the case. In Borer (1995) it is shown that Hebrew has a productive rule of Copula Inversion, allowing a participial form to attach to the left of an overt auxiliary, turning sentences such as (20b), into (i). The apparently contradictory properties of the participle in (20c) can now be accounted for if we assume that when movement of that participle to I takes place, it adjoins that participle to the left of a null copula, as in (ii):

(i) Rani 'oved_i haya [vp t_i kol boker]
 R. work-SG.MS be-3SG.MS.PST every morning
 'Rani was working every morning.'

(ii) Rani 'oved_i Ø [vp t_i kol boker]

R. work-SG.MS every morning
'Rani works every morning.'

(Hebrew)

A number of important but not directly relevant issues are glossed in the representations in (21), as is no doubt true for structures representing Haitian and Kraho below in the text. First, a more articulate structure would be required in order to capture the number and gender agreement attested with participles. For some discussion see Friedmann and Siloni (1993) and Shlonsky (1997). Second, while the overt copula in the past tense is inserted here directly under I, as is its null counterpart in the present tense, one could argue that it heads a separate VP projection, and is hence lexical in the relevant sense. Note, however, that these choices do not bear on the issue discussed here. We are attempting to establish that lexical heads do not move when the feature specification is independently marked on the functional heads, either through a copula, whether null or overt, which is directly inserted under the functional head, or through a lexical element distinct from the main verb (e.g., an auxiliary verb) which moves to I. This situation is clearly attested in (21a-c), regardless of other refinements of the structure, which might be necessary.

¹⁵ Note that in this sense our system is clearly akin to the anaphoric Agr system proposed in Borer (1989).

¹⁶ The system proposed by Hyams (1996) shares with our own the assumption that null tense in the early grammar (underspecified tense, in Hyams' terms) is pragmatically interpreted. Unlike us, however, she assumes that the early grammar uses interpretative mechanisms which are not available in the adult grammar. Essentially, she proposes that present tense is an anaphor bound by (coindexed with) a sentence-internal speech-time operator, while past tense is a pronominal contra-indexed with the speech-time operator. The underspecified tense node of root infinitives, by contrast, bears no index (T_0). In the early grammar, T_0 is interpreted on a par with (free) pronouns, coreferring to the speech-time operator without being bound by it. For adults, on the other hand, coreference is blocked if it is assumed, following Reinhart (1983), that coreference strategy is not available whenever its output is equivalent to that derived through binding. It now follows that the adult grammar cannot use root infinitives for a present tense reading, where a binding derivation (with finite forms) is available. For the early grammar, however, coreference is available alongside binding if it is assumed, following either Chien & Wexler (1990) or Grodzinsky & Reinhart (1993), that children are deficient in blocking a coreference construal in the presence of an equivalent binding construal.

There are several differences between the system proposed by Hyams and our own. To begin with, Hyams crucially relies on the assumption that root

infinitives always denote a present tense reading. It is not clear, however, that this is the case. We will discuss below the presence of a past tense reading in non-finite contexts. It is further unclear in Hyams' system how to exclude in the early grammar the co-occurrence of T_0 with an unmoved inflected verb. Note that as a binding derivation is not required in the early grammar, T_0 could be interpreted through coreference with the inflected verb remaining in situ. Next, as will become clear below, we do not assume any principled difference between the adult grammar and the early grammar. Rather, we ascribe to the early grammar the interpretative mechanisms available in the absence of morphologically marked tense and agreement which are otherwise attested in adult grammars of languages without such markers. Grammatical development, according to this assumption, does not involve the learning of pragmatic principles, but rather the learning of the feature values of inflection. Finally, for us, T, whether overt or null, is always a variable in need of binding. A D-linked T-variable, in our system, is thus akin to the D-linked nominal variables argued for by Heim (1982).

¹⁷ This effect, labelled "factitive", is also reported by Stowell (1991) for Headlines English, where the presence of a D-linked null tense node is extremely plausible.

¹⁸ Our proposal differs, however, from that put forth by Phillips (1996). While like Phillips, we assume that the missing inflectional material is not indicative of missing inflectional information, Phillips specifically assumes that the verb itself is (abstractly) inflected, and that as a result, movement takes place for checking purposes. We, on the other hand, assume that it is the functional heads which are (abstractly) marked through D-linking, rendering main verb movement unnecessary and thus, for reasons of derivational economy, impossible.

¹⁹ Our execution differs in various ways from that proposed in Dechaine (1993). In Dechaine's system, the T node itself is an operator, and when projected as \emptyset it is directly D-linked. We assume, on the other hand, that the operator value is associated with the tense morphology, which in turn binds the T variable, and that D-linking licenses the null auxiliary, and not the functional variable, be it Tense or Agreement. The functional variable continues to be bound by the feature bundle of the auxiliary, which, in turn, is D-linked.

²⁰ Our analysis of "root infinitives" as finite clauses with a phonologically-null auxiliary whose functional features are determined via D-linking might also explain why these structures are excluded from German(ic) V2-contexts, i.e. Wh-questions and sentences with topicalized elements. In these

contexts, the null auxiliary would have to move to C, and Avrutin & Rohrbacher (1996) have argued independently that C is a position where D-linking is unavailable. As a result, in V2-contexts the null auxiliary would remain featureless and the relevant functional variable in I would be uninterpretable. Something special needs to be said about child English, however, where "root infinitives" are attested in Wh-question which otherwise require auxiliary movement to C (cf. Roeper & Rohrbacher 1995). We will leave this topic for future work.

²¹ While Antinucci & Miller summarized their findings as referring to past tense in general, the discussion their paper makes it entirely clear that the forms in question are *passato prossimo* which for adults consists an auxiliary and a participle.

For further discussion of the data in tables 9 and 10, see Borer & Wexler (1992) where these results are interpreted as reflecting an early difficulty in reconciling the singular argument of unergative verbs with a structure containing two verbal elements: a potentially null auxiliary and a participle.

²² We are assuming that for independent reasons, the main verb cannot first adjoin to T or to the null auxiliary which is itself adjoined to T, and then excorporate out of T and move on to AgrS.

²³ It is quite possible that this necessary order for the acquisition of agreement and tense marking accounts for the rather common, but by no means universal, tendency for tense marking to be "closer to the stem" than agreement marking. That this is not a universal could follow, in turn, from the existence of portmanteau morphemes acquired as a package, or alternatively, from a simultaneous acquisition of both morphemes.

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