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Minding the Absent: Arguments for the Full Competence Hypothesis[1]

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Abstract

Children, it is well known, go through a developmental stage in which they omit functional material, a fact which is often attributed to a missing of deficient functional structure in the early grammar. We argue that the systematic omission of functional material, on the contrary, argues *for* the presence of functional structure, as in the absence of such structure, what is expected is not a systematic omission of functional material, but rather, its random (over)use. Random use of functional material is attested in agrammatic speech, where, we suggest, it may indeed stem from absent or deficient functional structure. On the other hand, the early grammar is characterized by a full, albeit phonologically unrealized, functional structures. Such phonologically unrealized functional structures, we suggest, are interpreted in the early grammar through D(iscourse)-linking, using UG-available principles that are otherwise attested in natural language.

[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, and to four anonymous reviewers of Language Acquisition for many illuminating comments.

Minding the Absent: Arguments for the Full Competence Hypothesis

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 (see Clahsen's (1991) F[unctional]P).[2] What unifies these varying 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 opposite 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 (see (1)a), based on Meisel & Müller (1992)) has been interpreted as evidence for the early absence of CP. Similarly, the absence of auxiliaries and agreement markers (see (1)c) and (see (1)b), based on Radford (1990)) as well as the occurrence of non-nominative subjects (see (1)d), based on Vainikka (1993)) have been taken as evidence for the early absence of IP. (1)c,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)

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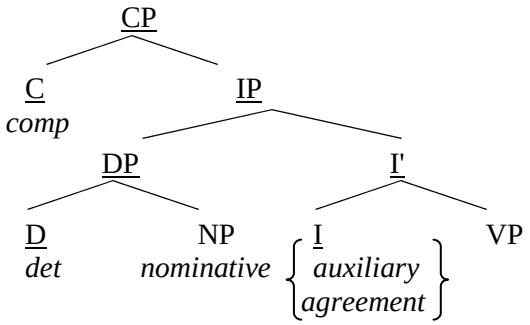
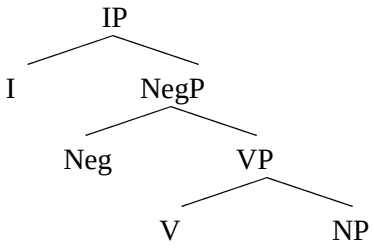
[2] For the claim that the early functional structure is intact, but is nevertheless distinct from the adult structure, in that it may include underspecified functional nodes which are not possible in adult language, see Hoekstra, Hyams & Becker (1996) (underspecified NumP) as well as Hoekstra & Hyams (1995) (underspecified TP).

(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 V.*finite*^NEG and NEG^V.*nonfinite* word order in early child French (see (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 arguably derives this word order distinction in adult French.

(3)



a. veux$_i$ pas t_i lolo
want-1Sg.Pres not water (Nathalie 2;0)

a.' pas manger
not eat-Inf (Nathalie 1;9)

b. marche$_i$ pas t_i
go-3Sg.Pres not (Daniel 1;8)

b.' pas casser
not break-Inf (Daniel 1;8)

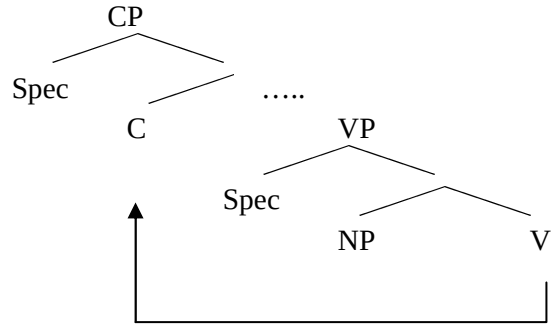
	Nathalie (1;9-2;3)		Daniel (1;8-1;11)	
	+ finite	- finite	+ finite	- finite
Verb-Neg	68	0	53	1
Neg-Verb	3	82	3	36

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 possibly of topicalization in early child

German (see (4)a) from Poeppel & Wexler (1993) [Andreas, age 2;1], (4)b,c) from Rohrbacher & Vainikka (1995) [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 (the position of IP, intervening between CP and VP, is set aside):

(4)



a. Eine Fase$_i$ hab$_k$ ich t_i t_k
a vase have-1Sg.Pres I

a.' Thorsten Caesar haben
T. C. (=doll) have-Inf

b. Tift$_i$ heißt$_k$ t_i Puck-Puck t_k
pen be-called-3Sg.Pres P.-P.

b.' Mama Ahm nehm
mama arm take-Inf

c. Nekoll$_i$ nimmt$_k$ t_i eine Ahmt$_k$
N. take-3Sg.Pres a arm

c.' Kokoll Dil ham
N. shield have-Inf

	Andreas		Katrin		Nicole	
	+ finite	- finite	+ finite	- finite[3]	+ finite	- finite[3]

[3] 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 (1995) for further discussion.

V2	197 (95%)	6 (14%)	68 (77%)	2 (3%)	71 (77%)	6 (5%)
Vf	11 (5%)	37 6%)	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, from the Full Competence Hypothesis perspective, the absence of functional material in the early language, and especially the absence of stems inflected for tense and agreement, arguing that it is precisely this absence which in itself provides evidence *for*, rather than *against*, the existence of functional structure in the early grammar, and hence for the Full Competence Hypothesis. Our illustration focuses on subject-verb agreement, but it clearly extends to other types of agreement, as well as to tense, determiners, and other functional material. In section 2, we show that contrary to the claims of its proponents, the Gradual Development Hypothesis doesn't predict the absence of inflected stems in the early grammar, but rather, their random use, which is expected to give rise to multiple errors involving overt inflectional marking. In section 3, this prediction is shown to be wrong: specifically, when young children use overt agreement markers, they overwhelmingly use them correctly. In view of this, the absence of overt agreement markers as well as other functional material exemplified in (1) 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. Having concluded that all functional projections are present from the start, we offer, in section 4, an analysis of Root Infinitives (see Wexler (1994)) as finite structures involving a non-finite form and null functional heads which are interpreted through D- linking (a similar approach is advocated in Boser et al. (1992) as well as in Phillips (1996), but see footnote 2122 below for further discussion). Finally, section 5 discusses deficits found in agrammatic speech, suggesting that functional impairments wrongly attributed to kids may, in actuality, be found in that speech, where random inflection mistakes do occur. The contrast between child and agrammatic speech does not just argue against Jackobson's (1971) influential idea that language breakdown mirrors language development but also reinforces our conclusion that children have access to functional projections from the beginning.

2. Inflection 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. This particular perspective correlates with a theoretical perspective which strongly links the presence of overt inflectional morphology with the presence of functional structure in a given language (see Thráinsson, (1996)). Upon 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 discreet 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 (5)a) and their counterparts in (5)b) is an inflectional one, reflecting a (potentially subtle) difference in tense, and not a substantive, lexical one, reflecting a difference in the action denoted? This is especially so as each token is presumably available in the input in a unique situation. 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 strictly a 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:[4]

(5)	a.		b.			
	[muwv]		[muwvd]	/d/-suffix	'move-moved'
	[wɑk]		[wɑkt]	/t/-suffix	'walk-walked'
	[ʃɪft]		[ʃɪftɪd]	/ɪd/-suffix	'shift-shifted'
	[sey]		[sɛd]	glide deletion + /d/-suffix	'say-said'
	[rʌn]		[ræn]	ablaut	'run-ran'
	[gow]		[wɛnt]	suppletion	'go-went'

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 *past*. In the absence of any knowledge of a syntactic TP (or IP) and its grammaticalized semantic features, why would the child then proceed to actually project such a TP/IP 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 is an inventory of basic universal semantic categories of which tense is one and "nose-related" is possibly not, the question remains: how can the child learn that some universal semantic categories are syntactically instantiated through a categorial projection but others (e.g. flexible vs. rigid; pets vs. other animals, etc.) are not. The only possibility is that the child has a priori knowledge which universal semantic categories are grammaticalized, and is thus never tempted to project Proboscis Phrase or Pet Phrase, no matter how much phonological or meaning-related material might suggest their 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

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[4] The problem is especially relevant in view of the fact that supporters of the Gradual Development Hypothesis often analyze forms such as *that's* occurring in the early speech as involving an unanalyzable demonstratives, in order to allow for the existence of such forms in the absence of auxiliaries. See Hyams (1992) where this point is briefly discussed.

exist, and it is this syntactic knowledge which is instrumental in analyzing strings such as those in (5)b), determining the existence and the function of specific inflection, 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 inflectional realization, then for each functional projection FP, the following developmental stages are conceivable, depending on whether one subscribes to Gradual Development or to Full Competence. A Gradual Development approach would claim that the acquisition of functional structure for all or some functional projections starts with stage (7)a). In contrast, a Full Competence approach effectively postulates (7)b) as the starting point for the acquisition of functional projections:[5]

(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 these two approaches when viewed within a particular grammatical model, adopting, specifically, the view that phonological insertion follows the syntactic derivation. Suppose we view functional heads as open values that must be assigned a

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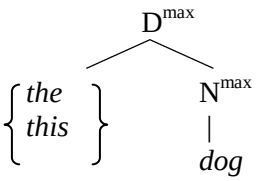
[5] An anonymous reviewer proposes that the conclusion drawn here is too strong, and that in actuality, the only conclusion that can be safely reached is that the child has knowledge of *possible* functional structure. Thus stage (7)a) could involve the absence of some specific FP from the structures used by the child, but the knowledge that it is a possible FP. The knowledge that such an FP is possible would then guide the child in her search for the relevant evidence for its instantiation in her language, be it morphological or syntactic. In the interim, the child would be using 'FP-neutral' structures, such as adult-like infinitives and small clauses, thereby avoiding the projection of FPs whose existence in the target language has yet to be determined (and see Bobaljik & Tráinsson, (1998) for a brief suggestion along these lines).

From a conceptual perspective, we are very uneasy with the attribution, to the child, of a distinction between the knowledge of a possible FP and the knowledge of FP. The Language Acquisition Device here is accorded with a level of cognitive complexity which allows the child to suspend the use of what is otherwise, for adults, an automatic knowledge, and to introduce UG not as a set of structures and representations, but rather, as a heuristic searching procedure. From the perspective of linguistic theory, the proposal implies that a particular FP would be instantiated in a particular language only if there is positive evidence to acquire its existence, a proposal which is fundamentally incompatible with the approach to tense which we adopt in this study, based on semantic considerations as outlined in Dechaine (1993). Specifically, we reject the idea that the functional structure of languages which instantiate tense morphologically (in TP or in IP) differs from the functional structure of languages which do not instantiate tense morphologically, and which do not have verb movement. Rather, we subscribe to the view that tense is an essential grammaticalized part of any proposition. But if tense must be instantiated in every proposition, then the UG-based knowledge of a *potential* TP (or IP) also involves the UG-based knowledge that it must be instantiated. If that is the case, then it is not clear why the child should proceed to suspend such projection, thereby creating structures which violate her own knowledge of UG constraints. For some additional comments on functional structure and language variation, see our concluding comments in section 6.

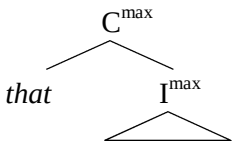
We note as an aside that adult-like infinitives do have an IP (or a TP), and that small clauses almost certainly involve the projection of some Agr-type node, ensuring subject-predicate agreement. Thus they can hardly be considered FP-neutral choices from the perspective of the early grammar.

specific range in order to be interpreted. As such, we may say that all functional nodes (in the adult grammar) are underspecified, in that they include a category label (i.e., T defines an open value associated with tense, D with reference, etc.) but their specific value, past, future, infinitive, ±def, etc. is open. How is functional range assigned? Several straightforward modes of range assignment come to mind. For instance, the merger of a (free) grammatical formative with a specific value may assign that range. Thus if we take determiners such as *the* or *this* to be range assigners to D, their merger at D would give rise to the licit structure in (8)a). Likewise, if a complementizer such as *that* assign value to C, its merger at C would give rise to the licit structure in (8)b):[6]

(8) a.



b.



Alternatively, a functional node can be assigned range by an abstract head feature, which, in turn, must be lexically supported. Such lexical support is available through movement. To illustrate, suppose we consider past and 2sg.F to be head features in the required sense, notating head features with angled brackets. We may then say that <***pst***> and **<*2sg.f*>** are *abstract head features* (henceforth simply head features) which *assign range* to I but which necessitate the movement of a lexical head to be realized. Illustrating from a language which has overt verb movement to I, and which marks overtly both tense and agreement, such as Hebrew, the derivation would proceed as follows (irrelevant intermediate functional structures ignored for expository purposes. Illustration is for the tri-consonantal root √*h.l.k*, 'walk'):[7]

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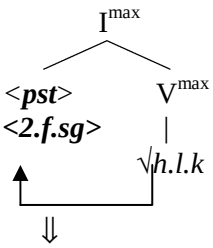
[6] The system we outline here, in line with Borer (forthcoming), is simplified in ways which do not impact the argumentation in crucial ways.

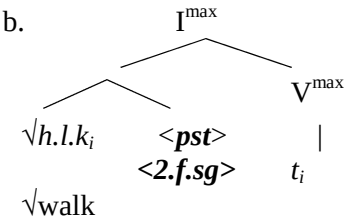
[7] We will continue to refer to the functional node(s) dominating agreement and tense as IP where the distinction between AgrSP and TP is immaterial.

Hebrew verbs are derived through the imposition of a vocalic-affixal melody, which carries functional information, on a root which consists of three, and at times of four consonants. The root, in and of itself, is not a phonologically well-formed unit, and without the additional functional information cannot be spell out. For that reason, Hebrew, and Semitic languages in particular, are particularly suitable for the illustration of the point made by Distributed Morphology (and see also the Exo-Skeletal model of Borer, (2000)) according to which lexical items are phonologically underspecified, and are assigned full phonological representation only at the end of the derivation, in accordance with their syntactic derivational history. For some specific discussion of this point in the context of Distributed Morphology see Marantz (2001) as well as Arad (2001).

(9) a.



b.



The representation $[_V\sqrt{h.l.k}]$+<***pst***>+***<2.f.sg>*** emerges from the syntax as the combination of the verb root $[_V\sqrt{h.l.k}]$, including, we assume, both its meaning and with a phonological index referring to a particular phonological entry, together with the feature specifications <***pst***> and ***<2.f.sg>*** . This representation, in turn, is the input to the phonological component, where the appropriate full phonological entry associated with the verb root $[_V\sqrt{h.l.k}]$ exists as an inflectional paradigm, associating specific phonological representations with each of its possible feature instantiations, including not only tense, but also agreement, as in (10)). For the output of (9), the representation in (10)d) would be selected:[8]

[8] The view of inflection put forth here is in essence that of Anderson (1992), in which inflection is not morphemic, but rather is the spellout of a particular conglomerate of non-morphemic functional features collected throughout the syntactic derivation. The approach does share with Distributed Morphology the assumption that phonological insertion largely follows the derivation (but see Borer (2000) for some elaboration which is not directly relevant here). Matters of execution are nevertheless largely simplified. Thus, unlike the picture in (10), paradigms are almost certainly not 'flat' lists, but are arranged in accordance with both structural and markedness considerations. We set this issue aside as largely irrelevant for the central issues under consideration in this paper, but see section 5 for some relevant comments.

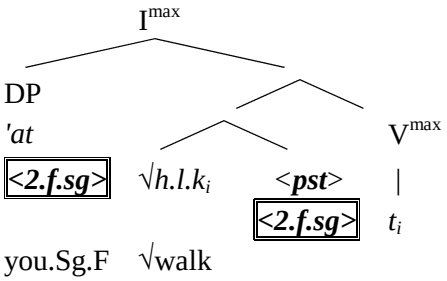
(10) The Inflectional Paradigm for [$_V$ √*h.l.k*] 'walk':

a. [$_V$√*h.l.k*]+<***pst***>+<***3sg.m***> → /*hala<u>k</u>*/
b. [$_V$√*h.l.k*]+<***pst***>+<***3sg.f***> → /*hal<u>k</u>a*/
c. [$_V$√*h.l.k*]+<***pst***>+<***2sg.m***> → /*hala<u>k</u>ta*/
d. [$_V$√*h.l.k*]+<***pst***>+<***2sg.f***> → /*hala<u>k</u>t*/ …
…
…
…
e. [$_V$√*h.l.k*]+<***fut***>+<***3sg.m***> → /*yele<u>k</u>*/
f. [$_V$√*h.l.k*]+<***fut***>+<***3sg.f***> → /*tele<u>k</u>*/
g. [$_V$√*h.l.k*]+<***fut***>+<***2sg.m***> → /*tele<u>k</u>*/
h. [$_V$√*h.l.k*]+<***fut***>+<***3sg.f***> → /*tel<u>k</u>i*/
etc.

We note as an aside that in assuming the existence of paradigms such as those in (10), this approach shares, fundamentally, the perspective of checking models (as in Chomsky, (1993) and subsequent work), according to which the syntax sees inflectional features, but is not, in and of itself, responsible for deriving the morpho-phonological realization of these features. Inflected forms are, fundamentally, 'lexical', in that they are part of the knowledge about (the morpho-phonology of) a given entry, and hence their morpho-phonology is not entirely predictable (see (5)). The syntax, in turn, provides the representation that chooses the correct morpho-phonological realization within a particular paradigm. The model presented here does differ from checking models, however, in being fundamentally top-down, rather than bottom-up. Thus it is ultimately the syntax which determines the choice of words, rather than the choice of words which is responsible for the projection of syntactic structures.

Turning now to the issue of subject-verb agreement, suppose we assume that the agreement head feature in I (or AgrS) emerges as a result of specifier – head agreement with the DP in [Spec,IP], or more accurately, as a result of an agreement between I and the specific range assigned to Num and to D (or alternatively, emerges as a result of the application of *Agree*, as in Chomsky, (2000)). For a feminine singular subject, such as Hebrew *'at* 'you.SgF', the additional step in the derivation in (9) would be as in (11). The spellout of the relevant resulting form is as in (10)d), with boxed elements indicating specifier – head agreement (we set aside here and elsewhere questions concerning the original merger site of the subject, only to note that if, as argued in Kratzer (1996) and much subsequent work, the subject merges outside the VP, in [Spec,VoiceP] or [Spec,***v***P], then a grammar without any functional structure is expected to encounter difficulties with subjects):

(11)

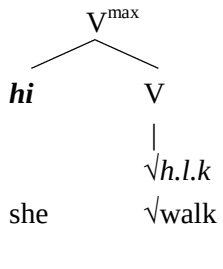


(12)a-b) are now ruled out, appropriately, as impossible phonological realizations of the derivation in (11), quite simply because the wrong paradigm member has been selected. /*telki*/ is the phonological spellout of [$_V$√*h.l.k*]+<***fut***>+<***2sg.f***>, and /*halakta*/ is the phonological spellout of [$_V$√*h.l.k*]+<***pst***>+<***2sg.f***>:

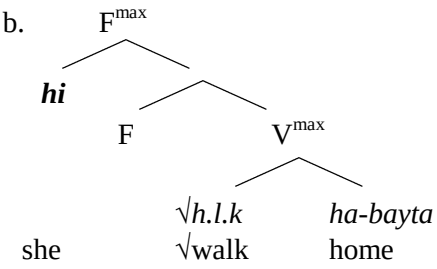
(12) a. *'*at* *telki* (ungrammatical for the derivation in (11))
you.SgF walk-Fut.2.F.sg
b. *'*at* *halaxta*
you.SgF walk-Pst.Sg.M

Consider now a grammar without I. In that grammar, the structure in (13)a) is licit, and possibly also (13)b), where FP is some functional structure but where IP (or AgrS and T) are still missing:

(13) a.



b.



Within such a grammar, the input to the phonological component is, effectively, the representation [$_V$ √*h.l.k*], containing the meaning of [$_V$ √*h.l.k*] as well as a phonological index which refers to the full phonological paradigm associated with the root. But this representation accesses the phonological paradigm entirely ill-equipped to choose between the different paradigm members, as they are distinct from each other along grammatical dimensions which are not encoded on [$_V$ √*h.l.k*]. This means that such a grammar cannot rule out (12)a-b. Now, a paradigm member must be chosen, if the verb root is to be pronounced. However, as the syntax gives the user no information as to which paradigm member to choose, a member of the paradigm will be chosen either at random or following some non-grammatical strategy. In other words, as the computation of the distinction between paradigm members requires access to syntactic representations which are by assumption missing in a grammar without I. To sum up, without an IP (or its structural subcomponents), the syntactic appropriateness of fully inflected morpho-phonological forms cannot be checked, nor can syntactically inappropriate (but phonologically well-formed) instantiations be excluded. A grammar without IP should therefore involve the random choice of morpho-phonologically well-formed inflected forms, as the system designed to ensure their appropriateness in a specific syntactic context is non-existent. If, indeed, the early grammar had no IP, children would be expected to make tense and agreement errors, failing to match phonological paradigm members against the properties of tense and agreement, as inherited from the appropriate functional head(s), be it I, or alternatively, distinct T and AgrS (see footnote 7). It thus emerges that to the extent that the Gradual Development Hypothesis postulates a developmental stage without, e.g., an IP, as in (7)a), we expect that at that stage, the child will either choose inflected forms at random, or alternatively, adopt a non-grammatical strategy to choose the particular spellout of any root (e.g., the most statistically common form). Either way, we expect multiple inflection errors to abound in the child's speech.

For completeness sake, we note that the scenario outlined here is for overt movement. However, if we assume that the distinction between covert and overt movement does not involve concrete vs. abstract movement as such, but rather, involves the realization site for a copy, the analysis presented above carries over directly to a language such as English, in which verb movement is typically assumed to be covert. According to such a rationale the derivation of, e.g., *moved* proceeds along the same lines as outlined in (9). The input to the phonological component, under this scenario, is not a terminal, but rather a *chain* consisting of all instantiations of the root √*move* with all its (syntactically collected) properties. Spellout, in turn, occurs at the original merger site, rather than at the final landing site. We will therefore abstract away in the remainder of this paper from the presumed covert nature of V to I movement in English. Here, as in our subsequent discussion and representations, 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.[9]

The Full Competence Hypothesis makes a different prediction. Since all functional projections, including IP are present from the start, head features such as agreement and tense, if present in the structure together with the lexical heads that support them, must always be matched with the appropriate paradigm mates. Consequently, no significant overuse of agreement, tense and other markers should ever occur. At stage (7)b), when the child has knows that head features may be phonologically realized, but has not yet matched the

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[9] The execution favored in this paper aside, our conclusion that without functional structure random inflectional errors should occur holds in all models that we know of which postulate functional structure, and which link it in some fashion to the appropriateness of morpho-phonological realization. For a detailed execution of this idea within Chomsky's (1993, 1995) checking model, see Borer & Rohrbacher (1998). Within the Distributed Morphology model (see Halle & Marantz (1993) and subsequent work), the same result emerges, in a rather similar fashion to that outlined in the text. Within DM, an abstract root is associated, at the end of the derivation, with a phonological form that reflects its syntactic derivational history, crucially including (abstract) morphemic material that was collected in functional structures. But in the absence of any functional structure and the morphological structure which is associated with it, it is not obvious how a particular root could be associated with any one phonological form, as the machinery that would be required to distinguish, e.g., *move* from *moved* is not in place. A similar rationale is applicable to analyses For an As for Distributed Morphology (see especially Marantz (1997)), just like the model outlined in the text discussion, the selection of an appropriate phonological form for an unspecified root depends on its derivational history, and specifically, on the functional features, or abstract morphemes, which are collected in functional structures. Within such a model, a root which emerges from the derivation with an appropriate feature/morphemic specification will be assigned an appropriate phonological representation in PF. However, a root which merges in a representation with no functional structure will remain phonologically underspecified, and hence, in principle, compatible with any member of the inflectional paradigm.

The result further holds for models which view inflectional morphology as incremental, in that a stem is assumed to collect actual phonologically-realized morphological material as it moves up the tree. While at first sight it may appear that within such an approach the absence of functional nodes directly predicts the use of the bare stem, the prediction, in actuality, is circular, in that it presupposes that the user knows which of the many instantiations of an inflected verb is the 'bare stem', and hence the one to be used, but such knowledge, as we already noted, can only be gained in the context of a comparison with the matching the morpho-phonological properties of the entire paradigm, which is not possible without the knowledge of a particular form against a fully available functional structure.

appropriate phonological realization with the relevant root+feature combinations, (e.g. √move+<***pst***> → */muwvd/*), she is avoiding the use of inflected forms, aware, as she is, that they indicate a specific choice for head features whose phonological appropriateness she cannot asses. We will suggest that across the board, and insofar as she is not certain of the phonological realization of either head features or grammatical formatives which assign range to functional heads, she will avoid using them altogether, and opt, instead, for a representation that utilizes none, or the minimal number of abstract head features, so as to simplify her paradigmatic choice task, and to avoid as much as possible inflectional errors. Rather than use abstract head features to assign range to functional values, she will appeal to another UG strategy for licensing functional heads – that of Discourse Linking (D-linking), a matter to which we return in detail in section 4. The assignment of range to functional heads through D-linking, we will argue, does not require the use of grammatical formatives or head features. As a result, it does not involve the movement of lexical heads to support those head features, with the subsequent need to choose a highly specific phonologically appropriate paradigm mate. Thus when D-linking is used to assign range to functional open values, grammatical formatives such as determiners and complementizers are omitted, and lexical heads, such as verbs, do not move, do not support head features, and remain uninflected for the relevant feature. We can now assume that the child starts with a paradigm that may very well contain all feature specifications that may be associated with a root, but only a minimal phonological knowledge, as associated with these feature combination, possibly consisting of only one, "safe" well-formed morpho-phonological unit which is associated with no head features, or alternatively, with the minimal amount (stage (7)b)). Her paradigms, then, look roughly as in (14):[10]

(14)

	English root √*move*			French root √*tomb*, 'fall'		
a.	[$_V$ √*move*] (no head features)	→	*/muwv/*	[$_V$ √*tomb*] (no head features)	→	*/tombe/*
b.	[$_V$√*move*]+<***pst***>	→	???	[$_V$ √*tomb*]+<***pst***>	→	???
c.	[$_V$√*move*]+<***pres***>	→	???	[$_V$ √*tomb*]+<***pres***>	→	???
d.	[$_V$√*move*]+<***1sg.m***>	→	???	[$_V$ √*tomb*]+<***1sg.m***>	→	???
	etc.			etc.		

She will then add on phonological representations to the paradigm as they are learned and use them conservatively as she goes along, culminating in the adult-like paradigm and hence an adult-like pattern of movement and inflection (stage (7)c)). In turn, the prediction is that when paradigm members of a particular entry are used, they are used correctly, as they are the output of an adult-like grammatical system. When their correct use is in doubt, inflected forms - and movement - are avoided, precisely because functional structure does project, and its properties enter directly into the choice of a particular spellout option. Thus whereas Gradual Development predicts random inflection, the Full Competence Hypothesis predicts inflectional avoidance, coupled with the absence of movement.

We note finally that the omission of free grammatical formatives such as determiners and complementizers, which do not require movement, likewise follows. If, for example, the child

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[10] For expository purposes, we assume that all possible feature combinations are represented in the paradigm, but that some fine-grained distinctions which are not phonologically realized in a given language are eventually eliminated. As already noted in note 7, paradigms are almost certainly internally organized according to features and markedness, making the detailed listing in (14) unnecessary.

has not yet learned the specific feature value that is associated with the specific phonological realization of specific determiners (e.g., *a, that, this, the*, etc.), she will omit them and let D-linking assign range to (an otherwise null) D. In turn, the learning of the phonological forms of specific grammatical formatives may proceed gradually, and thus co-exist alongside D-linking, the latter appearing to involve omission. We do note, however, that for free grammatical formatives, the Gradual Development Hypothesis could, likewise makes the right prediction.[11] For that reason, the crucial evidence against the Gradual Development Hypothesis must come from the absence, in the early grammar, of (randomly distributed) inflected forms, a matter to which we now turn our attention.[12]

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 impossible 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 (see 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 inflection 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.

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[11] This is only if we assume that exclusively phonological, non-syntactic cues will allow the child to segment, e.g. /*the cat*/ into two distinct terminals, thereby allowing her to treat *cat* as N, and ignoring *the*. Such a pure phonological segmentation is at least prima facie difficult to justify for truly inflected forms, such as those in (5).

[12] It is of course a crucial assumption for the analysis developed here that the child does know that non-finite forms are, indeed, non-finite. We discussed in detail the fact that knowledge of functional structure is essential both for the acquisition of tense and agreement inflection, and for explaining the conservative behavior on the part of children. Specifically, we pointed out that as a matter of principle, in a grammar without functional structure it is not possible for the child to know that non-finite stems are non-finite. We did not address, however, the issue of how the child learns which specific member of the paradigm is the non-finite, and hence the 'safe' one. While this issue will not be discussed here in any detail, it is nevertheless worth pointing out that if it is assumed that the child does have a syntax that is very similar to that of adults, direct evidence for the non-finite nature of the member chosen is actually quite readily available in the input, e.g., from its occurrence in structures that require auxiliaries (participles, both active and passive) from its presence in infinitives and tenseless contexts, from word order effects, etc. Of course, being attentive to such cues requires the ability to distinguish between auxiliaries and main verbs, but if we assume that the child does have functional structure, and that her deficit involves being unsure of the morpho-phonology of its realization, the ability to make that distinction follows.

Wh-questions: Adam Roeper & Rohrbacher (1994)		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, see (4)a), children typically nevertheless prefer the tenseless, non-agreeing infinitive suffixed with /-en/ (see (4)a')). As a result, the proportion of finite root clauses is initially quite low (see table 4). On the other hand, when the same German-speaking children do use agreement markers, they use them correctly (see 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 or inflectional material. The preference for bare stems in child English, like the preference for "root infinitives" (see Wexler (1994)) in early German, can be explained if we assume that the (mis)use of tense and agreement inflection is systematically avoided by children who have not yet attained perfect knowledge of the phonological realization of finite feature values. Instead of choosing to project a head feature that would require movement, and that would require the knowledge of the corresponding phonological paradigm member, children chose a non-finite form in a structure that does not require movement, does not require the realization of a head feature, and thus allows them to use a minimally marked and more broadly appropriate member of the paradigm (see section 4 for the details of our analysis of children's non-finite forms).

This avoidance strategy attributes considerable syntactic and morpho-phonological 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 would ever be associated with any instantiation of the verb, and the children would not be able to distinguish

among paradigm members and assign the proper phonological form to the syntactic output. In that case, they would not avoid finite verb forms, but rather, would be choosing a paradigm member randomly or opt for some non-grammatical strategy. Regarding their morpho-phonological knowledge, these children clearly know that their assignment of head features to I has morpho-phonological ramifications which they are not in a position to fully pursue. Suppose, for example, that an English-speaking child assigns the head features <***3sg***>, <***present***> to the I in the context of the verb root √*dance*, giving rise to the fully licit syntactic representation in (15) (involving, in this case, covert movement):

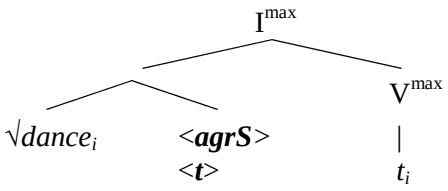
(15) $[_{IP}$ √*dance*$_i$+<***pres***>+<***3sg***> $[_{VP}$ t_i]

By assumption, however, the child does not know, yet, that the phonological realization for $[_V$√*dance*]+<***pres***>+<***3sg***> is *dances*. As the child is avoiding that form, we must conclude that she specifically avoids a derivation that would force her to choose a phonological form at random from the relevant paradigm, leading to a potential mistake. If, conversely, an English-speaking child could freely ignore all tense and agreement inflection on *dances*, then she should treat the inflected form *dances* a par with the bare stem (or the "root infinitive") and since under this treatment, there are no head features associated with the phonological realization */dances/*, there would once more be no reason to avoid finite forms. Thus it appears that the child's knowledge that *dances* and other finite forms *are* inflected, together with her inability to associate any fully specified features with this inflected form and with finite forms in general, leads her to avoid finite verb forms altogether.

It is perhaps worthwhile stressing, before proceeding, that although the root form for English √*dance* appears identical to the bare stem, we are assuming here, crucially, that roots, as such, are not phonological representations, and cannot be pronounced, and that the English root √*dance* is no more pronouncable than the Hebrew root √*h.l.k*. All phonological representations come from the paradigmatic phonological entry, and the root consists only of meaning and the means of referring to that entry.

One more scenario must be considered, in order to fully exclude the movement of bare stems in the early grammar. One could propose that movement could occur in the early grammar, when IP does project, but the child assigns underspecified head features to I. She then proceeds to move the verb root to support these underspecified head features, giving rise to a representation such as that in (16) (in (16) <***agrS***> indicates unspecified subject agreement features and <***t***> indicates unspecified tense features):

(16)



Recall now that the agreement features in I come from the DP in [Spec,IP] (see (11)). The agreement features of that DP, in turn, will be fully specified. That would already suffice to

exclude the derivation in (16), in which <***agrS***>, effectively, has no source.[13] Note further that crucially, there are no members of the phonological paradigm which are marked as *stem.<**agrS**>.<**t**>*, and that specifically, bare stems are not thus marked. Rather, members of the phonological paradigm are fully specified with respect to their feature value, and in the absence of syntactically specified information concerning the selection among them, random selection is likewise predicted. In short, if the child were to opt to move a verb root to support unspecified (or underspecified) head features, her structures would be ruled out, across the board, because of the failure of the agreement features of [Spec,DP] to accord with the agreement features in I. To add insult to injury, such movement would not be very instrumental in helping her select among the relevant paradigm members, as her representation would give her the output *dance+<**agrS**+<**t**>*, which still corresponds to all (or none) of the phonological realizations of finite forms. If we are assuming that the child seeks to avoid precisely that scenario, in which she is driven to choose a phonological form which she knows to be featurally marked, but the value of whose markings remains unknown or uncertain, then it becomes clear that the child will seek to avoid any case of *root+head feature* combination, unless she clearly knows what its specific phonological representation would be.

We will turn to the structure of the apparently non-finite clauses which are so predominant in early child language in section 4. As for the few and almost invariably correctly used inflected verbs in early child language, these occur, we suggest, in grammatical adult-like structures such as the ones in (11) and (15). In these cases, the child has already successfully learned what phonological paradigm member (for √*h.l.k* and √*dance* respectively) corresponds to the relevant feature combination, although she is not yet able to do so for the entire paradigm, or, quite possibly, access it consistently. If we assume that the phonological representations of inflection for any given verb root are members of a paradigmatic list, it is not unexpected that the learning of such listed items, and specifically, the acquisition of the knowledge that a particular morpho-phonological form corresponds to a particular syntactic feature combinations should proceed case by case and that the use of uninflected or minimally inflected verb forms should coexist for a while alongside the use of verb forms with fully specified, fully acquired 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), in this case IP (or its phrasal sub-components).

Consider now Greek, where the bare verb stem is not a morpho-phonologically well-formed word and syntactic infinitives do not exist. Here, children initially prefer verb forms bearing the suffix /-i/ (see 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

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[13] For the rationale to go through here, the agreement 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.). The knowledge of the agreement features of overt subjects, we note, is independently plausible. As for null subjects, note that during the "root infinitive" stage, children acquiring non-pro-drop languages often omit subjects in non-finite clauses and it not clear that in these cases there are specific agreement features associated with the null subjects, and by extension, with I. However, children acquiring non-pro-drop languages almost never omit subjects in finite clauses, i.e. the type of sentence under consideration in this paragraph (for some discussion of this point, see Roeper & Rohrbacher, (1994)). In turn, if subjects are overt in the clauses under consideration here, attributing to the child the knowledge of their agreement features is not particularly problematic.

between finite 3sg forms and non-finite, non-agreeing participle forms. Younger children often use /-i/-forms in non-3sg contexts (see (17); 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).

(17) anitsi!
open-3Sg.Perf.Subj / open-Perf.Ptc
'open it!' (Greek: Janna 1;11)

	Spiros 1;9	Janna 1;11	Janna 2;5
-i	76% (n=96)	51% (n=45)	35% (n=62)
	(38 [40%] non-3sg)	(17 [38%] non-3sg)	(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))

Clearly, 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. Specifically, we may asme that in the absence of a phonological representation for a root without any head features, the child opts for √anit+<***perf***>, a minimal representation that requires neither tense nor agreement features, and for which she has already acquired the phonological representation.

French provides yet another confirmation for the Full Competence Hypothesis. Children acquiring French initially produce few finite utterances with agreement (see table 7), preferring instead non-agreeing, non-finite ones with verbal forms that are either ambiguous between infinitives and participles (see (3)a',b'), repeated here as (18)a-b) or are clearly participial (see (18)c). When non-finite utterances are produced, subject clitics (argued to be agreement markers, see Roberge (1990)) are rare. When finite forms and clitics do occur, they are correct.

(18) a. pas manger/mangé
not eat-Inf/Ptc (Nathalie 1;9)
b. pas casser/cassé
not break-Inf/Ptc (Daniel 1;8)
c. Sorti les vaches
left-Ptc 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; see Torrens (1995) for similar results in Spanish and Catalan). As in Greek and French, bare past participles (with absent auxiliaries) are common early on (see Volterra (1976) and discussion in section 4).

	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 inflection 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 non-finite 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 inflection 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. 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. In order to do so, we need to digress briefly and discuss in greater detail the system of functional structure which is proposed in this work.

Recall that we assumed in section 2 that all functional structures are open values which need to be assigned range. When considered in the context of tense, this means that all I nodes

must be assigned some tense range.[14] Non-finite verb forms clearly do not spell out, overtly, a tense head feature. Furthermore, they clearly do not move to I, even in languages in which movement to I is overt and obligatory in tensed contexts. Nevertheless, it has been proposed, and is otherwise quite plausible that in root infinitives there is a tense feature, and that it is not associated with the unmoved, non-finite verb, but rather, with a null copula, or a null auxiliary (see Boser et al. (1992)), or as we shall proposed, with a (D-linked) null I (or T) node.

Considering more specifically the properties of such a null I, involving a null copula or a null head, note that within a strict interpretation of the checking model of Chomsky (1993, 1995), the presence of a null copula which is assigned a finite interpretation reintroduces the possibility of agreement mistakes. Nothing in the checking model rules out a derivation in which the child checks the features of I through the merger of a null finite auxiliary which bears the appropriately specified v-features and which exists alongside an already merged but unmoved finite main verb (bearing unspecified or inappropriately specified v-features) (see (19)a). Note in particular that the survival of unchecked v-features on the main verb does not, in and of itself, cause the derivation to crash at PF.[15] 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 general one and is independent of the acquisition issue and of the phonologically-null vs. phonologically-realized nature of the functional node in question: nothing in Chomsky's checking system 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, as the derivation only crashes if the features of I remain unchecked (see (19)b). Double marking of tense and agreement is however ungrammatical in adult English.

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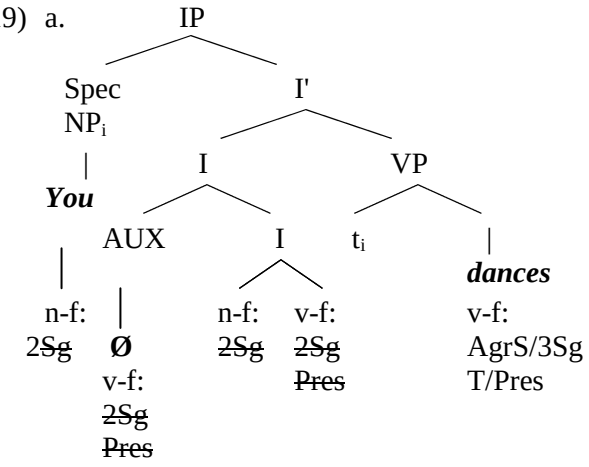
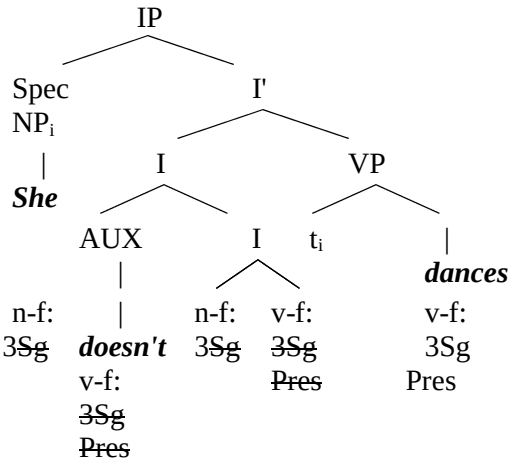
[14] This requirement affects not only indicatives but also propositions that express a desire, an obligation, an ability etc. This is relevant because it is often suggested that at least some "root infinitives" have a "modal" interpretation (see e.g. Hoekstra (1994), Hoekstra & Hyams, (1998)). If we are on the right track here, then a modal interpretation for root infinitives involves the assignment of range to I.

[15] Thus, according to 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). It therefore follows that if the main verb α *does not* move to I, its inflectional features do not enter checking, and the derivation is allowed to survive if the features on I are otherwise checked.

(19) a.



b.



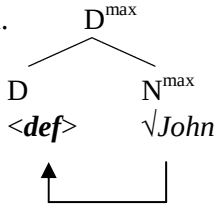
The fact that the structures in (19) are not well-formed indicates that functional features can be specified either on the functional head or on the lexical head but not on both. A look at the nominal system further supports this view. In English, in the absence of a determiner, a proper name acts as 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 (20)a) *John* refers to a unique individual, in (20)b) it behaves as a common name. 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 when *John* is accompanied by a determiner (which is by definition functionally marked), *John* cannot be thus marked and must be interpreted as a common name, rather than a proper name.

(20) a. *John.*<***def***>
b. *the.*<***def***> *(tall) john(s)*

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

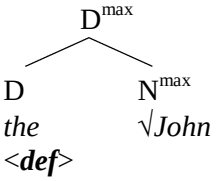
names stay in situ (and therefore follow NP-modifiers). In turn, compelling syntactic and semantic reasons mandate the (covert) movement of proper names in English to D in a parallel fashion. Likewise, within the verbal system it is typically assumed that when tense and agreement are realized on the lexical head, that head has moved (overtly or covertly). On the other hand, no such movement is attested when tense and agreement are associated with the functional head directly (e.g., through an auxiliary or a modal). Putting these two facts together, we arrive at the conclusion that functional features are specified on lexical heads if and only if they move. Specifically, it appears, the (schematic) structures in (21)-(22) are attested, but not the structures in (23)-(24):[16]

(21) a.

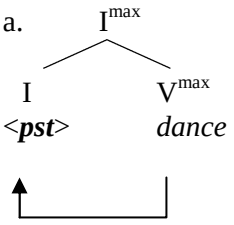


(overt or covert movement)

b.

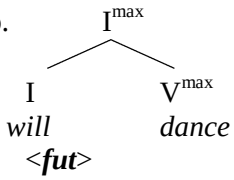


(22) a.

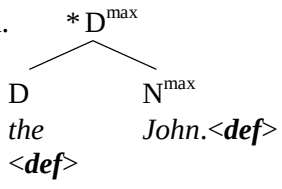


(overt or covert movement)

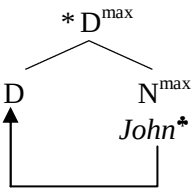
b.



(23) a.

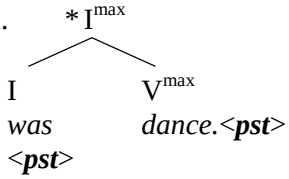


b.

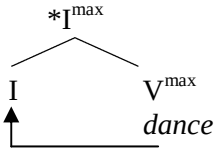


♣Where *John* is a common N

(24) a.



b.



Note further that a functional head does not have to be phonologically realized in order to block the movement of a lexical head or the realization of inflection on that head. Thus

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[16] See Borer (forthcoming) for further elaboration on the relationship between marking on lexical heads and on functional heads, as well as on the analysis of proper names.

unmoved verbs are not inflected, quite regardless of whether the functional heads are overtly filled with elements bearing the features in question. Again, a language-internal illustration is available from a highly inflected language. Consider the following examples from Hebrew:

(25) a. Rani 'abad mi-ševa 'ad 'eser.
R. work-3Sg.M.Pst from-7 until 10
'Dani worked from seven to ten'

b. bi-tkufat ha-limudim, Rani haya 'obed kol
during school R. be-3Sg.M.Pst work-Sg.M every
boker mi-ševa 'ad 'eser.
morning from-7 to 10
'During school, Ran was working every morning from seven to ten.'

c. Rani 'obed ba-gina ha-boker
R. work-Sg.M in-the-garden this-morning
'Rani is working in the garden this morning.'

d. Rani 'obed ba-gina kol boker
R. work-Sg.M in-the-garden every morning
'Rani works in the garden every morning.' (Hebrew)

In (25)a) the main verb is fully inflected for tense and agreement, in (25)b), the main verb occurs in a participial form which, on a par with adjectives, only displays gender and number agreement but not person agreement or tense. Instead, it is the copula *haya* 'be.past.3sg' which 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 (25)a) moves to I (or T), this is not the case in (25)b). In turn, Dechaine (1993) and Shlonsky (1997) argue convincingly that even when the participle is not accompanied by an overt copula, as in the present tense sentence in (25)c), the main verb does not move to I, and present tense interpretation is possible even in the presence of a phonologically null I. The three structures associated with (25)a-c) respectively are thus as in (26)a-c):[17]

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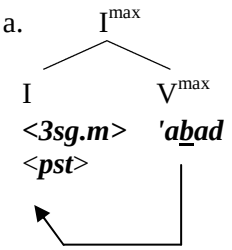
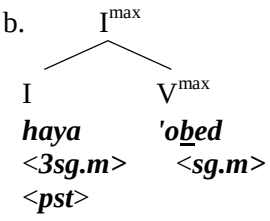
[17]In Borer (1995), it is argued that the (past or future) tensed verb in Hebrew may, but need not move overtly (or may undergo only short overt movement). However, for these cases, covert movement, to I is extremely plausible. When we turn to the participle in (25)c), however, a more complex picture emerges. On the one hand, the participle has important properties in common with the participle in (25)b) and with adjectives, showing the same pattern of agreement and the same pattern of negation, as distinct from that attested in cases like (25)a). On the other hand, in some cases it appears that the participle in cases such as (25)c) does move to I, contra our claim here. While at first glance these diagnostics appear contradictory, 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 as well as an adjective to attach to the left of an overt auxiliary in I, turning sentences such as (25)b), into (i). The apparently contradictory properties of the participle in (25)c) can now be accounted for if we assume that when movement of that participle to I takes place, in actuality it adjoins that participle to the left of a null I (and see Shlonsky, (1997) for a detailed discussion)

We note that a more articulate functional structure would be required in order to capture the number and gender agreement attested with participles, which, we assume, is mediated through separate functional structure and not through the functional structure which is responsible for the agreement of the auxiliary. For some discussion see Friedmann & Siloni (1993) and Shlonsky (1997).

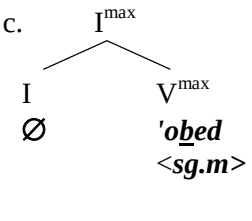
(26) a.



b.



c.



The strategies used in (26)a-b) can be described quite straightforwardly in terms of the system which we have already outlined here. Assuming that in all cases I dominates an open value in need of range assignment, such range assignment is presumably accomplished through a head feature in (26)a), giving rise to V to I movement. In turn, in (26)b) range is assigned to I by a free grammatical formative, making movement unnecessary, and hence by economy considerations, impossible. As such, the analysis of (26)b), within the verbal domain, is exactly on a par with that which is typically given to, e.g., English determiners, or the English future marker *will*, where it is assumed that an independent grammatical formative is responsible for the interpretation of D and I respectively, while N and V remain in situ.[18]

Grammars which make extensive use of the strategy in (26)b), in which range is assigned to a functional head through an independently merged grammatical formative, and movement does not result, are clearly attested, and strikingly, from an acquisition perspective, are especially common in inflectionally impoverished linguistic contexts, including Creole languages. 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 through the merger of separate functional heads both within the nominal and the verbal domain, and where the main verb and the noun remain uninflected:

(27) a. me kahay
Pl woman
'women'

b. Wa ha apa pe.
I Fut Cont work
'I will be working.' (Kraho)

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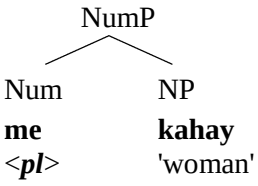
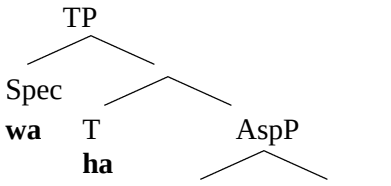
[18] We are assuming here for expository purposes that the overt copula in the past tense in (26)b) merges directly in I. One could, of course, argue that in actuality it merges as the head of a separate VP projection, and that it moves to I to support the head features <***3sg.m***> <***pst***>. What is at stake is whether the copula is more like a free grammatical formative, e.g., *this*, or *will*, or alternatively, more like a verb root which is projected without any functional specification and acquires such a functional specification through movement. The choice between these two options, interesting as it might otherwise be, does not bear on the issue discussed here. We are attempting to establish that lexical heads do not move when functional features are independently marked on the relevant functional head, either through the existence of an independent grammatical formative, or through a moved head which supports the relevant head features, and which is distinct from the main verb (e.g., an auxiliary). One of these situations clearly holds for (26)b), regardless of other necessary refinements of the structure.

(28) a.

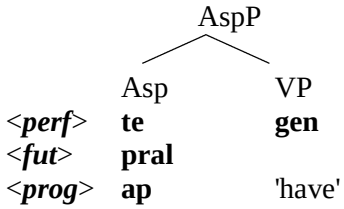


b.



(29) 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)

(30)



In turn, the system outlined directly incorporates the fact that inflectional marking on the lexical head and on a functional head are in complementary distribution, as in this system, properties which give rise to inflectional marking, and specifically head features, exist in the structure only once, in conjunction with the range assignment to the functional head, and double marking cannot emerge. This restriction does not emerge just from stipulating that lexical insertion is late, but rather, from the fundamental view of functional heads adopted in this work. Recall that we assumed that functional heads are open values which are assigned interpretation through appropriate range assignors. Suppose we think of these open values as variables, and of the elements which assign range to them as operators which bind them. Specifically, the tense value of I (or of T) dominates a variable which must be bound by a tense operator to be interpreted, a node such as D dominates a variable that must be bound by an appropriately specified ±Def element to be interpreted (or more accurately, to be assigned reference) and a node such as Agr (if distinct from I) dominates a variable that must be bound by a nominal element with the appropriate φ features. Let us further assume that grammatical formatives such as *the* as well as head features such as <***pst***> are in fact operators that may indeed must bind appropriate variables or vacuous quantification would result. Such operators may either be associated with free grammatical formatives (e.g., as in the case of determiners, see (8)) or with head features (e.g., as in (9)). If we mark the presence of a variable as the presence of a null *e* heading by the functional phrase, for (21)-(22) the amended representations would be as in (31)-(31):[19]

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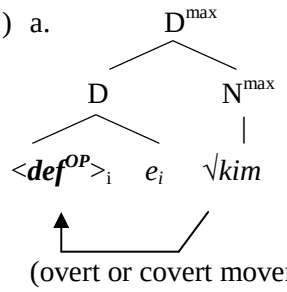
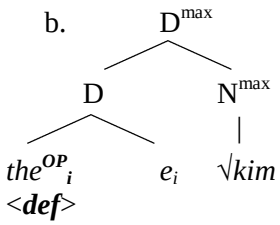
[19] And see Borer (forthcoming) for an execution of this idea without head adjunction.

The existence of double tense marking is at times argued for, specifically in languages which mark both auxiliaries and main verbs, when they co-occur, for tense. It the analysis put forth here and in Borer

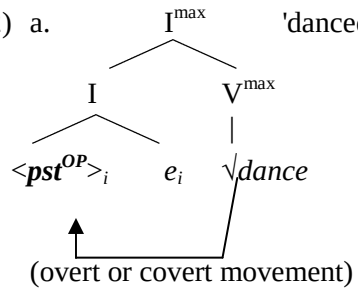
(31) a. 'Kim'



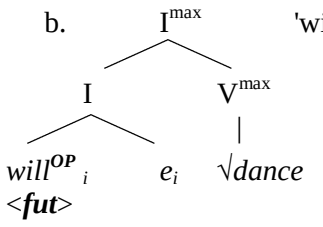
b. 'the kim'



(32) a. 'danced'

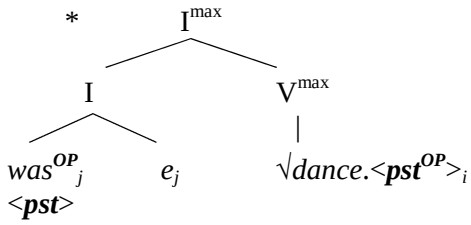


b. 'will dance'

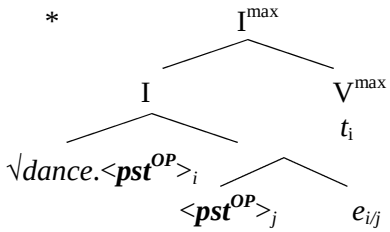


It thus emerges that any case of double marking must be excluded, as it involves the presence of two operators vying for the same variable, and hence vacuous quantification. Thus if the main verb does occur with inflectional marking, one of the representations in (29) must emerge. In (29a), the root+<***tense*^OP**> has not moved, and is not in a position to bind the tense variable in I, and vacuous quantification emerges. In (29b), on the other hand, root+<***tense*^OP**> has moved, but as, by assumption, an abstract head feature already binds the tense variable, vacuous quantification likewise emerges:

(33) a. *



b. *



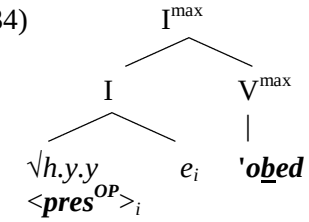
We note further that the exclusion of double marking, as derived from the operator nature of head features and grammatical formatives complements nicely a model of late insertion, in which the lexical head is but a root which is not associated with any grammatical information.

(forthcoming) is on the right track, such cases would have to be analyzed as involving two separate TPs (or IPs), i.e., as cases of embedding.

In turn, as head features, merging with functional heads, must be lexically supported, they trigger the movement of the lexical head, giving rise to a lexical form which is now specified for inflectional features, and which is in turn the appropriate input to the phonological component.

Returning now to the paradigm in (26), (26)a) corresponds to the structure in (31)a), while (26)a) corresponds to the structure in (31)b). Consider now (26)c). We already noted that although no overt copula occurs in the structure, the main verb is a participle, just like in (26)b), and that it does not move to I. Per force, then, we cannot assume that it supports abstract head features, which in turn bind the tense variable. In other words, it could not have the structure in (31)a). In turn, there is clearly no grammatical formative that could bind the tense variable if the structure in (31)b) were to be projected. Prima facie, then, (26)c) appears to suffer from the converse problem of the representations in (33), where there are, we suggested, too many operators in the structure. If functional heads are indeed, variables in need of binding, (26)c) appears to have a free variable. It is precisely this type of situation that has led Dechaine (1993) and Shlonsky (1997) to propose that in cases such as (26)c), I dominates a null copula specified as present tense, thereby making the structure exactly parallel to that of (26)b). A possible execution within the approach put forth here would thus assign to (26)c) the structure in (34)), accompanied by the assumption that the phonological realization of the Hebrew copula 'be' in present tense is ∅ (and see footnote 16 on the merging site of auxiliaries:

(34)



√*h.y.y*+<***pres***> → ∅

Although the existence of a null present tense copula in Hebrew might be plausible, we note that the problem is in actuality a more general one, as I appears at times null (and the tense variable, by assumption, unbound, in languages where the presence of a lexical null auxiliary is highly implausible. Thus consider the examples in (35)-(36) from Dechaine (1993), where tense remains unmarked through auxiliaries, inflection, or movement:

(35) 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)

(36) 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)

And yet, as Dechaine (op. cit.) points out, the interpretation of the propositions in (35)-(36) is anything but vague. Rather, the (a) examples in (35),(36), 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.[20] How can such interpretation be assigned, by assumption, to the tense variable in the absence of any overt tense operator?

As it turns out, however, the problem here, if indeed there is one, is subsumed under a much larger body of analyses, all involving null functional nodes which are not licensed through overt morpho-phonological material, be it free grammatical formatives or lexical heads supporting head features. While what is under discussion here is a null I node and specifically the interpretation of tense, other functional nodes have been argued to be null. Thus null D nodes are typically assumed to be bound through existential closure (in the spirit of Diesing, (1992), among others), by covert generic operators (see Longobardi, (1994), among others), or alternatively, by adverbs of quantification (following proposals of Heim, (1982), among others). A particularly illuminating discussion of the properties of null D and how it can be bound in Chinese, where null D is the norm, can be found in Cheng & Sybesma (1999). In all of these cases, it is rarely, if ever, assumed that the interpretations under consideration are mediated through the existence of a lexically specified but phonologically null determiner.

A similar type of account is directly available for the verbal domain. Specifically, we propose that the tense variable in structures such as in (35)-(36). And possibly in (26)c) as well, is bound – and thus assigned value – by D(iscourse)-linking. A similar assumption was made by Hyams (1996).[21] Our specific proposal follows directly that made by Dechaine (1993) for

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

[21] 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 otherwise available in adult grammars. 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_o). In the early grammar, T_o 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,

the licensing of Ø-tense. Dechaine explicitly argues that "the temporal reference of a bare sentence [i.e. a clause with Ø-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 Ø-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 Ø-T node in these sentences), as illustrated by (35),(36).

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 (37). In turn, D-linking, according to the conditions specified by Dechaine (op. cit) would bind it and assign value to *e*. As such, the early grammar would be using precisely the same grammatical device that is otherwise made available by UG, and is instantiated in languages such as Chinese and Haitian, as illustrated by (35),(36):[22],[23]

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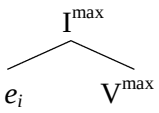
however, coreference is available alongside binding if it is assumed, following either Chien & Wexler (1990) or Grodzinsky & Reinhart (1993), that children are deficient in blocking a coreference construal in the presence of an equivalent binding construal.

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 in early Italian. It is further unclear in Hyams' system how to exclude in the early grammar the co-occurrence of T_o with an unmoved inflected verb. Note that as a binding derivation is not required in the early grammar, T_o could be interpreted through coreference, with an inflected verb remaining in situ. Next, as will become clear below, we do not assume any principled difference between (possible) adult grammar and early grammars. Rather, we ascribe to the early grammar the interpretative mechanisms made available by UG in the absence of tense and agreement markers of any sort. Those mechanisms, we suggest, are precisely those 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 phonological realization of functional features. Finally, for us, tense, whether overt or null, is always a variable in need of binding. A D-linked tense-variable, in our system, is thus akin to the D-linked nominal variables argued for by Heim (1982).

[22] Our proposal thus differs from that put forth in Boser et al. (1992), precisely insofar as null auxiliaries are not used. It further differs 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. As the functional variable in I is thus bound, the main verb could not be inflected, abstractly or otherwise, or vacuous quantification would occur. Further, movement of that verb is unnecessary and thus, for reasons of derivational economy, impossible.

[23] Our execution differs in one way from that proposed in Dechaine (1993). In Dechaine's system, the T node itself is an operator, and when projected as Ø is D-linked. We assume, on the other hand, that the I (or T) head is a variable, itself in need of being bound, and that D-linking functions as the relevant operator.

(37) Discourse Op_i 

In our account, the feature content of null I (or null T) is determined by D-linking. Now paradoxically, since D-linking in effect specifies the features of null I, a null I may have a richer feature specification than a phonologically realized one, if the discourse context allows for a more fine-grained distinctions than those otherwise attested in a given language. We believe that this may explain 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 footnote 12). The head features in these languages presumably fail to carry some fine-grained feature specification 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 I (or Agr) node 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. In turn, when finite forms emerge, realizing phonologically the language-specific choice for feature specification, null subjects are expected to disappear, precisely since D-linking is blocked in the context of head features, or vacuous quantification would emerge. 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 account of null subjects in child language sketched in this paragraph appears promising.[24]

Recall that in Dechaine's system, the D-linking of Ø-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 Ø-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 without auxiliaries and with past tense interpretation in both French (see (38) from Pierce (1992)) and Italian (see (39) from Volterra (1976)) (and note in this context that while (38)a-b) are ambiguous between infinitives and participles, (38)c-d) are clearly participles, and not infinitives):

[24] Our analysis of "root infinitives" as finite clauses with a phonologically-null I whose functional features are determined via D- linking might also explain why these structures are excluded from German(ic) topicalization contexts, i.e. Wh-questions and sentences with topicalized elements. In these contexts, which require V2, the null I 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 topicalization contexts the variable in I would remain unbound and uninterpretable. Something special needs to be said about child English, however, where "root infinitives" are attested in Wh-question which otherwise require I movement to C (see Roeper & Rohrbacher (1994)). We will leave this topic for future work.

(38) a. fermée/fermer la fenetre
close-Ptc/Inf the window
b. cassées/casser les jambes
break-Ptc/Inf the legs
c. morte Marie
die-Ptc M.
d. sorti les vaches
leave-Ptc the cows (French)

(39) a. alluccio pottato papa
horse bring-Ptc daddy
b. apetto Checco
open-Ptc C.
c. peso cacche Checco, peso cacche
take-Ptc keys C., taken keys (Italian)

Further, Antinucci & 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 for accomplishment verbs and not for activity verbs or stative verbs, as illustrated by the summary in table 9:[25]

	Unclear Event Type		Activity		Accomplishment/ achievement		State	
	+Ptc.	-Ptc.	+Ptc	-Ptc.	+Ptc.	-Ptc.	+Ptc.	-Ptc.
Claudia	4/5	1/5	2/22	20/22	11/22	11/22	0/7	7/7
Paduan Children	3/6	3/6	1/19	18/19	18/31	13/31	0/6	0/6

Table 9: Ratio of Participle Occurrence for all Attested Verb Types, Classified by Event Type. Modals and Auxiliary Verbs Omitted (based on Antinucci & Miller (1976))

Crucially, at the stage reported by Antinucci and Miller, overt auxiliaries are almost 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 participles with past tense

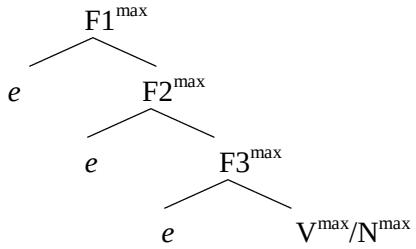
[25] While Antinucci & Miller summarize their findings as referring to past tense in general, the discussion in their paper makes it entirely clear that the forms in question are *passato prossimo* participles which for adults require an auxiliary in addition to the participle. For some discussion of the claim put forth by Antinucci & Miller (op. cit.) according to which the early performance involves a cognitive deficit, see Borer & Wexler (1992).

In Borer & Wexler (op. cit.), the Antinucci and Miller 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. If the text discussion here is on the right track, it suggests either that the early grammar of Italian does not have null auxiliaries, or alternatively, that such null auxiliaries are not associated in any way with the tense-variable, which is independently D-linked (and see footnote 17 for some discussion of the position of auxiliaries).

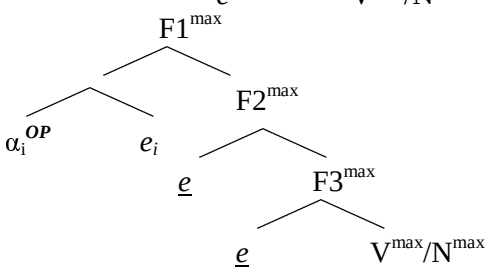
interpretation follows directly from the very same system that would assign past tense interpretation to the accomplishments in (35) and (36). Likewise, the absence of the non-finite participles of activity and stative verbs with past tense interpretation is accounted for: in the absence of an auxiliary, and in accordance with the system put forth in Dechaine (op. cit.), D-linking will never result in a past tense interpretation for these participles, but rather, would assign a present interpretation to the tense variable.[26]

Finally, suppose we assume, without further argumentation (but as seems rather plausible on the basis of the distribution of otherwise argued for cases of D-linking for both topics and null functional structures), that D-linking is subject to some opacity constraints, and specifically, that the presence of an operator binding a functional variable makes its c-command domain opaque to D-linking. If that is true, then D-linking of all the null heads in (40)a) is possible, but not for the underlined null heads in (40)b), or for the underlined head in (40)c), which are within the c-command domain of α^{OP} (where α^{OP} is either a head feature, triggering movement, or an independent grammatical formative):

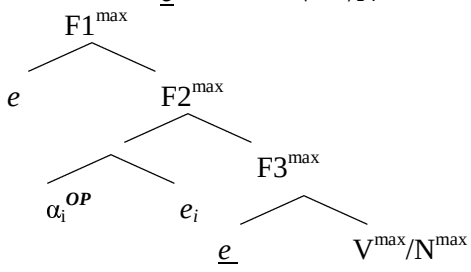
(40) a.



b.



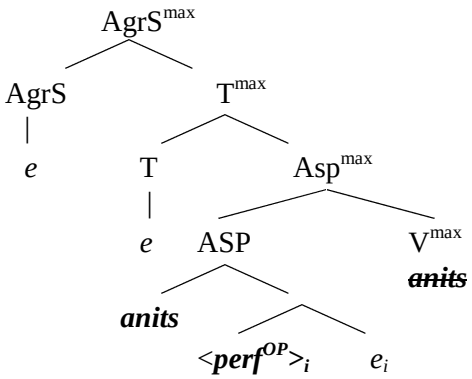
c.



[26] The account does not predict, however, the absence of activity participles in early Italian with a present (rather than past) interpretation. Pending further research, we will assume that such forms are excluded due to the competition with an already existing inflected form of the verb root which is present tense as such, and which does not require any D-linking. If this is correct, it would suggest that children give up on D-linking when they acquire the phonological representation of the head feature that would replace it, an assumption that further accounts for the abandonment of "root infinitives" altogether on the part of the child once the inflected system is learned in full, or more accurately, to the fact that this system is relegated to specific registers, such as Abbreviated English.

If this is indeed the case, then our theory makes a number of very specific predictions concerning the order of inflectional acquisition as well as early behavior, 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 if all three functional structures must project, aspect marking must be acquired before tense marking and tense marking must be acquired before agreement marking. We further predict that if those markings are associated with head features which require movement, the child will 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 the functional operator, be it a grammatical formative or a head feature, has not yet been acquired, the corresponding functional variable is bound by D-linking. As soon as a functional operator is acquired, however, it will block D-linking of all functional variables within its c-command domain. If, by assumption, the functional operator that could bind these variables has not been acquired yet, the derivation will crash, quite simply because of the presence of unbound variables. Considering the special case of binding by head features, which requires movement, we note that if the phonological realization for, e.g., V+agreement features is acquired before the phonological realization for V+tense features, and if the child merges agreement features in AgrS, thereby requiring the movement of the verb to Agr, the functional variables in T and in Asp could not be bound, and hence the derivation will likewise crash. It thus emerges that even if the child has learned the phonological realization of V+agreement before, e.g., the phonological realization of V+aspect, if both Asp and Agr project in one structure, the child will need to bind both Asp and Agr through D-linking. This order of acquisition is supported by child Greek data. 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, on the other hand, remain null, and must be bound by D- linking.

(41)



As it turns out, however, the prediction here is even more specific. Suppose, as is reasonable, that e.g. AspP does not actually project in all derivations, and suppose the child under consideration has learned the phonological realization of V+agreement and V+tense but not the phonological realization of V+aspect. We predict directly that such a child, in a derivation that involves the projection of Agr, T and Asp, will continue to use D-linking across the board, i.e., will be using, for all intents and purposes, "root infinitives". However, in a derivation that does not require the projection of Asp, that very same child will be using a finite

form, as she has already learned the phonological realization of V+agreement and V+tense. We note that the prediction here is an interesting one, in that it attributes a complex behavior to the learner which is rule driven, rather than random or guided by performance consideration. The detailed checking of this prediction, however, is set aside here.

5. Inflection in Agrammatic Speech

Interestingly, randomization errors of the type which is missing from the early grammar do occur, but not in the speech of children. Rather, they occur in the speech of agrammatic patients. In view of this, it is quite tempting to assume that it is the speech of agrammatic patients, rather than the speech of children, that may be marked by the complete or partial absence of functional structure, thereby accounting for the existence of such errors.

The assumption that agrammatic speech is, indeed, marked by the partial or the complete absence of functional structure has been put forth by a number of researchers in the past decade or so. Thus Ouhalla (1993) argues for the complete absence of functional structure, while Friedmann and Grodzinsky (1997) as well as Grodzinsky (2000) argue for the partial loss of functional structure. At least in some cases (notably for Ouhalla, (1993)), the assumption put forth is that the absence of functional structure is a feature shared by the early grammar and agrammatic speech. According to that hypothesis, it is the absence of functional structure in both developing grammars and grammars that are breaking down which accounts for presumed similarities between the linguistic behavior of children and agrammatic patients, notably, the common omission of grammatical formatives.

We noted already that to the extent that children do omit independent grammatical formatives, that behavior, in and of itself, may be compatible both with the absence of functional structure and with functional structure which is licensed through D-linking. It is precisely for that reason that an argument for the presence vs. absence of functional structure must rest on the distribution of inflected stems. Those, we argued, are predicted to occur randomly in the absence of functional structure, and the absence of such random selection in the early speech has led us to conclude that children do have functional structure, allowing them to make the distinction between inflected and non-inflected, or partially inflected stems. If, indeed, random selection of inflected stems occurs in the speech of agrammatic patients, it suggests that at least for these patients, functional structure may be wholly or partially impaired.

Before we proceed to the discussion of the agrammatic data, however, a few words of caution are in order. First, as is well known, there is little reason to expect a uniform deficit across different agrammatic speakers, as each represents a unique physiological profile. More seriously, as is well known, individual agrammatic patients do not display a consistent deficit which characterizes their entire behavior, giving rise to the plausible assumption that even if functional structure is impaired, that impairment characterizes performance, or the use of competence, rather than competence.[27] For that reason, the consistent grammatical characterization of the body of data produced by any one patient as indicative of a particular deficit is a tricky matter. Specifically, if we assume that a processing overload of some sort could lead to some measure of tree simplification, as proposed, e.g., in Kolk (2001), that

[27] On this point, see especially Kolk & Heechen (1990) and more recently Kolk (2001). For some review of the issues involved, see Avrutin, Haverkort & van Hout (2001).

simplification may very well characterize one utterance, but not the next one. It is precisely for that reason that argumentation concerning the linguistic behavior of agrammatic patients must rely on statistical measures. What we can hope to show, then, is that the rate of randomization among agrammatic patients is significantly higher than that attested among children and, of course, unimpaired adult population.

Consider, from this perspective, the study conducted by Friedmann & Grodzinsky (1997), where it is specifically shown that in experimental tasks involving repetition and sentence completion (oral and written), Hebrew speaking agrammatic patients make numerous tense substitution errors. The relevant part of their results is reproduced in table 10:

	Delayed repetition	Oral completion	Written Completion
Verb	23% (13/56)	38.0% (219/50)	75.0% (30/40)
Copula	50% (30/60) (15/60 substitution, and 15/60 omission)	70.0%	100.0% (16/16)
Total	37%	50.0%	82.1%

Table 10: Percentage (and Number) of Tense Substitution Errors in Hebrew-speaking Agrammatic Patients (based on Friedmann & Grodzinsky, (1997))

An illustration of the relevant type of errors is in (42):

(42) a. ha-'iš roce le-bašel, az hu lokeax sir ve **bišel**
the-man wants to-cook then he takes pot and cook-Pst.3Sg.M)
should be: **mebašel** (cook-Ptc.Sg.M)
lit: 'the man wants to cook, then he takes a pot and cooked'

b. [axšav ata holek. Etmol 'ata] **telek**
now you walk-Ptc.Sg.M Yesterday you walk-Fut.2Sg.M
should be: **halakta** (walk-Pst.2Sg.M)
lit: [now you walk. Yesterday you] 'will walk' (completion task)

In a manner not unlike that outlined in section 2 above, Friedmann and Grodzinsky conclude that tense errors emerge from the absence of T node (or the presence of an unspecified T node).

A similar picture emerges upon closer scrutiny of English, as in a study by Arabatzi & Edwards (2002). Given the impoverished inflection of English, it is not always clear whether in the bulk of affirmative declarative sentences in the present tense, the form of the verb is inflected. Nevertheless, Arabatzi & Edwards (op. cit.) found that aphasic speakers were more likely to (overtly) inflect the verb (34.6%) than to use the bare stem, but that in 32.5% of the cases, they used the wrong inflection. In negative contexts, and explicitly comparing agrammatic patients to children as studied by Harris & Wexler (1996), Arabatzi and Edwards note that the patients they tested omitted the morpheme *do* and inflected the verbs following negation in 17.5% of the sentences tested. In contrast, the bare stem was produced in these contexts only 7.5% of the times. If cases of omitted main verbs and abandoned trials are

eliminated from this count, we find that speakers inflected 23.8% of the main verbs they produced following negation, with *do* omitted. Children, on the other hand, inflected the main verb after the negative *not* (with *do* absent) in only 7-9% of their sentences.

Friedmann & Grodzinsky (1997), as well as Friedmann (2000) explicitly argue that agreement errors are by and large not attested in agrammatic speech. This, they claim, is because AgrP, a separate syntactic node, is generated under TP. In turn, the locus of the agrammatic impairment is between AgrP and TP, impairing all functional structure from TP upwards (including CP), but not below it. It is, indeed, correct that the patients tested by Friedmann and Grodzinsky performed considerably better on agreement tasks than on tense tasks, and agreement errors were extremely low, especially when compared with tense errors (0% in repetition tasks, 2% for oral completion, and 6.9% for written completion). We believe however, that agreement randomization errors are attested in the agrammatic speech of other patients at a sufficiently high rate to discard any account which rules out, across the board, an unimpaired Agr structure. Thus although Benedet et. al (1998) did find a much more severe impairment in the area of tense production (only 5.5% correct) than in agreement production, a fact which Friedmann (2000) cites as evidence for the non-impaired nature of Agr, there still remained a significant deviation from adult behavior in the area of agreement which was, for agrammatic patients, 36.2% incorrect. Likewise, while English-speaking agrammatics are reported by Benedet et. al to produce correct tense only 15% of the time, at 58% incorrect agreement they can hardly count as unimpaired.

More specifically, consider the following cases from Italian, as reported in Miceli & Mazzuchi (1990). Their patient used wrong inflection on 12% of his main verbs, with agreement errors most frequent (16 cases, see (43)). Another patient used the wrong inflection on 7% of his main verbs, with agreement errors (2 cases, both number), 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 (see (44)).

(43) a. Il ladro rubano <u>rubo</u> 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 casa sua della
the the wolf run-3Sg run-3Sg run-3Sg and run-3Sg to-the house hers of-the
nonna e uccido la nonna
grandmother and kill-1Sg the grandmother.
'The wolf runs to the house of the grandmother and kills her.'

(44) a. Poi ritorna la mia casa.
then return-3Sg the my house
'Then I retun 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!'

Miceli & Mazzuchi (1990) note that unlike children, agrammatic patients often display "no particular tendency to produce one particular inflection as a preferential substitute for several targets" (p. 729). A similar observation is made by Friedmann & Grodzinsky (1997:403) concerning tense substitutions. As they note, there is "no preferred or default form" among the tense substitutions made by their Hebrew-speaking agrammatic patient. This random behavior is expected if words are drawn fully inflected from a morpho-phonological paradigm, but the appropriateness of their inflection cannot be checked, as in the absence of functional structure (or alternatively, in the absence of effective access to functional structure) there is no syntactic output which provides the features that can be distinguished between paradigm members.[28]

Consider some additional examples from Serbo-Croatian, discussed by Zei & Šikié (1990). One of their patients (Ivić) made 18.5% tense errors (6 out of 28 verb tokens used), and 12% agreement errors (3 out of 25 finite verb tokens used).[29] Examples of agreement errors are given in (45):

(45) a. I **pre pefu** kurus e owako
and harvest-3Pl.Pres corn-Acc/Nom like this
should be: bere (harvest-Sg)
intended meaning: 'he harvests the corn like this'
b. Spavat **rude** se
sleep.Inf wake-up-3Pl.Pres himself
lit: to sleep they wake himself up
should be: spava i budi se
wake-Pres (and) wake-up-Sg himself
intended meaning: 'he sleeps and then he wakes himself up'

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[28] We note, however, that it is quite possible that alongside the randomization of lexical selection, we may also find non-grammatical strategies that lead to the preference of one particular form over all others, as based, e.g., on statistical frequency. While in some context such a strategy would appear to give rise to a 'correct' result, in other cases, it will result in inflection errors.

[29] All agreement errors involve the use of 3pl instead of 3sg, although otherwise, plural forms (used correctly) are entirely missing from the sample. Tense errors are distributed as follows: present used instead of past: 2/28; present used instead of infinitive: 1/28; infinitive used instead of present tense: 3/28. Of 22 correct forms, 21 are in present tense, and a single one is aorist. Of 28 forms altogether, then, only 4 are non-present. Within the agreement paradigm, all correct forms are singular. Distribution of correct forms is as follows: 3sg: 16/25; 1sg: 4/25; 2sg: 2/25

The other Serbo-Croatian patient (Krapan) who was considerably less impaired altogether, made only 5.5% tense errors (5/92), and 3.8% errors in verbal agreement. However, within the area of participle agreement, which does not involve any tense at all, his error rate was considerably higher, at 13.1% (5/38, one self-correction. Ivić did not produce any participles):

(46) a. I ovaj kada je crvenkapica **doša**
and (filler) when be-3Sg.Pres LRRH-Nom come-Ptc.M
'When Little Red Riding Hood came'

b. [iz] *lavabo I ovaj prosulo - prosula se
[from] washbasin-Nom and (filler) spill-Ptc.N - spill-Ptc.F self
(should be lavaboa, locative case required)
'(the water has overflowed from) the washbasin and he, I mean, it spilled'

To conclude, there is firm evidence from the area of both tense and agreement errors that agrammatic patients do produce random errors of the kind that are not attested in early linguistic behavior. The absence of grammatical functional structure (or impaired access to it) predict precisely that pattern of behavior.[30]

Young children act very differently. They substitute the target tense marker on verbs only very rarely with another tense marker (according to Harris & Wexler's findings 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 (see tables 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 often better than chance. 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 (see 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.[31] Rather, our argument is based on the observation that

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[30] We note in this context that it is not possible to distinguish empirically a model in which agrammatic patients do not project IP, from a model in which they project an IP which is unspecified and is not subject to any of the adult conditions which constrain a null IP (more specifically, it cannot provide the root with any useful information as to the choice of a specific paradigm member). It is thus possible that the agrammatic behavior stems from the presence of an IP without any features, but as that claim is devoid of empirical consequences, we will not pursue it.

[31] 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 (i.e., loss of

(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 without I, as in (13),and that young children always use structures like the ones in (9) and (11) with I. It therefore appears that the course of language development is not mirrored by the course of language breakdown, contrary to the Regression Hypothesis that was first put forth by Jackobson (1971), and that subsequently became very influential in the study of language breakdown.[32]

If the breakdown of tense and agreement in the speech of agrammatic patients reflects the loss of functional structure, and if the course of language breakdown is distinct from that of language development, then one might expect these patients to also have problems with word order phenomena that depend on functional structure. At least at first sight, the facts 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%.[33] She however found no substantial numbers of word order-related mistakes in the spontaneous speech of any of these these patients: finite verbs occurred in second position in more than 98% of all cases, and non-finite verbs always remained in their clause-final in situ position. These results replicate those of Kolk & Heechen (1992) who likewise found a strong correlation between finiteness and V2, and non-finiteness and clause-

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competence) would give rise to an identical behavior to the *loss of access* to a potentially undamaged or partially damaged representation (i.e., a performance impairment). 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. Recall that we also noted the fact that the nature of the brain damage sustained by patients is not 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.

[32] For a recent casting of the Regression Hypothesis in terms of a processing overload, see Kolk (2001).

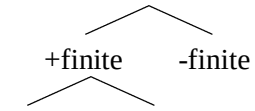
[33] Inflection errors are further reported in Kolk (2000), in tasks which elicited SVO, AdvVSO and SOV word orders, respectively. For past inflection elicitation, error rates for tense and agreement were 48% and 23% respectively. For present tense elicitation, error rates for tense and agreement were 11% and 28% respectively, leading Kolk (op. cit.) to conclude that present tense inflection serves as a default, thereby reducing the number of tense errors. Most errors, Kolk observes, occurred with SOV word orders, ungrammatical for a matrix clause, but in V2 contexts, the error rate was still quite high, at around 23%. Although the number of errors involving the production of a non-finite form in V2 and the production of finite forms in clause final position is not given, Kolk does note that "infinitive use was significantly higher in embedded than in simple clauses", leading to the reasonable conclusion that most of the inflection errors recorded in matrix clauses, in both V2 and clause-final position, involve finite forms. Kolk in fact summarizes his findings by stating that inflection production is not dependent upon word order.

We note that although for the past condition the error rate for tense is higher than for agreement, behavior for agreement is still very impaired, as compared with either normal behavior or the behavior of children.

final position in the speech of German and Dutch agrammatic patients. Recall from (4) that V2 is caused by verb movement to C, and that for children as well, finite verbs were in V2 position, while clause-final verbs were non-finite. It thus appears that at least within that domain, children and agrammatic patients behave alike. And indeed, much of the literature which advocates some version of the Regression hypothesis cites this similarity between the early grammar and the agrammatic behavior as a source of support for this claim. We note that such a similarity between the early grammar and the agrammatic behavior may be put forth quite independently of the absence of functional structure. Thus Kolk (2001) puts forth an account in terms of both early and agrammatic overuse of normal ellipsis. De Roo (2001), likewise arguing that early structure and agrammatic structures are alike, explains the agrammatic behavior by adopting, for agrammatism, the idea put forth for language development by Hoekstra & Hyams (1995), according to which root infinitives involve an underspecified TP, rather than a missing one.

We would like to devote a few final comments to this issue. We note, as a point of departure, that although the behavior of Dutch and German agrammatic patients does pattern with that of children in placing non-finite verbs in a clause final position, and finite verbs in a V2 position, it nevertheless deviates from that of children in exhibiting inflection errors for inflected verbs in V2, as reported by Penke (op. cit.) and Kolk (2000) (see footnote 32). At least in principle, this behavior is compatible with the possibility that CP, in agrammatic speech, remains unimpaired, and that CP is the locus of finiteness marking, albeit without a full specification of what specific tense assignment is involved. If that is the case, it suggests that paradigmatic representations are, indeed, internally ordered, (see footnote 7), e.g., as in (47), and that specifically, if an impaired grammar with a CP but without IP (or TP and AgrS) can access the finite - non-finite distinction, the result would be a grammar in which the choice of a specific finite form is random, but the choice between finite and non-finite forms is not.[34]

(47)



etc.

The presence of a CP structure in agrammatic speech is, in turn, a subject of much debate. While Friedmann (2001) argues strongly against the presence of a CP in agrammatic speech, Penke (2001) argues equally strongly in favor of the presence of a CP, specifically in German agrammatic speech, as based on embedding, choice of complementizers, and indeed, the distinction between the placement of finite and non-finite verbs.

These issues aside, and as emerging from recent studies of the behavior of German and Dutch agrammatic patients, it may very well turn out that the syntactic parallelism between the early behavior and the agrammatic behavior is only apparent. Consider, first and foremost,

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[34] We note as an aside that should it turn out to be the case that CP, as the locus of finiteness, is available for agrammatic speech, but not so I (or T and AgrS), this would suggest that the impairment in functional structure present in agrammatic patients cannot be characterized in terms of tree pruning (contra Friedmann, (2000)), but rather, targets specific functional nodes in isolation from the tree structure as a whole.

Bastiaanse, Hugen, Kos, & van Zonnenveld (2002), where the study of this issue has led to a revision of the conclusions of Bastiaanse & van Zonnenveld (1998), among others. Modifying the experimental procedure of earlier experiments, Bastiaanse et. al (2002) conclude the following:

(48) a. As in earlier studies, in agrammatic speech non-finite verbs always occur in clause-final position
b. As in earlier studies, only finite verbs occur in V2
c. However, unlike the results of previous studies, finite verbs do occur in clause final position in matrix sentences.

The ratio of occurrences of finite verbs in clause final position is given in table 11. There were 15 trials for matrix and 15 for embedded cases:

	Correct		Errors Matrix Clause			Errors Embedded Clause		
	Matrix	Embedded	V-final	V omission	other	V2	V omission	other
B15	33.33%	73.33%	20%	46.66%	0%	6.66%	0%-	20%
B16	66.66%	53.33%	13.33%	0%	20%	40%	0%	6.66%
B17	46.66%	93.33%	20%	33.33%	0%	6.66%	0%	0%
B18	46.66%	86.66	46.66%	0%	6.66%	0%	0%	13.33%
B19	66.66%	93.33%	33.33%	0%	0%	6.66%	0%	0%
B20	80%	93.33%	6.66%	13.33%	0%	6.66%	0%	0%
Mean	56.66%	82.2%	23.33%	15.53%	4.46%	11.13%	0%	6.66%

Table 11: Word Order Finiteness Correlation in the Speech of Six Agrammatic Patients, Experimental Results (based on Bastiaanse et. al., (2002))

What is striking is not only the fact that finite verbs in main clauses appear to be the single most problematic aspect for agrammatic patients, but also the fact that in embedded clauses no such difficulties are encountered, giving rise not only to a higher ratio of correct use, but also to a reduction in verb omission. These data thus suggest that at least from the perspective of the distribution of finite verbs, the patients under consideration are aware of the matrix/embedded distinction, and hence, plausibly, do have access, at least at times, to a CP.

Suppose now we consider the possibility that for the patients under consideration, errors reflect the fact that CP at times projects, but IP never does. What sort of behavior would that predict? Let us first consider embedded clauses. In the absence of both CP and IP, we expect both finite and non-finite forms in clause final position. We further expect some measure of

randomization in the selection of inflected forms.[35] Interestingly, if CP projects but IP does not, the very same behavior should emerge. If we assume that finite verbs in German move to C covertly in embedded clauses, we expect both finite and non-finite verbs to occur in a clause-final position, and finite forms to be randomly chosen (but see footnote 34). Of course, the finite forms will move covertly to C, but as that movement will not produce any noticeable effects, their behavior in embedded clauses should be alike, regardless of the projection of CP.

Consider now main clauses, again assuming that CP may or may not project, but that IP never projects. If CP does not project, we expect both finite forms and non-finite forms to occur in a clause final position, and we further expect that the choice among them will be random. It is this pattern that gives rise to the occurrence of both finite forms and non-finite forms at the end of the clause. Now consider a derivation in which CP does project (but, recall, no IP). In these cases, non-finite verbs would still remain in a clause final position, as a grammar with CP (but no IP) can distinguish between finite and non-finite forms. Finite forms, however, would occur in V2 position, as required, although, if Penke's data is to be taken into consideration, inflection errors, mixing specifically finite forms, are expected.

Finally, consider the behavior of children in identical contexts, studied by Zuckerman, Bastiaanse, & van Zonnenveld (2001). At first sight, it appears that children had as much difficulty as aphasics with the very same task, and as is illustrated by table 12:

	Children (*n=5*), ages 3-4		Agrammatics (*n=6*)	
	Correct	Incorrect	Correct	Incorrect
Matrix (VO)	37 (58%)	27 (42%)	51 (57%)	39 (43%)
Embedded (OV)	55 (89%)	7 (11%)	74 (82%)	16 (18%)

Table 12: Word Order and Inflection Correlation in the Speech of Agrammatic Patients and Children (from Zuckerman et al., (2001))

However, when Zuckerman et al., (op. cit.) analyzed the errors made by the two populations they uncovered a marked difference. Specifically, for aphasics, incorrect responses consisted mainly of finite verbs in a final position. For most of the children, however, the incorrect response involved the insertion of an inflected auxiliary in V2 together with leaving the non-finite verb in a final position. A comparison of the error types is given in table 13:

	V_{finite}-final error	Aux-insertion	V-omission	Other

[35] Bastiaanse et al. do not report on random inflection errors for inflected forms, and hence their ratio in the reported performance is not clear. We note, however, that as the task under consideration was a completion task, in which the patient was prompted to repeat the same verb form previously used by the examiner, that may significantly reduce the inclination to choose an inflected form at random.

Aphasics	21	0	14	4
Children	1	10	10	6

Table 13: Error types in Matrix Clauses for Aphasics and Children
(from Zuckerman et al., (2001))

The high error rate for aphasics as well as the frequent occurrence of an inflected form in a clause final position were already discussed, and accounted for by the presence of a structure with neither IP nor CP projected. Consider, however, the behavior of children. What is particularly telling is the fact that there is exactly one error involving the occurrence of a finite form in a clause-final position. Indeed, if the child does have a full functional structure, and if she fully knows that finite forms are, indeed, finite, such errors are not expected. When it is time to match a clause final verb with the correct phonological form, finite forms will be specifically avoided. In turn, the movement of the verb to C is likewise avoided. In the presence of a fully projected IP, such movement must pass through I, where it must support tense and agreement features, but the output of such movement gives rise to the need to select the appropriate phonological paradigm member, a task, which by definition, the child may not yet be able to accomplish. Instead, the child opts for a structure that allows her to have her cake and eat it too. An auxiliary, whose inflection must have already been acquired (and specifically, the auxiliary *doen*, 'do'), is inserted to bind the tense and agreement variables in I, and the main verb, whose phonological inflectional instantiations may not yet be fully known, is left in situ, as a non-finite form, circumventing the need to have a more articulated knowledge of the connection between phonological forms and feature realization. We do note that the children under investigation here are quite old, from the perspective of acquisition (ages 3-4), and hence the fact that they have already acquired the phonological instantiations of an auxiliary is not surprising. Bearing in mind again that the learning of paradigms is an incremental matter, it is clear that an early acquisition of the phonological instantiations of an auxiliary which can bind the functional variable in I while postponing the need to learn the full inflectional paradigm of main verbs has a clear heuristic advantage.

To conclude, then, while at first sight the data from German and Dutch appears to support a uniform account for the behavior of children and aphasics, a closer examination of recent findings suggests that the behavior is not the same. Rather, the behavior of the child strongly supports the existence of functional structure, while the behavior of agrammatic patients is best explained as involving impaired functional structure.

6. Conclusion

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 language behavior in the absence of 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 D-linking and no movement, directly accounts both for the early performance and for the actual developmental sequence.

Before concluding, it might be worthwhile to comment briefly on some of the theoretical ramifications of the account presented in this paper. We have assumed that the child is possessed with full competence, and specifically, that the child has full knowledge of functional structure. From the perspective of linguistic theory, such an assumption is compatible with several possible views. The first possibility is that the acquisition of functional structure is extremely early, and predates the avoidance pattern outlined here. While logically possible, that possibility cannot, at the present time, be substantiated by any empirical findings in the early grammar. The second possibility, which bears directly on linguistic assumptions, is that the inventory of functional projections is fixed and universal, and that no syntactic learning is required within that domain. This hypothesis is clearly the simplest and the most attractive one, as it hugely reduces the number of possible syntactic differences among grammars. In turn, if the inventory of functional projections is fixed and universal, morpho-phonological variations as well as variations in word orders attested across languages cannot be reduced to syntactic structure, and must be otherwise accounted for.

An intermediate position is also possible. We could suppose that the functional inventory is indeed universal and fixed, but that it consists of features, rather than projections. The child starts by projecting all functional features as functional structures, and then proceeds to *fuse* some of these representations, should it turn out to be the case that in her language some functional features share a functional phrase. This particular view, compatible with the grammatical model put forth by Giorgi and Pianesi (1997), predicts that the child would acquire bi-unique feature-structure pairs before more complex ones (e.g., *the* would be acquired before a portmanteau morpheme that realizes both tense and agreement). In English, interestingly, it would predict that the future tense will be easier to acquire than e.g. present tense 3Sg., the latter being a portmanteau morpheme realizing both tense and agreement. In the absence of known results within that area, we set this matter aside as an interesting topic for further research.

Finally, we note that if the inventory of functional projections, or for that matter, functional features, is a universal one, and if the system put forth in this paper is on the right track, then inter-language variation, indeed, intra-language variation is not just restricted to the functional domain (as argued by Borer, 1993, Chomsky, 1995), but even more narrowly, is restricted to the morpho-phonological aspect of the functional domain, narrowing even further the task of the language learner. In the system outlined here (and see also Borer (forthcoming)), it is the phonological nature of range assigners (independent grammatical formatives, abstract head features, D-linking) which in turn translates into a three-way distinction between movement of heads, null functional heads, or periphrastic constructions involving a functional head licensed through the existence of a grammatical formative, alongside an uninflected (or partially inflected) lexical head. That phonological representations must be acquired, and that they are language specific, goes without saying. Should it turn out to be the case that the bulk of grammatical variation, both language internally and across languages, can be thus accounted for, this would represent a significant simplification of the language acquisition task.

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