Getting verb movement*

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Abstract

Child language features a striking difference in root clauses between finite (auxiliary) verbs (in IP) and root infinitives and participles (in VP). Fronted nonfinite verbs are virtually never attested in child language. However, it is shown that there is no one-to-one correlation between position and inflection since finite verbs do not always front. It is argued that a derivational treatment in terms of verb fronting is the proper way to establish a relationship between the two verbal positions. Differences between developmental stages in Dutch, English, and French are accounted for by making crucial use of the status of T as a content-licensing head and the strength of the formal finiteness feature on the functional head T, and by exploiting the status of modality, aspect, and negation as heads potentially blocking movement from V to T. While special attention is paid to the separate status of auxiliaries in acquisitional and historical development, a novel perspective on linguistic change is sketched by relating data from verb placement in the developmental stages of French to verb-placement facts in the history of English. An integrated account of finiteness and verb fronting is provided to explain their inverse relationship.

1. Introduction

Inspection of child-language data from several languages leads to the generalization that root clauses with a finite verb on the whole feature the verb in some VP-external functional position, while nonfinite root clauses have their verbs inside VP. The dichotomy between finite and nonfinite forms is particularly salient in a verb-second language like Dutch. The data below (from Jordens’s corpus of Jasmijn’s utterances) illustrate it — root infinitives, (1), and root participles, (2), do not front to verb-second position (to the immediate right of the clause-initial

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constituent, which in child Dutch may be zero), whereas finite verbs consistently front, (3).

(1) eve poes aaie
    ‘just cat stroke’
  melk eve pakke
    ‘milk just fetch’
  papa pakke
    ‘daddy fetch’
Peter ook [s]pele
    ‘Peter also play’
poppehuis spele
    ‘dollhouse play’

(2) Bert au gedaan
    ‘Bert pain done’
  ikke ooievaar krece
    ‘I stork received’
  mama haartje wast
    ‘mommy hair washed’
  engeltje [ka]potmaakt
    ‘angel broken’
  ei omvald
    ‘egg dropped’

(3) kan niet open
    ‘can not open’
  moet daar in
    ‘must there in’
  ik kan het
    ‘I can it’
  dit heeft Cynthia
    ‘this has Cynthia’
  is-he nou?
    ‘is-he now’

The generalization appears to be that finite verbs are found in second position (P2), the position in which finite verbs are found in root clauses in adult Dutch, whereas nonfinite verbs show up in clause-final position (Pn).

(4) Generalization:
    ... P2[+FIN] ... Pn[−FIN]

Studies of the distribution of finiteness and verb fronting in child language have come up with a variety of accounts for this generalization.
These can be grouped into two overall classes. De Haan (1987) and Jordens (1990) represent hypothesis I, according to which finite verbs are generated in P2 and nonfinite verbs in Pn. They argue that these two positions are not derivationally related. Basically, all auxiliaries are consistently finite and always in P2, while thematic verbs find themselves in Pn (inside VP) in a nonfinite (infinitival or participial) form.

(5) Hypothesis I:
P2 and Pn are not derivationally related.

With respect to the base positions of verbs, proponents of hypothesis I assume that finite P2 verbs are base-generated in a position different from nonfinite Pn verbs; consequently, the set of verbs is divided into two separate classes. This hypothesis thus predicts that there is no overlap between the P2 pattern and the Pn pattern: a particular verb belongs either to the class of P2 verbs, showing up as a finite verb in P2, or to the class of nonfinite Pn verbs. From the perspective of hypothesis I the task that the child faces is to discover that the P2 and Pn positions are not specialized for particular verb classes, and that there is a process of verb-second.

As an alternative to hypothesis I one may envisage the view that P2 and Pn are derivationally related from the very beginning, that verbs are generated in Pn, and that verb fronting is instantiated from the earliest stages on.

(5') Hypothesis II:
P2 and Pn are derivationally related through verb fronting.

This hypothesis is represented most strongly by Wexler’s work. One of the approaches to the root infinitive problem that Wexler (1993) presents assumes that both root infinitives and finite verb forms move to Infl at some point in the derivation, but that the difference between the two is that, while finite verbs have a strong Tense feature and must front overtly, root infinitives have a weak Tense feature and procrastinate their movement to Infl until LF. In essence, then, root infinitives are looked upon as finite forms with a weak Tense feature; there is no fundamental difference between root infinitives and finite verbs. In the course of the language-acquisition process, the child has to generalize the occurrence of morphosyntactically finite verbs to all root clauses.

Theoretically, hypothesis II is to be preferred if only because it represents the standard analysis of verb fronting in the target languages. What the child has to learn in the process of the acquisition of verb placement is not that an initial assumption (hypothesis I) is to be given up in favor of a new assumption (hypothesis II); it must learn to cope with the way
in which hypothesis II is actualized in its language, in other words, what the scope and the actual application of verb fronting consist in.

On the empirical side, Poeppel and Wexler (1993) argue that the no-overlap hypothesis is factually wrong. From early stages on, nonauxiliary verbs appear both in P2 and in Pn. Jordens (1990), however, argues that certain classes of nonauxiliary verbs systematically appear in P2, in particular stative verbs, whereas dynamic verbs appear in Pn only. This distinction causes Jordens to adhere to the no-overlap hypothesis. But even if P2 verbs and Pn verbs were completely dissociated, it still need not follow that this dissociation is the result of different underlying positions; it might be derived from the fact that verb fronting appears to be sensitive to thematic and/or aspectual properties.

A major problem with an approach to the finite/nonfinite dichotomy along the lines of Wexler (1993) is that since hypothesis II assumes that P2 and Pn are derivationally related, there is no a priori reason to expect that the types of verbs showing up in P2 are different from those found in Pn. Still, the empirical facts show unequivocally that AUXILIARIES ARE ALWAYS FINITE AND ALWAYS FRONT TO P2. To answer questions a and b below, Wexler assumes that auxiliaries are base-generated in P2 (= Infl); here he follows the “no derivational relationship” hypothesis (i.e. hypothesis I).

a. why is AUX always in P2?
b. why is AUX always finite?

Wexler’s assumption is based on the standard analysis for English in which auxiliary verbs are base-generated in a functional projection (cf. note 11 below). However, for Dutch and German, the languages that Poeppel and Wexler discuss (and also for Old English; cf. Roberts 1993), there is no evidence that modal and aspectual verbs are different from nonauxiliary verbs with regard to their structural positions. We are going to take the opposite view here and assume that modal verbs and auxiliaries are always “normal” verbs, generated in a V-position; this is, of course, the null hypothesis. A construction consisting of an auxiliary verb and a nonauxiliary verb thus involves a complex structure containing two V-positions, which is the standard analysis of such constructions in the grammar of Dutch and German.

Now, while it is perfectly possible to say that auxiliaries are generated in P2 in child language, such an approach is not optimal, in at least three respects:

- It is a stipulation.
- It has to be unlearned in the course of development.
- It is based on a supposed correlation between position (P2) and inflection (finite).
Especially this last point is crucial. Wexler’s account predicts that the nonfinite forms never front overtly and finite verbs always do.

In this paper we argue that this prediction is only partially correct. While fronted root infinitives (or root participles) are essentially never attested, nonfronted finite verbs do occur. Table 2 in Poeppel and Wexler (1993) shows that out of 48 verbs that are not fronted to the V2 position, 11 verbs (23%) are nonfinite. This is also clear in child French, where 13% of the nonfronted verbs in the context of negation are finite. The lack of a strict correlation between finiteness and verb fronting is further emphasized by the facts of the diachronic development of English verb placement in negative sentences. In order to account for these facts we will provide an alternative explanation of the development of verb movement, using the following ingredients:
- P2 and Pn are derivationally related through verb fronting (hypothesis II).
- Auxiliaries are immobile at LF.
- There are dummy auxiliaries (cf. Boser et al. 1992).
- Variation between developmental stages is due to
  a. the strength of the [+FIN] feature of Tense.
  b. the status of Tense, Modality, and Aspect as verbal licensors.
  c. the occurrence of Negation as an intervening head.

2. No correlation between position and inflection: child French

In the earliest stage child French is similar to child Dutch in that lexical verbs appear as infinitives in a position different from the position of finite auxiliaries with respect to the negation marker pas. This is shown in (6). In a short-lived stage in the acquisition of verb placement in child French, finite lexical verbs may show up to the right of negation, which indicates that they are not overtly fronted to Infl. Some examples are given in (7) (for data and discussion, see Choi 1988; Pierce 1989; Weissenborn et al. 1989; Verrips and Weissenborn 1992; and especially Ferdinand 1996).3,4

(6) a. est pas gros
    is[+FIN] not big

b. pas tomber la poupée
   not fall [−FIN] the doll
Verrips and Weissenborn (1992)

a. pas joue le chat (Fab. 2;00;13)
   not plays[FIN] the cat
b. pas compte (Fab. 2;00;23)
   not counts[FIN]
c. pas chante moi (Benj. 2;02;18)
   not sing[FIN] I
d. pas met (Benj. 2;02;18)
   not put[FIN]

Choi (1988)

e. pas ferme (Adèle 2)
   not close[FIN]
f. pas range/arrive (Anne, 2)
   not clean-up/succeed[FIN]

Ferdinand (1996)

g. pas mets la 'teau (Nath. 2;00;01)
   not put[FIN] the coat
h. poupée pas mange (Nath. 2;03;02)
   doll not eat[FIN]

The problem that nonfronted finite verbs pose for Wexler's approach would be that verbs procrastinating their movement to LF can, for a certain period, occur both as root infinitives and as finite forms. This shows that nothing decisive can be concluded from a weak Infl-feature specification with respect to the surface form of the verb, which leaves a Wexlerian approach to the finite/nonfinite dichotomy in child language basically empty-handed.

An accurate analysis of the acquisition of verb placement in French should account for the following facts. Although finite verbs are attested from the very first acquisitional stages in French, we have seen that initially finite verbs are consistently auxiliaries. Thematic verbs start appearing with finite inflection around the age of two. But once it starts producing finite lexical verbs, the French child at first NEED NOT FRONT them to Infl in all sentence types; before systematically producing fronted finite lexical verbs, the child first goes through a stage in which it can place finite lexical verbs to the RIGHT of the negation marker pas 'not'. At that same stage, instances of nonfinite lexical verbs following pas are still relatively frequent. So, in the domain of thematic verbs the child starts out with root infinitives, then develops a pattern in which finite verbs can appear FOLLOWING the negator pas, and subsequently reaches the adult French pattern, in which pas consistently follows the finite
Table 1. *Child French verb placement and finiteness — summary*

<table>
<thead>
<tr>
<th>Pattern A</th>
<th>Pattern B</th>
<th>Pattern C</th>
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<tbody>
<tr>
<td>Thematic verbs</td>
<td>NEG–root inf</td>
<td>NEG–finite form</td>
</tr>
<tr>
<td>Auxiliaries</td>
<td>finite form–NEG (throughout)</td>
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lexical verb. **Auxiliary** verbs are a separate story — they are virtually always finite and precede *pas*. All this is summarized in Table 1.

Two important points are highlighted by Table 1: (i) it is *not* the case that finite thematic verbs front systematically as soon as they are acquired (see pattern B); and (ii) there is a very significant difference between thematic verbs and auxiliaries with respect to verb placement.5

3. **V-placement in the diachronic development of English in negative sentences**

The patterns of verb placement and finiteness that we tabulated for child French turn out to have a striking mirror-image counterpart in the history of English. This parallelism gives occasion to an integrated account of finiteness and verb fronting, covering both the acquisitional data discussed in the previous section and the diachronic facts to be outlined now.

They way in which sentential negation is expressed in English has undergone a number of changes in the historical development of the language. The development of English sentential negation can be summarized as in (8); a set of examples illustrating the various stages is given in (9):

(8) a. “classical” Old English: *ne*, always preceding the finite verb, (9a).

b. late Old English and throughout the Middle English period: *ne* strengthened by *not*; finite verbs placed between *ne* and *not*; (9b).

c. beginning in the late Middle English period, *ne* in the *ne ... not* periphrastic negation is commonly left unexpressed; finite verbs placed in front of *not*; (9c).

d. beginning in the fifteenth century, two parallel alternatives to (9c) (which continues to be in use up to the late seventeenth century) arise in the domain of lexical (i.e. nonauxiliary) verbs:
the inflected lexical verb follows *not*, (9d) (expires in the second half of the eighteenth century);
(ii) the uninflected lexical verb follows *not* while a finite form of the dummy verb *do* precedes *not*, (9e) (survives as the only way of marking clausal negation with lexical verbs; *not* develops an enclitic form *n’t*, [9c], from around 1600).6

(9) a. he ne sece[ð] ("classical" Old English)
b. he ne sei[ð] not (Middle English)
c. he says not (late Middle English → late 17th century)
d. he not says (early 15th century → second half 18th century)
e. he does not say (15th century → present)
e’ he doesn’t say (± 1600 → present)

In surveys of the historical development of English sentential negation, the fairly rare pattern exemplified by (9d) is often overlooked. Recent discussion of this pattern can be found in Denison (1993:449ff.), Roberts (1993:252, 303–304) and especially Ukaji (1993) and Beukema (1997). It was rare before 1500 and became moderately frequent in the work of Shakespeare and Jonson.7

Two interesting properties of the construction in (9d) and the "survivor" construction (9e) stand out:
– the patterns in (9d) and (9e) arise at roughly the same time;
– finite auxiliaries MUST end up to the left of the negation marker.

What is so interesting about negation in the Middle English and early Modern English period is that it traverses exactly the same stages that we discerned in the acquisition of French above. The survey in Table 2 should make this clear. As in child French, the constant factor in the development of English verb placement in main clauses is that auxiliary verbs always find themselves in a position in the inflectional domain of the sentence; thematic verbs in the history of English go through a development exactly opposite to that of thematic verbs in child French. In English, thematic verbs initially undergo overt movement as finite verbs and subsequently cease to move overtly, either remaining finite or surfacing as infinitives. In the acquisitional development of French the

<table>
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<th>Table 2. The diachrony of English verb placement and finiteness — summary</th>
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<tr>
<td>Thematic verbs</td>
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<td>Auxiliaries</td>
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opposite pattern is seen, thematic verbs starting out as root infinitives to
the right of the negation, then developing finite forms but initially still
optionally staying to the right of negation, and subsequently taking on
the properties of finite thematic verbs in the adult language, obligatorily
moving to the left of negation.

The diachronic development of English is characterized in (10a), and
the French acquisitional sequence in (10b).

(10)  
   a. Diachronic development of English lexical verb placement:
       \[ C \rightarrow A/B/C \rightarrow A \]
   b. Acquisitional development of French lexical verb placement:
       \[ A \rightarrow A/B/C \rightarrow C \]

Though being each other's converses, the two are highly parallel, not just
in the sense that in both the same three word-order patterns are discerned,
but in other, more subtle respects as well. Patterns A and C are at the
extremes of the developmental sequence in both cases, and pattern B is
unstable both in the history of English and in the acquisition sequence
of French. And moreover, in child French, A and B are both superseded
by C, all three patterns coexisting for some time; and in English, A and
B arise in tandem in the fifteenth century, at a point at which C's demise
starts, though, again, there is a transition period witnessing all three
options.

4. Analysis

4.1. Some basic assumptions

Our point of departure in our quest for an analysis of the verb-placement
patterns discerned in child language and the history of English will be
the combination of the hypotheses in (11) and (12):

(11) *Interpretive licensing of V:*
   a. V must be bound by a verbal licenser.
   b. Tense, Modality, and Aspect can be verbal licensers.⁸

(12) *Formal licensing of root clauses:*
   a. Root clauses have a [+FIN] T-position that must be licensed.
   b. [+FIN] can be either weak or strong.

The basic idea of (11) is that the categorial status of a lexical element is
not merely a lexical property, but rather is determined by structural
properties. A verb is a verb because the lexical element is bound by a
verbal licensor. In spirit this is rather similar to the theory of Tense-linking in Guéron and Hoekstra (1988) and Bennis and Hoekstra (1988).

It has been observed that the root infinitives of early child language typically receive a nontemporal interpretation (cf. Wijnen 1997). They bear the semantics of modality or aspect. We express this view in the structure in (13) by incorporating the functional projections ModP and AspP intervening between VP and the projection of Tense (which harbors [+FIN] in root clauses).\(^9\)\(^{,10}\)

(13) \[ \begin{array}{c}
TP \\
| \downarrow \\
T \\
| \downarrow \\
[+FIN] \\
| \downarrow \\
ModP \\
| \downarrow \\
Mod \\
| \downarrow \\
Asp \\
| \downarrow \\
AspP \\
| \downarrow \\
VP \\
\end{array} \]

... V ...

Let us first focus on the behavior of auxiliary verbs in child language. A robust constant throughout all the empirical findings is that auxiliary verbs, in contrast to nonauxiliary verbs, are systematically finite and always find themselves outside VP. We assume that all auxiliaries, just like lexical verbs, are base-generated inside VP as VP heads — in child language and modern English as well.\(^11\) Auxiliaries differ from lexical verbs in that, at all stages, they must front to the finite inflection position, REGARDLESS of the strength of the [+FIN] feature.

To account for the behavior of auxiliary verbs, we might follow Chomsky (1993) in assuming that these are invisible at LF. If we accept this, it would have two relevant consequences, listed in (14a) and (14b). LF invisibility accommodates the obligatoriness of overt movement of finite auxiliaries to the finite inflection position — after all, finite auxiliaries, like all finite verbs, have a V-feature to check against [+FIN] in T; their LF invisibility disallows them to procrastinate their movement until LF. (14a). The second consequence of Aux invisibility, (14b), furthermore explains why finite auxiliaries CAN so move. On the assumption that auxiliaries leave behind an invisible LF trace, movement of auxiliary verbs across intervening heads will not induce a violation of the head-movement constraint (if the HMC is taken to be a condition on LF representations; cf. Chomsky 1993).\(^12\)
(14) *Aux invisibility* (Chomsky 1993):
    Aux is invisible at LF; hence:
    a. no LF movement of Aux;
    b. the trace of Aux movement is invisible at LF.

Although Aux invisibility in (14) has the required properties to account for the behavior of finite auxiliary verbs, it seems to imply that auxiliary constructions are semantically equivalent to auxiliary-less constructions. However, it is evident that the presence of auxiliaries is not semantically vacuous. In keeping with a general line of thought in semantic theory, we believe that the semantic contribution made by auxiliaries is of a quantificational type (see Kratzer 1977; McDowell 1987; Brennan 1993; Postma 1995 for further details).\textsuperscript{13} We assume that the quantificational interpretation of modal verbs is determined by their surface position, as is the case with indefinite NPs (cf. Diesing 1988) and scope-bearing constituents.\textsuperscript{14,15} We may thus derive (14a) from the quantificational interpretation of auxiliary verbs, whereas (14b) follows if an auxiliary verb does not participate in the determination of the argument structure of the clause. In the spirit of Pollock (1989) we may say that the lack of \(\theta\)-assigning properties, that is, the absence of a functional base, causes auxiliaries to move without leaving a trace. We thus replace (14) by (15).

(15) *Aux at LF*

a. no LF movement of Aux (quantification);
    b. Aux movement leaves no trace (at LF) (no functional base).

Now that we have indicated why finite auxiliaries may and must move to T prior to SPELL-OUT, two questions remain: (a) why must auxiliaries be \textit{finite} in child language (and also in modern English), and (b) what happens in the case of lexical verbs?

The lexical domain is where variation comes in, and where we start to make crucial use of the variation in strength of the [+FIN] feature of T, and of the presence of heads intervening between T and V (cf. the structure in [13]). The strength of [+FIN] determines the presence or absence of movement of lexical verbs, while the presence of MOD or ASP (child language) and NEG (Modern English) determines whether lexical verbs may or may not move to T[+FIN].

4.2. *Root infinitives and do support: pattern A*

Let us first address pattern A in Tables 1 and 2 — the \textit{root infinitive} stage of child language (the initial acquisitional stage), and the present-day
English do-support stage in the diachronic development of English. The account is summarized below:

*Root infinitives: ... [+FIN] ... Licensing Head ... V*

(i) if V is NOT Aux:
- movement to [+FIN] results in a violation of the head-movement constraint, due to an intervening head (MOD or ASP);
- no movement before or after SPELL-OUT → V surfaces in nonfinite form;
- [+FIN] is licensed by an empty dummy element, as a last-resort strategy.

(ii) if V is Aux:
- movement to [+FIN] may take place without violating the head-movement constraint;
- movement to [+FIN] must take place before SPELL-OUT:
  a. because it cannot take place at LF (cf. [15]);
  b. because it prevents dummy insertion.

*Modern English do support: ... [+FIN] ... NEG ... V*

(i) if V is NOT Aux:
- movement to [+FIN] results in a violation of the head-movement constraint, due to an intervening head (NEG);
- no movement before or after SPELL-OUT → V surfaces in nonfinite form;
- [+FIN] is licensed by the insertion of the dummy do.

(ii) if V is Aux:
- movement to [+FIN] may take place without violating the head-movement constraint;
- movement to [+FIN] must take place before SPELL-OUT:
  a. because it cannot take place at LF (cf. [15]);
  b. because it prevents dummy insertion.

The root infinitive stage and the modern English do-support stage are characterized by the presence of an intervening head position blocking movement from V to T. In early child language the pertinent heads are MOD and ASP; in modern English only the NEG head causes an intervention effect. The presence of an intervening head prevents nonauxiliary verbs from raising to T at any point in the derivation at this stage — their movement to T would violate the HMC. As a consequence of the fact that nonauxiliary verbs cannot be linked to [+FIN] at any point in the derivation, they must be nonfinite. For Dutch child language this can mean either of two things (see [1] and [2], above): the lexical verb can be realized either as a root infinitive (in the case of a modal or a progressive aspect licenser) or as a root participle (in the case of a perfective aspect licenser).
This accounts for the nonfinite form of lexical verbs. What remains to be settled is how the [+FIN] feature of T can be saturated. We assume that this is brought about by the insertion of a dummy element in the MOD or ASP position, by way of a last-resort strategy (for an analogous approach, see Boser et al. 1992; Ferdinand 1996). This dummy element has two functions: it saturates the [+FIN] feature of T by moving from ASP/MOD to T, and it forces root infinitives to acquire an aspectual or modal interpretation (cf. Wijnen 1997). \(^{16}\)

This now allows us to answer the question of why it is that auxiliaries are always finite. Generating a nonfinite auxiliary in V in the structure in (13) would have to entail invoking the last-resort strategy, that is, generating a dummy in ASP/MOD to check T’s [+FIN] feature. While this is a grammatical strategy, it is a last resort, to be applied only if no less-costly derivations are available. But in the case at hand, a less costly derivation is in fact available: generating a [+FIN] auxiliary verb in V and raising it overtly to the corresponding licensing position — modal verbs move to MOD and aspectual verbs to ASP — before moving it to [+FIN], so that no recourse to the dummy insertion strategy in order to circumvent the head-movement constraint is necessary. Thus, economy ultimately forces auxiliaries to be finite (which, concomitantly, forces them to front to T in overt syntax). \(^{17}\)

In the simple root infinitive constructions of child language that we encountered in the previous discussion, the dummy inserted is null; it must be overt in modern English, however. Why should there be this difference between child language and modern English? Two things should be said in response to this question. First, it has been noted for several child languages that overt dummies ARE in fact attested in lexical verb constructions, as the following examples show. \(^{18}\)

(16)  a. (child English; Roeper 1991)
   I do wash my hands
   b. (child Dutch [2;05]; Evers and Van Kampen 1995)
   ik doe ook praten
   I do also talk
   c. (child French [2;00;01]; Ferdinand 1996)
   fait pas dodo bébé
   does not sleep-sleep baby

And second, the fact that overt dummy insertion is not obligatory in child language is in fact easy to make sense of in the light of the following observation. It has often been noted (by Rizzi, Wexler, and Wijnen, for example) that in early child language the concept of Tense has not been acquired yet — children do not make a present/past distinction; instead,
they locate events in time with the aid of aspectual means (using perfective aspect where adults would or could use past tense). We take this to mean that in early child language T does NOT belong to the class of content licensors. As a result, [+FIN] under T in early child language is nothing other than a feature that merely requires FORMAL licensing, not content licensing. It then suffices to insert an EMPTY element to check the [+FIN] feature. Since T has no semantic content yet, it does not cause interpretive confusion.

In modern English, T has semantic content — being a content licenser. The feature [+FIN], being an instantiation of T, hence will require not just formal licensing but CONTENT licensing as well. LEXICALIZING [+FIN] is the way to bring about content licensing. In auxiliary verb constructions, the finite auxiliary will lexicalize T; due to the invisibility of Aux (cf. [15]) no HMC violation occurs in negative clauses. In constructions lacking the NEG projection, there will be LF movement of the finite lexical verb to T. But in NEGATIVE constructions there is no lexical verb that could move to T (before or after SPELL-OUT), since moving a lexical verb to T across NEG results in a violation of the HMC. In such constructions, dummy do is the only candidate to lexicalize T.

On our analysis, the root infinitive stage of child language corresponds exactly to the English pattern of do support in negative sentences. In both cases an intervening functional head blocks movement of lexical verbs to T. Child language and modern English differ in the nature of Tense: in child language Tense is not a content licenser, whereas in Modern English it is. In what follows, we turn first to the acquisitional development, from the root infinitive stage onward, and then return to English diachrony.

4.3. Development from the root infinitive stage

The development in child French from the root infinitival stage to patterns B and C in Table 1 involves one major change:

- the semantics of tense is introduced under the T-node; concomitantly T becomes a content licenser.

This change is the major step toward the adult grammar that the child has to take. T must now be made visible at some point in the derivation; the null dummy strategy is no longer available. The presence of Tense as a content-licensing category allows ASP and MOD to be absent (cf. [11]), thereby allowing the lexical verb to move to T, without a violation of the HMC. Once Modality and Aspect lose their exclusive licensing status, FINITE LEXICAL VERBS start to appear. It is then a matter of the
strength of [+FIN] in T that determines whether these finite lexical verbs raise overtly or covertly:

if T [+FIN] is weak:
   – (finite) Aux is moved to T before SPELL-OUT (due to its LF properties);
   – (finite) Vlex is moved to T at LF.

if T [+FIN] is strong:
   – all finite verbs are moved to T before SPELL-OUT.

What we are now left with is the question of why, in the development of French, German, and Dutch, finite verbs initially may stay inside VP for a period of a few months, before being obligatorily fronted to T. Given the layout of the analysis, this is now easy to understand. All we need assume is that, as is plausible, the default or initial value of the strength of T [+FIN] is weak.

To recapitulate the changes obtaining after the demise of pattern A, we have argued that the change from A to B and C involves a reinterpretation of the Tense/Modality/Aspect system, such that Tense is given a proper meaning and starts to demand lexicalization. This change facilitates movement of finite lexical verbs to T; the point at which they move depends on the strength of T — weak in pattern B, strong in pattern C.

4.4. Development of English

In the diachrony of English, just as in the acquisitional sequence of French, we find patterns A and B living happily together for some time (roughly, two centuries). They arise at a time at which pattern C, the Old English pattern, is already on its way out. The change from C to B and A in English diachrony involves the weakening of the [+FIN] feature of T — at stage C, T is strong; patterns B and A are both characterized by weak T. B and A differ with respect to the status of negation; since B and A are not “competitors” with respect to the strength or weakness of a particular inflectional feature, they readily coalesce. NEG eventually firmly established its status as an intervening head in English, pattern B disappearing from the grammar.

4.5. Pattern B

Another conclusion that our integrated approach to language acquisition and diachronic language development gives rise to is worth mentioning
in closing. A position that one might be tempted to entertain for the French V-placement data is that pattern B in Table 1 reflects an acquisitional stage in which the finite forms following the negation marker are not recognized or treated as finite forms but as nonfinites instead.21 Such a view is not implausible a priori; in fact, as Ferdinand (1996) observes, the apparently finite form met ‘puts’ can be found to the right of auxiliaries in Nathalie’s corpus (see ‘tacha va met ‘Natacha will put’; Nathalie 2:03:02). But, as Ferdinand also points out, the other two finite forms that are found following pas in Nathalie’s utterances, s’en va ‘goes away’ and mange ‘eats’, are not attested to the right of auxiliaries. This in itself already suggests that it would be wrong to assume that the apparently finite forms following pas are nonfinite. However, given the integrated approach that we have taken in this paper, we can substantially strengthen the case against a nonfinite treatment of lexical verbs occurring in pattern B. After all, we have observed that in the history of English, pattern B is found as well. Now, while for child French there are perhaps a few indications that might lend support to treating lexical verbs in pattern B as nonfinites, carrying over such an approach to English diachrony clearly makes no sense. The English B pattern indubitably involves finite lexical verbs to the right of the negation marker. Our integrated outlook on the development of V-placement thus allows us to narrow down the analytical options for pattern B in child French to precisely one.

5. Conclusion

Summing up, then, we have seen that the diachronic development of verb placement in English negative sentences runs remarkably parallel to the acquisitional development of verb placement in child language, albeit in precisely the opposite direction. We have characterized these developments with the aid of three loci of variation: (i) the status of Tense as a content licenser, (ii) the strength of the [+FIN] feature of Tense, and (iii) the status of Negation as a verbal head intervening between T and V. This resulted in the following picture:

Diachronic development of English:

C  [+FIN] = strong; NEG is not an intervening head.
B  [+FIN] = weak; NEG is not an intervening head.
A  [+FIN] = weak; NEG is an intervening head.
Acquisitional development of French, German, and Dutch:

A [±FIN] = weak; MOD and ASP are intervening heads; T is not a content licenser.
B [±FIN] = weak; T is a content licenser.
C [±FIN] = strong; T is a content licenser.

The analysis that we have developed in this paper lends support to the quantifier status of auxiliaries. We have argued that auxiliaries cannot undergo LF movement as a consequence, and that their traces are LF-invisible. The latter assumption allowed us to accommodate movement of auxiliaries across intervening heads of the type NEG — since the moved auxiliary leaves an LF-invisible trace, no effect of the head-movement constraint is incurred by auxiliary movement across these intervening heads. We have thus incorporated Pollock’s (1989) original insight that certain elements block V-raising.

Another aspect of our analysis is that we have provided arguments to dissociate formal licensing from content licensing; this distinction corresponds roughly to Chomsky’s distinction between functional heads that are narrowly L-related and heads that are not L-related. This made it possible for us to account for the difference between lexical and auxiliary verbs with respect to V-movement to T, both in child language and in the diachronic development of English. Although the factors involved are different — absence of TENSE as a content-licensing head in early child language and the presence of NEG as an intervening head in Modern English — the dissociation between auxiliary and nonauxiliary verbs can be accounted for along similar lines.

We hope to have shown in this paper that the unification of ideas drawn from different empirical domains — child language and the diachrony of English — can be elegantly accomplished in a theory in which sentential structure is characterized by the presence of functional projections.

6. Addendum

Poeppel and Wexler (1993) observe that root infinitivals in Dutch and German never allow for preposing of nonsubjects (see also Boser et al. 1992; Phillips 1995). The minimal pair in (17) illustrates this.

(17) a. daar slaapt visje
   there sleeps fish
b. *daar visje slapen
   there fish sleep
The fact that non-subject-initial root infinitival clauses are not attested at all is not immediately expected on the approach to the structure of root infinitival constructions taken here. Rather than constituting an argument against our approach, however, the fact that utterances like (17b) are altogether absent can in fact be seen to lend support to our analysis.

Let us assume that movement of a nonsubject to SpecCP WITHOUT concomitant movement from I to C violates the shortest-movement condition of Chomsky (1993). Movement of I to C extends the domain for movement — it makes SpecIP and SpecCP equidistant as targets for movement and is hence obligatory whenever movement of a nonsubject to SpecCP across SpecIP takes place. Adding this together, we would predict (17b) to be possible. After all, root infinitive constructions on our analysis involve the base-insertion of a null dummy in ASP or MOD, which is moved to the T-position to check [+FIN]; since [+FIN] in V2 languages is base-generated in C (cf. Den Besten 1977; but see Zwart 1993 for an alternative account), movement from I to C takes place in root infinitival constructions. Chomsky’s (1993) locality theory, extended to A’-movement to SpecCP across SpecIP, seems to incorrectly predict that (17b) is grammatical.

However, it can be shown that a theory that is crucially based on movement from I to C in order to extend the domain for movement makes wrong predictions anyway. It would lead us to expect that we will find a difference between the appearance of subject-wh questions and other wh questions. Such a theory thus predicts that subject-wh questions in Dutch and German root infinitives do not violate locality, in contrast to non-subject-wh questions, since movement from SpecIP to SpecCP is strictly local. However, we do not find wh questions in root infinitives at all. This implies that in root infinitives subject movement to SpecCP violates locality as well.

We may account for the ungrammaticality of subject questions by assuming that the subject is moved from SpecVP to SpecCP across SpecIP. It is not evident at all, given the lack of agreement, that the subject is moved to SpecIP in root infinitives. If we assume that in root infinitives the subject position (SpecIP) is present, but devoid of features for the subject to check, movement of the subject to SpecCP would involve a violation of locality. A similar account can be given for the nonoccurrence of (17b) and nonsubject questions: movement from within VP to SpecCP violates locality, unless the verb has been moved from V to I to C (before or after SPELL-OUT).

A prediction our theory makes is that we expect the lexical dummy (cf. [15b]) to behave just like the empty dummy. However, in contrast
to root infinitival clauses, we do find topicalization and question formation in the case of dummy DO in Dutch, as is shown in the examples in (18), taken from Evers and van Kampen (1995).

(18) a. Topicalization
dat doe ik spelen
that do I play
b. Wh question
wat doe jij zeggen?
what do you say

We cannot take dummy DO to be inserted in ASP or MOD because this entails that the sentences in (18) constitute a violation of locality, just as in (17b). Instead, we will take dummy DO to be an aspectual light verb inserted in the V-position. The properties of DO as an auxiliary verb allow DO to raise to I, and subsequently to C. This extended verb movement allows corresponding movement of both subjects and non-subjects to SpecCP.

Extending Chomsky’s (1993) idea of domain extending head movement immediately provides us with an analysis of the distribution of do support in English wh questions. As is well known, English questions require do support unless the subject is questioned. This is shown in (19):

(19) a. who *(did) he see?
b. who left?/*who did leave?

Movement of do from V-to-I-to-C is necessary in (19a) to allow movement of the nonsubject to SpecCP across SpecIP. If I-to-C implies do support in (19a), then why doesn’t (19b) require do support as well? After all, facts like those in (20) show quite unequivocally that who in (19b) occupies the same position as who in (19a) (cf. Rigter 1987):

(20) a. probably John left
b. *probably who left?

If who in (19b) occupied the same position as John in (20a), that is, SpecIP (cf. Chomsky’s 1986 vacuous movement hypothesis), we would expect it to be possible to adjoin probably to the left of the IP [who left]. The ungrammaticality of (20b), and in particular the contrast between (20a) and (20b), indicate that who in (19b) occupies a position different from that of John in (20a). But if in (19a) and (19b) who occupies SpecCP, why does do support take place in (19a) only? The approach sketched above provides an answer to this question. In finite clauses the subject is moved from SpecVP to SpecIP to check agreement features. Movement from SpecIP to SpecCP is strictly local. Hence, I-to-C move-
ment is not required in (19b) to extend the domain of application of \textit{wh} movement. By economy, 	extit{do} support is then effectively prohibited, as required. In the case of object questions, on the other hand, domain extension by head movement of dummy \textit{do} from V-to-I-to-C is necessary in order to prevent a violation of locality. This explains the need for \textit{do} support in (19a).

We thus take the interaction of topicalization and root infinitives in Dutch child language to be analogous to the interaction between question formation and \textit{do} support in English.

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\textbf{Notes}

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1. In Jordens’s data, dynamic verbs such as \textit{drink} ‘drink’, \textit{pakken} ‘get’, \textit{slapen} ‘sleep’, and \textit{krabben} ‘scratch’ appear both in P2 and in Pn. The fact that these verbs may appear in both positions would seem to support the correctness of hypothesis II. What remains to be explained is why stative verbs are easier targets for verb fronting than dynamic verbs. This might be related to properties of the aspectual verbal licenser (cf. section 4).

2. Poeppel and Wexler argue that these cases are really exceptions that do not require an explicit account. Even if some of these cases — and in particular those cases in which a finite verb is in P1, instead of P2 (cf. Poeppel and Wexler 1993: [7]) — are to be disregarded, the number of finite verbs in nonfronted position is significantly larger than the number of nonfinite verbs in P2 (3%).

3. Pierce’s (1989) count of the various types of verb placements and inflectional forms is reproduced below. While of the verbs preceding \textit{pas} only two out of a total of 187 are nonfinite (1%), 13% of all verbs following \textit{pas} are finite — not at all a negligible sum.

\begin{tabular}{lcc}

[+ FIN] & \hspace{1cm} & \([-\text{FIN}] \\
\textit{pas} & 11 & 77 \\
V–\textit{pas} & 185 & 2
\end{tabular}

4. Of course, one might argue that the position of the negation marker \textit{pas} in child French differs from the position of \textit{pas} in adult French. We might attempt to find an explana-
tion for the examples in (7) by assuming that *pas is left-joined to the clause, in which case the finite verb may be raised to the Tense position. Aside from being a marked analysis that has to be supported by independent considerations, an explanation along these lines would leave us empty-handed with respect to the observation that pas consistently follows auxiliaries, as in (6a): the fact that we do not find *pas est gros indicates that pas should not be analyzed as a left-dislocated element. Moreover, we would also be led to expect (7h) to be realized as pas pouée mange, at least as a possibility. The fact that we do not find pas in front of auxiliaries and subjects indicates that it is the finite lexical verb and not pas that causes this difference with adult French.

5. Although we do not expect (the development of) adult French and child French to proceed along identical tracks, there is nevertheless an intriguing parallel between child French and adult French with respect to negation. As Pollock (1989) has noted, in adult French, nonfinite auxiliary verbs may appear before or after pas, whereas infinitival lexical verbs systematically follow pas. It is not clear to us why finite lexical verbs in a short-lived stage in child French behave similarly, with respect to pas, to auxiliary infinitival verbs in adult French.

From the literature on the diachronic development of French (cf. de Kok 1985; Pearce 1990; Roberts 1993) it appears that French negation develops in the same way as English negation (cf. section 3) in many respects. The negative clitic ne in OF was optionally accompanied by a negative adverbial. The main negative element was ne. The verb — infinitival or finite, lexical or auxiliary — always follows ne (cf. [8a]). Pas and other negative adverbials, such as mie, if present, consistently follow the finite verb (cf. [8b]). In recent stages of spoken French ne can be left unexpressed (cf. [8c]). Apparently, the focus of negation has been shifted from ne to pas, as it has from ne to not in English.

The development of French also shows variation in the position of nonfinite verbs with respect to pas. In Old French it appears to be impossible for negation to be internal to infinitival clauses (Pearce 1990:251). In Middle French the infinitival verb generally preceded pas and other negative adverbials, although the order Adv[NEG] – V[INF] is attested as well (Pearce 1990:284). In modern French only auxiliary verbs show this kind of variation. Again, there is no obvious way to relate the observations concerning the development of child French to the diachronic development of French. As far as we know, there is no period in the history of French in which a finite verb follows the negative element pas, as in *Il pas mange.

6. Kroch (1989) observes that the rise of do support in negative clauses lags behind that in interrogatives; he and Roberts (1993:305) relate this to the idea that not is initially a nonhead not blocking V-raising, acquiring head status only around 1600 (see [9e']). The fact that negative do behaves differently from question do corroborates our analysis, in which the two types of do support are distinguished; see section 6 for discussion.

7. Roberts (1993:304) notes that “all the 15th-century occurrences of this order given in Visser (§1440, p. 1532) have either subject gaps or pronominal subjects,” which suggests to him that these examples involve stylistic fronting of not. They should be kept distinct from the later instances of the not–Vfin pattern, which are no longer (consistently) amenable to a stylistic-fronting type approach. See for instance the following examples of the not–Vfin pattern with nonempty, nonclitic subjects (from Ukaji 1993:454):

(i) a. My young nouice (what euer thou be) not yet crete out of the shell (Nashe, Christes Teares, 16th c.).
   b. For who not needs shall never lack a friend (Shakespeare, Hamlet III.i.207).
8. This set of verbal licencers corresponds to the set of verbal affixes that are found in many languages, including creole languages. This system of verbal affixes, often called the “TMA system,” is discussed at length in Bickerton (1981).

9. We will not concern ourselves with the status and position of agreement projections in this paper. Agreement plays no criterial role in the changes (historical and acquisition) inventoried in the above (but see Clahsen 1986; Wexler 1993). This is shown in Schäufele (1994) for English diachrony and Ferdinand (1996) for French child language: “there is no difference in morphological agreement between the verbs that precede pas and the ones that follow it” (1996: chapter 3, section 3.4); also see Roberts (1993) on the role of T in the development of English do support.

Since the status of agreement plays no role in our analysis of the acquisitional development of verb placement, we are not led to expect any direct correlation between the occurrence of empty subjects and verb placement (such that root infinitival constructions and constructions with nonfronted finite verbs lack overt subjects). Such direct correlations indeed do not seem to exist (see Phillips 1995). All three patterns inventoried in the above are attested with full nominal subjects in child French, and constructions with finite verb fronting can readily occur without an expressed subject (cf. *tachouvrir ‘Natacha open[−FIN]’; poupée pas mange ‘doll not eat[+FIN]’; est pas gros ‘is[+FIN] not fat’; data from Ferdinand 1996).

10. We will not concern ourselves here with the precise hierarchical ordering of the functional projections in (13).

11. Kayne (1989:14) presents an argument against the widely held view that English modals originate in an inflectional position above negation. Observing that constructions like *He’ll not do it are ungrammatical for most speakers, he points out that the deviance of such forms would be impossible to make sense of if the contracted modal originated above not. If, on the other hand, the modal is base-generated in V, the ungrammaticality of forms like this can be understood (from Pollock’s 1989 perspective) on the assumption that contracted modals, when moving up from V to T, are unable to L-mark NegP, which hence remains a barrier and will block antecedent government of the modal’s trace. If this line of argument shows that contracted modals originate in V, the null hypothesis is that their noncontracted counterparts are also base-generated below Inf.

12. Chomsky’s suggestion that auxiliaries are LF-invisible is problematic in two respects. First, the existence of nonraised nonfinite auxiliaries in languages like Dutch and French points to the possibility of LF-raising of auxiliaries if nonfinite verbs must also move to T in the course of the derivation. From our account in section 4.2, however, it is evident that we believe that nonfinite verbs never raise to T. A second problem comes from the fact that in Mainland Scandinavian all finite verbs, including auxiliaries, follow negation and other adverbial material in finite embedded clauses. However, it might be argued that in these languages T follows NEG. Hornstein and Lightfoot (1993) for instance argue that the word order in embedded clauses in Mainland Scandinavian “indicates that inte ‘not’ and other such adverbs occur to the left of I at D-structure and does not provide evidence against the application of V-to-I.”

13. Modals are assumed to quantify over possible worlds. A modal like may in epistemic John may come is an existential quantifier; what John may come means is something like ‘there is an accessible possible world such that the proposition “John is coming” is true’. A modal like must, on the other hand, is a universal quantifier over possible worlds; John must come is paraphrasable as ‘for all (accessible) possible worlds the proposition “John is coming” is true’. The distinction between epistemic and deontic modality is usually held to be caused, in proposals along these lines, by the different
types of possible world supplied by context (see Barbiers 1995; thanks to Sjie Barbiers for helpful discussion).

14. Modal semantics may even arise in constructions lacking modals — cf. especially the Dutch “modal passive” (Dat boek is niet te lezen ‘that book is not to read’, i.e. ‘is impossible to read’; cf. Bennis 1990; Mulder and Den Dikken 1992; Postma 1995); this lends support to the idea that at least part of the modal interpretation is configurationally rather than lexically defined.

15. There are other cases in which quantificational interpretation is determined by configurational properties after movement has taken place. Moving indefinite NPs out of VP results in a specific interpretation (cf. Diesing 1992). A very clear case is the Dutch pronoun wat (Postma 1995; Bennis 1995); within VP wat can only be interpreted as an indefinite pronoun. Moving it out of VP makes wat either a question word or an exclamative. If traces are relevant, it is unclear how these differences in interpretation can be established.

16. Poeppel and Wexler (1993: section 4.5) explicitly argue against an analogous “modal drop” hypothesis. Their argumentation does not go against our hypothesis since we do not assume the empty auxiliary to be modal exclusively. It might just as well be an aspectual dummy, indicating a perfective or progressive aspect.

17. Some care is needed to ensure that the two derivations compared in terms of economy can be legitimately compared. Are the derivation with a [−FIN] modal and the derivation with a [+FIN] modal built on the basis of the same “numeration” (in the sense of Chomsky 1995)? We are led to believe that they are; if they were not, they would not belong to the same reference set, and neither would ever be more or less economical than the other.

18. See also Roberts (1993: 288–290) on Middle English, Middle High German, Middle Dutch, and contemporary southern German dummy do, and Roberts (1993: 307–308) and references cited there on dialectal English dummy do. Roberts notes that in most cases the use of the dummy auxiliary is not entirely semantically vacuous — the dummy often seems to make an aspectual contribution of sorts.

The fact that the lexical dummy disappears from Dutch and French and remains visible in negative clauses in English only, follows from the fact that DO insertion is the lexical reflex of a last-resort operation that disappears from the languages in question, due to the introduction of T as a content licenser of verbs.

19. An apparent problem for our hypothesis that in early child language the concept of Tense has not been acquired yet is the fact that Japanese verbs are inflected for Tense from the very earliest stages on, even though at first they do not front to T. In his study of the acquisition of Japanese negation, however, Sano (1994) argues that “finite forms of Consonantal Verbs are taken as non-finite in early Japanese negation.” If this is correct, the Japanese facts do not undercut the account presented here.

20. It should be clear that the trigger for T to become a verbal licenser is distinct from the trigger that causes [+FIN] to change from weak to strong. In our view T becomes a verbal licenser as a consequence of the conceptualization of Tense. In general, we believe that non-L-related functional projections become operative only after the concept has been internalized. Apparently the concepts of Aspect (completed — non-completed) and Modal (realis — irrealis) are conceptualized at an earlier stage than the concept of Tense.

21. As a reviewer observes, there are a few examples in Dutch in which an infinitive appears to be fronted. An example is given in (i):

(i) poesje eten brokjes
    pussy eat dried catfood
Such an extremely rare example might be considered the opposite of the nonfronted finite verbs that we find in child language. As such, it would be a counterexample to all analyses of verb movement, including ours.

One way to deal with counterexamples like (i) might be to suggest that the verb is finite and there is a lack of agreement, i.e. the subject is singular and the verb is plural, in which case (i) would be an instance of number disagreement. It should be obvious that more examples of the type in (i) have to be considered in order to determine their status.

22. We may take the SpecIP position in root infinitives to be occupied by an empty element pro. This pro will develop into an expletive pronoun.

References


Boser, Katharina; Lust, Barbara; Santelman, Lynn; and Whitman, John (1992). The syntax of CP and V-2 in early child German. In NELS 22 Proceedings, 51–65. Amherst, MA: GLSA.


Poeppe1, David; and Wexler, Ken (1993). The full competence hypothesis for early German phrase structure. Language 69, 1–33.


Verrips, Maaike; and Weissenborn, Jürgen (1992). Routes to verb placement in early
German and French: the independence of finiteness and agreement. In *The Acquisition of

Brill.

Weissenborn, Jürgen; Verrips, Maaike; and Berman, Ruth (1989). Negation as a window to
the structure of early child language. Unpublished manuscript, Max Planck Institute,
Nijmegen.

Wexler, Ken (1993). Optional infinitives, head movement and the economy of derivation in
child grammar. In *Verb Movement*, Norbert Hornstein and David Lightfoot (eds.).
Cambridge: Cambridge University Press.

Interpretation of Root Infinitives and Bare Nouns in Child Language*, Jeanette Schaeffer