Little Words
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A CENTRAL FOCUS of research in child language has been the acquisition of functional elements such as determiners and auxiliaries (see, e.g., Lust 2006, chap. 9, for a recent review). Early studies proposed that child speech is “telegraphic,” that is, it consists mostly of content words such as verbs and nouns, which are essential to communication, while usually lacking function words (e.g., Brown 1973). The following two examples from child English illustrate what is usually referred to as telegraphic speech; in parentheses are possible functional elements that would render these utterances targetlike.

1. (does) papa have it?  
   (Eve I, Brown 1973, 207)

2. Adam (will) put it (in) (the) box.  
   (Adam I, Brown 1973, 205)

Telegraphic speech, or the ostensible absence of functional elements, has been widely discussed in the first language acquisition literature and has been claimed to be universal across languages (e.g., Brown 1973 and references therein). Specifically, the functional elements that are the focus of this chapter, that is, auxiliaries and modals (henceforth referred to as “auxiliaries”), have been claimed to be absent across child languages, for example, in early child English (e.g., Radford 1990), Dutch (e.g., Wijnen 1996/1997), or French (e.g., Schlyter 2003).

Numerous proposals have been offered to account for the ostensible absence of functional elements from early productions. Two major attempts to explain child “telegraphy” have consisted of proposing perceptual threshold limitations or deficient grammatical representations. The perceptual limitations view is based on the fact that, in contrast with content words, function words usually have shorter vowel duration and lower amplitude, fewer syllables, and simpler syllabic structure (e.g., Shi, Morgan, and Alloopena 1998), and thus are less salient. Given this reduced acoustic phonetic salience, it has been proposed that children might simply fail to perceive or represent functional items in the speech they are exposed to (e.g., Gleitman and Wanner 1982; Echols 1993). Another attempted explanation is that the apparent absence of function words from early productions reflects a deficit in syntactic representations.
Here accounts range from proposals arguing for the complete absence of grammatical representations to proposals arguing for some specific grammatical deficit. For example, learner-based accounts such as Tomasello (1992) argue that young children lack grammar altogether. Some scholars suggest that children start out with a semantically based system and only later switch to a syntactically based one (e.g., Bowerman 1973; Gleitman 1981). Still others believe that the impoverished production of functional elements reflects a grammatical system that is radically different from adult grammar (e.g., Braine 1963). Within the generative paradigm, it has been proposed that early language is characterized by the general absence of functional categories and their projections (e.g., Radford 1990) or by the absence of specific functional categories (e.g., Hoekstra and Hyams 1999; Schlyter 2003; Schutze and Wexler 1996).

However, in spite of these long-standing views concerning functional items, a growing body of research argues that children’s seemingly impoverished productions represent only an incomplete picture of their underlying grammatical competence. For example, examination of infants’ and toddlers’ comprehension indicates that they are sensitive to function words even before they produce these items (e.g., Gerken, Landau, and Remez 1990). Young children may in fact use functional elements to determine the syntactic category of the accompanying content words (e.g., Höhle et al. 2004; Kedar, Casasola, and Lust 2006). In a similar vein, a number of production studies reveal evidence for toddlers’ knowledge of grammatical operations that depend on functional categories and their projections (e.g., Demuth 1992; Dye et al. 2004; Lust 1999, 2006; Whitman, Lee, and Lust 1991). Another growing line of studies argues that, at early ages, functional categories may be realized as “filler” vowels. Despite initial uncertainty regarding the status of filler vowels, more recent studies indicate that these behave as proto-functors (e.g., Bottari, Cipriani, and Chilos 1993/1994; Demuth and Tremblay 2007; Pepinsky, Demuth, and Roark 2001). Fillers (or rather, proto-functors) occur in sentential slots where functional items are expected but have nontarget phonetic features, often taking the form of a reduced vowel (e.g., a schwa). Work on fillers suggests that functional categories may be present in syntactic representations early on, even though their initial overt realizations may diverge considerably from target forms. The status of functional elements in child language thus continues to pose a challenge to the field, and further investigation is needed to illuminate the way in which children acquire this fundamental part of the grammar.

The Present Study
This study, which is part of a larger investigation reported in Dye (2005), examines the status of one category of functional elements, namely auxiliaries, on the basis of a new corpus of child French. In contrast to much previous work, I argue that early productions are not as impoverished as typically assumed and that children might have greater grammatical knowledge than previously thought.

Data and Methods
The data for this study are from the Dye 2005 child French corpus. This consists of more than 5,000 child utterances based on cross-sectional natural speech samples con-
taining 3,438 verb clauses; the high verb density provided for robust analyses. The participants were eighteen normally developing French monolingual children, with ages ranging from 1;11 to 2;11 (mean age = 2;5). The children were recruited through day-care centers in Paris and Nancy, France, and were interviewed individually in a quiet room. Average interview length was thirty minutes.

My primary goals in compiling this new corpus were (a) to ensure the availability of discourse contexts for the linguistic structures under investigation, namely, verbs and auxiliaries, (b) to facilitate comparability among speech samples from different children, and (c) to ensure the audio quality necessary to capture functional items. To ensure that children had ample opportunity to produce the targeted items, I selected a set of activities, toys, and conversation topics that trigger utterances with verbs and auxiliaries. To render the speech samples obtained from different children more comparable, I attempted to standardize as much as possible several aspects of the interview process, namely, conversation topics, games, toys, interviewers, interviewer training, and interview location.

The sessions were videotaped. Also a separate audio-recording setup was used to ensure the audio quality necessary to capture functional items. A Sharp IMMT880 digital minidisk recorder and Soundman OKM binaural stereo condenser microphones were used. The recorder attached to the interviewer’s belt, and a pair of microphones was worn in the interviewer’s ears, like headphones. This new audio-recording setup offered several advantages. First, it was mobile, allowing proximity to the child at all times. Second, it was unobtrusive, thus not distracting or intimidating the child. Third, the recorder quality made it possible to clearly capture children’s voices even when they turned away or whispered. Fourth, the microphones were designed to capture sonic information in a manner similar to the human ear, thus producing very realistic recordings. Fifth, the microphones worked on phantom power from the recorder, thus eliminating the noise associated with a powered microphone.

The recordings were digitally edited using Cool Edit to enhance the children’s voices in relation to the background noise. The interviews were then transcribed with WAVpedal 5.0, transcription software that allows transcription directly from the computer, without going through analog and thus avoiding loss of quality. Audio samples were transcribed by trained native speakers and checked by the author, all of whom were present at the interviews. Transcription was carried out using French orthography. Where necessary, transcription and coding referred to spectrographic analyses carried out in Praat. Coding followed systematic procedures based on the Cornell University Virtual Linguistics Lab Research Methods Manual (Lust, Blume, and Ogden, forthcoming). In particular, utterances like Spot va/veut partir “Spot is gonna/wanna leave” were coded as consisting of a single verb clause. Although traditionally considered biclausal (e.g., Jones 1996), I treat strings like va/faut/veut/peut/infinitive “gonna/gotta/wanna/can + infinitive” as monoclausal because they are very common collocations in Colloquial French. Schlyter (2003, 21) makes a similar point based on the fact that “all these elements, in their most unmarked form (a, e, va, veu, peu, etc.) are used in very early stages both by children and adult learners, as markings of TMA (tense, modality, aspect)."
Findings
The eighteen children studied produced a variety of auxiliary types and forms, as exemplified later. The specific types of auxiliaries observed in children’s speech samples, in decreasing order of frequency, were the past tense auxiliaries *avoir/être* “have/be,” the immediate future auxiliary *aller* “gonna,” the modal auxiliaries *pouvoir* “can,” *vouloir* “wanna,” and *falloir* “gotta.”

There was also a range in the surface realizations of auxiliaries. I begin by presenting examples with target auxiliary forms (i.e., child forms that match the target form in the adult language). Next I illustrate nontarget auxiliary forms and then filler auxiliaries. Before concluding, I also present utterances where the auxiliary is missing but that nevertheless evidence phonetic traces of the missing auxiliary.6

**Target Auxiliaries**
Examples of utterances with target auxiliaries are provided in (3) through (7).

3) l’éléphant i *peut* pus, i *peut* pus tomber  
“the elephant he *can* no-longer, he *can* no-longer fall-INF”  

4) *vais* l’enver ça  
“am-gonna it remove-INF this”  

5) je *vais* mett’ ça  
“I am-gonna put-INF this”  

6) oh, a perdu son pied  
“oh, has lose-PRT his foot”  

7) *veux* enver ss . . . euh . . . la saise  
“wanna remove-INF ss . . . ah . . . the chair”

**Nontarget Auxiliaries**
In addition to target auxiliaries, children also produced nontarget auxiliary forms. These may be forms including one or more inaccurate segments. For example, in (8) the child produced [po] for the target [pə] *peux* “can,” combining the target consonant with a nontarget vowel.

8) euh, [po] pas boire  
“oh, cannot drink-INF”  

Example (9) shows an auxiliary form with nontarget consonant and target vowel. Both the pragmatic and linguistic contexts support the interpretation of [ka] as the immediate future auxiliary [va] *va* “gonna.” The child is in the process of deciding where to place a figurine (i.e., is holding the figurine in hand and is looking for a free spot), announces she is not going to place it in one spot, starts repeating this, and then suddenly notices the perfect spot:

9) on [ka] pas mette là  
“we are-gonna not put-INF there”
In (10) the child is asking the adult to open the door for her. The linguistic and pragmatic context of (10) clearly suggests that the form [le] stands for the modal auxiliary [vɔ] veux, “gonna” (here both the consonant and the vowel are nontarget).

(10) I qu’est-ce que tu veux faire? (age 1;11)
“What is it that you wanna do-INF?”

C [le] ouvrir la porte! (asking the adult to open the door for her)
“wanna open-INF the door.”

I tu veux ouvrir la porte?
“you wanna open-INF the door?”

C oui
“yes”

Other nontarget forms involve reduced auxiliaries. The form v’rait in (11) represents a reduction of the auxiliary voudrais “would-like-to” and the form vait in (12) represents a reduction of the auxiliary avait “had”:

(11) v’rait s’asseoir là la souris (age 2;6)
“would-like-to REFLEXIVE sit-INF there the mouse”

(12) vait fait la palle (age 2;2)
“had do-PRT the ball”

Some auxiliary forms are barely discernable. For example, in (13), the element immediately preceding the main verb was initially barely audible, having much lower intensity than the main verb.

(13) __rémonter (child is whining) (age 2;1)
“__go-up-INF”

Spectrographic analyses of (13) identified the first element in the utterance as the auxiliary veux “wanna” (figure 20.1). (13) is in fact (13’):

(13’) veux rémonter (child is whining) (age 2;1)
‘wanna go-up-INF’

Inspection of the linguistic and pragmatic context of (13’) showed that it occurs in the context of the child’s requesting to go upstairs to join the other children. Here the high quality of the digital audio recordings together with spectrographic inspection allowed for the identification of the auxiliary. It is possible that such auxiliary productions have been overlooked in studies based on older corpora collected with less sensitive equipment or not analyzed spectrographically.
Filler Auxiliaries

Besides target and nontarget forms, children produced filler auxiliaries as, for example, in (14). Here the element [e] may correspond to any of several possible auxiliaries (e.g., [pə] “can,” [va] “gonna”).

(14) I bah oui, tu vois, on peut pas les enlever

    “well yes, you see, we cannot them remove-INF”

    C Suilà, [e] l’ enver? (asking if she can remove figurine)

    “that-one, FILLER AUX it remove-INF?”

Quantitative results for auxiliaries are summarized in figure 20.2. Out of the total 3,438 verb clauses in the corpus, 785 contain auxiliaries. Clauses with auxiliaries range from 3.1 percent (for a child age 2;1) to 35.6 percent (for a child age 2;6) of a participant’s total verb clauses.
As seen in figure 20.2, all children examined here produce auxiliaries, including the youngest child (age 1;11), whose percentage of clauses with auxiliaries (24.4%) resembles those of older children ages 2;7 and 2;11 (22.7% and 24.6%, respectively).

**Phonetic Traces of Missing Auxiliaries**

I now turn to utterances that, although not coded as containing an auxiliary, nevertheless appear to show evidence for an underlying auxiliary. This evidence consists of phonetic traces of the missing auxiliary. I illustrate two types of phonetic traces of missing auxiliaries.

One child tends to mark the syntactic slot of the auxiliary with a pause/breath, as, for example, in (15). This is consistent with Carter and Gerken’s (2004) findings that English-speaking children tend to leave a prosodic/phonetic trace when omitting a weak syllable, that is, they have a longer pause between the item preceding and the item following the omitted syllable (compared with the pause between the preceding item and the weak syllable itself, when this is produced).

(15) qu’à haut, **(breath)** remonter

“up there, **(breath)** go-back-up-INF”

[ə] remonter

“wanna go-back-up-INF”

[və] rémonter

“wanna go-back-up-INF”

The first utterance in the sequence in (15), where the position of the auxiliary is marked by a pause/breath, is immediately followed by two increasingly fuller productions of the target auxiliary [və] veux “wanna,” a fact that supports the presence of an underlying auxiliary in the first utterance in this sequence.

Example (16) illustrates a second type of utterance in which the auxiliary is apparently missing. Here the child’s production involves reduplication of the first syllable of the main verb.

(16) boum! **dar** dormir

“boom! REDUPLICATION sleep-INF”

Although this type of production has not been discussed in relation to child French, it has been discussed for child Greek, where Christofidou and Kappa (1998) observed that prior to the productive use of the future and modal/subjunctive auxiliary particles (tha, na), children indicate these by reduplicating the first syllable of the main verb. The authors note that reduplications such as pe petsume for target na peksune MODAL PARTICLE play-PFV-NONPAST-1PL. “let’s play,” or ka kani for target na kani MODAL PARTICLE make-NONPAST-3SG. “she/he should do,” are rather extensive in their data and systematically mark the function of modality or future, rendering the preverbal modal or future particles. The reduplicated syllable in the French example in (16) is therefore likely to represent an early realization of the missing auxiliary, which in this case is probably va “gonna” (the child throws the doll in the toy bed as she announces that the doll is going to sleep).
To summarize, we have seen that auxiliaries (including modals) are evidenced in all children from the earliest ages examined, contrary to what has been reported in many previous studies. The present results disconfirm previous claims that auxiliaries might be absent in young children’s speech and, in particular, claims regarding the absence of auxiliaries in child French (e.g., Schlyter 2003). These findings also contrast with previous reports that French-speaking children use the future auxiliary aller “gonna” from around the age of 3:0 on (Clark 1985, 723). As exemplified in the utterance in (4) (from a child age 2;2) and the utterance in (5) (from a child age 1;11), the children studied here produce the aller “gonna” auxiliary from much earlier ages. The eighteen French-speaking children evidence a range of auxiliary forms. Target auxiliaries, nontarget auxiliaries, and filler auxiliaries occur side by side, as illustrated in the sequence in (15) where the target [vœ̃] veux “gonna” has different realizations each time it is produced (by the same child during the same session). In addition, some of the utterances where the auxiliary seems to be missing show evidence for phonetic traces of the missing auxiliary. What these data show is a continuum in the surface realization of auxiliary forms.

Discussion
The current results provide evidence that auxiliaries are present in children’s syntactic representations. The new French data reveal a continuum in the surface representation of auxiliaries: Target auxiliaries, nontarget auxiliaries, filler auxiliaries, and phonetic traces of auxiliaries occur side by side in children’s productions.

The present findings call into question the traditional notion of telegraphic speech. As seen in the French examples, early child productions are not as impoverished as previously thought. The eighteen children studied here are not “telegraphic.” Moreover, these data indicate that omissions in early speech do not simply reflect absence of function words. Rather early speech reflects a range in the degree of surface realization of auxiliaries and appears to be characterized by more gradation than usually assumed.

Furthermore, these findings challenge long-standing notions that children do not produce certain functional items (in this case, auxiliaries) because of deficient syntactic representations thereof or because of perceptual threshold limitations. Instead, the present results corroborate recent evidence of young children’s sensitivity to function words (e.g., Gerken, Landau, and Remez 1990; Kedar, Casasola, and Lust 2006), as well as evidence of early competence for functional structure based on knowledge of operations dependent on functional structure (e.g., Demuth 1992; Dye et al. 2004; Lust 1999, 2006; Whitman, Lee, and Lust 1991).

Conclusion
The French child data do not support a simple present or absent analysis but rather reflect a continuum in surface realization, suggesting a need to revise the notion of what it means for the auxiliary to be “present.” The study has uncovered new evidence supporting the continuous projection of auxiliaries in young children’s grammatical representations, indicating that early productions are not as impoverished as previously thought. The present findings lend support to proposals for the primacy
of syntax in child language acquisition; they cohere with the observation that “the building of syntax may actually precede the phonetic (or morpholexical) realization of functional heads themselves” (Demuth 1992, 84).

NOTES
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1. In fact, some studies refer to them as “proto-syntactic devices” (Bottari, Cipriani, and Chilosi 1993/1994).
2. But see Veneziano and Sinclair (2000), where fillers are argued to be prosodic placeholders.
3. I originally collected audio recordings from fifty subjects. For this study, I have transcribed only those for which I also have video recordings. Subjects who had problems participating in the task were excluded.
4. See Dye (2005) for more details about the recording setup.
5. See Dye (2005) for additional discussion of this point.
6. Further examples of the utterance types presented here are found in Dye (2005).
7. “I” stands for “interviewer,” and “C” stands for “child.”
8. One may wonder whether in (14) the filler syllable stands for the auxiliary or the subject clitic. Filler syllables do not occur with synthetic finite verbs. This suggest that fillers preceding nonfinite verbs as in (14) are unlikely to stand for a subject clitic (see Dye 2005).
9. The remaining 2,653 verb clauses included either synthetic finite verbs (2,496 clauses) or ostensibly nonfinite verbs occurring in matrix contexts (157 clauses).
10. Schlyter (2003, 27) reports that in the first recordings of three French (bilingual) children, when these children were ages 2;3, 2;0, and 2;2, respectively, auxiliaries and modals were absent.

REFERENCES


