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A prosodic approach to filler syllables

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As Peters points out in this and other work, the treatment of filler syllables continues to be problematic. To the extent that theoretical linguistic approaches to language acquisition have addressed the problem of morphology at all, this has been almost entirely in the domain of syntax. Thus, the phonological and prosodic characteristics of filler syllables in children's early speech have been largely ignored, the assumption being that the appearance of grammatical morphemes is 'triggered' by the maturation of syntactic representations (e.g. Radford, 1990). If this were the case, we would not expect to find crosslinguistic differences in the timing of the acquisition of determiners (Lleó & Demuth, 1999), nor the variable appearance of grammatical morphemes in some contexts and not others (Demuth, 1994, Gerken, 1996). These cases of crosslinguistic and within-language variation call for a more comprehensive account of early morpheme acquisition which can explain their variable presence or absence.

Proposals for a rhythmic production account begin to provide a framework for understanding some of these crosslinguistic and within-language findings (e.g. Gerken, 1991, 1994; Demuth, 1994). Under this approach it is stressed and adjacent syllables that are expected to surface in children's early words. One of the strengths of this proposal is that it generalizes to monomorphemic words. However, it also has limitations. First, it makes strong predictions about which syllables should occur in children's early words: output forms such as ['bænə] for *banana*, where the onset to the pretonic syllable is included, are therefore problematic. Second, it offers no developmental scenario for how children move beyond this rhythmic constraint to produce full adult-like utterances.

It quickly becomes apparent that a more general, PROSODIC APPROACH to this problem would provide a better account of data. Learning the phonology of a language involves not only learning the phonemic status of segments and their acoustic/articulatory correlates, but also how to combine these to form higher-level prosodic/articulatory units such as syllables, phonological words, and phonological utterances. Although many children initially focus on phonological words as their early prosodic unit of choice, other children appear to focus on higher-level prosodic units such as the phonological phrase, the phonological utterance, or the intonational phrase. Thus, much of the analytic vs. gestalt individual differences noted by Peters (1983) and

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Peters & Menn (1993) can be handled in terms of the prosodic hierarchy (Selkirk, 1984, 1996; Nespor & Vogel, 1986), where different children focus initially on different levels of prosodic structure. The prosodic approach therefore provides a better understanding of why and how children's early utterances differ, offers limits on the types of variation we should expect, and provides a more unified account for both monomorphemic and multi-morphemic utterances and how these change over time (Demuth, 1996; Gerken, 1996).

The prosodic approach to children's early production has proved extremely useful in examining the shapes of children's monomorphemic words, where children often produce 'filler syllables'. For example, in both Dutch (Fikkert, 1994) and English (e.g. Smith, 1973) there are early cases of CVC target phonological words produced as CVCV with a final epenthetic vowel – either to avoid producing a coda, or to produce a preferred disyllabic word structure. In both cases these forms are meeting children's prosodic constraints on word shape (Demuth, 1995). Similar phenomena are found later in development, where some children's attempts at 3-syllable words result in a 4th syllable being added, presumably to avoid producing an unfooted syllable.

Although such forms of epenthesis might not generally be thought of as 'filler syllables', they certainly play a role in the developing prosodic phonology of the child, and gradually disappear as children's prosodic constraints are reranked. As expected, only some children exhibit such forms: like other fillers, these are subject to individual variation. Thus, children's phonological words seem to adhere to prosodic constraints similar to those proposed for adult language within OPTIMALITY THEORY (Prince & Smolensky, 1993). By appealing to the prosodic hierarchy, in conjunction with various prosodic constraints, it is possible to account not only for the shape of children's early phonological words, but also multi-morphemic phonological phrases.

For example, although many Spanish-speaking children's early words are truncated to two syllables (a trochaic foot), longer target words often surface with three syllables (Demuth, 2000). It therefore appears that young Spanish-speakers permit unfooted syllables in their early productions. This in turn allows for the early appearance of grammatical morphemes, where proto-determiners began as 'filler syllables' (Lleó & Demuth, 1999).

Thus, the PROSODIC CONSTRAINTS operating in children's early Spanish, in conjunction with the fact that Spanish determiners prosodify with the following noun, helps to explain not only why these filler syllables occur and what their morphological status might be, but also why they appear earlier than in other languages. A similar approach handles the problem of filler syllables in the Bantu languages, where disyllabic nouns first appear with no noun class prefix, then with a V or syllabic nasal prefix, and finally with a full

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CV prefix. It thus appears that young speakers of Bantu languages, like their English-speaking peers, have difficulty producing phonological words and phonological phrases that contain more than a foot (Demuth, 1994). Unfooted syllables are therefore slow to appear, first realized in reduced form.

In sum, a PROSODIC APPROACH to early production provides a framework for understanding not only the individual variation found in the use of early fillers and their disappearance over time, but also provides a means for understanding why certain syllables and morphemes are omitted from children's early speech: both phenomena are governed by the prosodic constraints in a child's grammar at a given point in time. Further research regarding the nature of these constraints, in both monomorphemic and multimorphemic contexts and in both longitudinal and experimental studies, will facilitate exploring these issues more fully.

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