Phonological markedness and extraprosodicity as predictors of morphological errors in SLI
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Certain grammatical morphemes are variably produced in the speech of children with SLI. In general, previous research viewed this as a consequence of either a deficit in linguistic knowledge (e.g. Rice & Wexler 1996; Rice et al. 1995) or a limitation in processing capacity (e.g. Leonard 1989; Leonard et al. 1992). Both approaches face problems. For example, linguistic accounts are unable to explain why these children’s problems are mostly with production rather than comprehension. Processing accounts, on the other hand, have difficulty explaining why affected children have differing levels of problems with grammatical morphemes that are similar on the surface (e.g. English plural -s vs. third person singular -s).

In this paper, a new, phonological account is proposed which avoids these problems, and better captures the wide array of data presented in the literature. It is proposed that children with SLI have problems with organizing segmental data into prosodic structures that are linguistically highly marked, in particular those that involve various forms of extraprosodicity.

I argue that so called ‘affixal clitic’ and ‘free clitic’ representations (see e.g. Nespor & Vogel 1986; Selkirk 1980, 1986, 1995) will be the ones most problematic for affected children, leading to problems on the surface with morphemes that are represented via these structures. More specifically, these structures, i.e. (1b) and (1c), have not yet fully emerged in the grammars of children with SLI. Therefore, in the absence of being correctly prosodified in speech, these morphemes are omitted in production. Where their grammar does allow the relevant structures (i.e. the unmarked (1a) and (1d)), however, children will correctly produce the corresponding morpheme. This means that children with SLI who are learning English will have problems with third person –s and past tense –ed (both require (1b)), as well as with BE and DO (both require (1c)) and articles (which require (1c)). On the other hand, they will not have any problems with other types of functional morphology, such as stressed determiners or irregular past, since these require unmarked representations (i.e. (1d) and (2d) respectively). Similarly, plural –s will not be a problem, either, since it requires another unmarked structure, namely (1a).

(1)

Note that, on this account, when pronounced/not omitted, morphemes requiring marked structures, such as the third person singular –s and unstressed determiners, are likely prosodified not as (1b) and (1c), but rather via the structures that are already available to the SLI-affected child. For example, (1a) or even a structure like (2a), which is normally for monomorphemic words could be used instead of (1b) to prosodify a word like (He) picks, as these structures could also accommodate a sequence of two consonants at the right edge. In fact, evidence for this comes from van der Lely and colleagues’ findings; the more complex right edge clusters get, the more challenging the word is for the SLI-affected child (van der Lely & Ullman 2001; Marshall & van der Lely 2006, 2007). This, on the current account, is precisely because these (more) complex structures can only be accommodated through the marked structures of (1b) and (1c) (see e.g. a comparison of the licit (2c) and the illicit (2b), when there are multiple adjacent consonants), and cannot thus be reaccommodated using alternative structures.

(2)
Note that this account correctly predicts errors to be omission errors, not misrepresentation (i.e. no errors of the type *‘They swims’ are predicted.) This is first of all because prosodic constraints are constraints mainly on production (or at least their original OT versions are assumed to be, see e.g. Prince & Smolensky 1993; Kager 1999). Crucially though, since the problem, on this account, lies exclusively in prosody, syntax is intact. As such, no errors other than omission errors are predicted (or found).

Crosslinguistically as well, the Extraprosodicity account proposed here has the necessary predictive power, predicting cases other accounts fail to predict, as well as avoiding to overpredict. For example, the linguistic EOIA account predicts tense-related morphemes to be problematic in every language (Rice & Wexler 1996), but this prediction does not receive empirical support, as with Italian and Hebrew (Bedore & Leonard 2001; Leonard & Bortolini 1998). This is not a problem on the current account however, because, on this account, morphemes like the third person singular –s and past tense -ed are problematic in English not because they are related to tense, but rather because they have the prosodic representation of an affixal clitic (see (1b)), which is unavailable to children with SLI. Accordingly, since this representation is not utilized by every language (i.e. some languages prosodify their functional morphology differently), lacking it will not necessarily be a problem for impaired speakers of those languages, or at least, it will not lead to omission errors on the surface in those languages. For example, in Hebrew, most words, including those inflected with tense, are stressed on their final syllable (Bat-El 1993; Becker 2003), which means that the final syllable is within a foot and, is, thus, necessarily within the base PWd. That is, Hebrew-speaking children will not need (1b) for producing tense-inflected words.

A question that naturally follows from this discussion is whether finally stressed languages are necessarily expected not to pose problems on the right-edge for children with SLI? The answer is in the positive. Evidence comes from children acquiring languages like French, in which stress is regularly word/phrase final. Findings of studies with impaired French-speaking children demonstrate that these children do not have difficulties with right-edge functional morphology; rather, their difficulties lie at the left edge, particularly in the domain of determiners and object clitics (see e.g. Thordardottir & Namazi 2007; Hamann 2004; Jakubowicz & Nash 2001; Maillart & Schelstraete 2003).

Perhaps the dichotomy observed in SLI between left vs. right edge morphology could best be illustrated through data from Swedish-speaking children with SLI. Swedish has an interesting article system; whereas indefinite articles precede the noun they are associated with, definite articles are bound morphemes attached after the noun, as illustrated in (3):

(3) a. en sak       b. sak-en
    ‘a thing’       ‘the thing’

It was found that whereas Swedish-speaking children with SLI do worse than MLU controls in their use of indefinite articles like those in (3a), they are as good as typically developing children with respect to the use of the definite article (see 3b) (Hansson, Nettelbladt & Leonard 2003). Such a finding is surprising under virtually any other linguistic or processing account, because the two morphemes are nearly identical both phonetically and in terms of the linguistic function they serve (both denoting articles/reference). On the current account, however, this phenomenon receives a natural explanation: material at the right edge is always footed in Swedish, and is, as such, not extraprosodic. Evidence for this comes from the fact that final syllables, when heavy, are stressed in Swedish (Frid 2001). When, however, the final syllable is light and the penult is heavy, then, the penult is stressed. This suggests a weight-sensitive system where final syllables always appear in a foot.

In sum, the Extraprosodicity-based account of SLI presented here is a rather restrictive hypothesis that has the combined strengths of previous accounts and avoids their weaknesses, too. It offers a principled reason, using a single construct, as to why both articles and certain (but not all) inflectional morphemes should be problematic for English speaking children with SLI, whereas only the former should be problematic for impaired speakers of languages like Chinese, French, Hebrew, and Italian. This is a hypothesis which is testable and falsifiable; different predictions will arise given that different languages prosodify functional material differently.