Templates in adult and child language

Marilyn Vihman, University of York

In order to compare templatic phenomena as identified in children with what is found in adult languages we begin by providing the basis for speaking of child templates. We then raise three sets of questions:

1. *Typology*: How similar are children's templates cross-linguistically? Are they affected by the shape of the adult language?
2. *Origins:* What is the source of child templates? Assuming that they arise as a response to phonological challenges, what is the nature of these challenges?
3. *Underlying principles*: Can we draw any general conclusions regarding the basis for the templatic forms themselves in underlying principles of perception, production, or the mapping between the two? In particular, can we explain templates with reference to an underlying rhythmic principle?

Templatic phenomena as seen in the child. Evidence of 'whole-word phonology' (Ferguson & Farwell, 1975, Macken, 1979, Menn, 1983, Vihman & Croft, 2007) has been observed repeatedly in the individual word forms of children in the earliest stages of phonological development (cf. Waterson, 1971, Vihman & Velleman, 1989 and Vihman, Velleman & McCune, 1994, among others, for data from English-learning children; Vihman, 1976 – Estonian; Macken, 1979 – Spanish; Vihman, 1993 – French; Vihman & Velleman, 2000, Savinainen-Makkonen, 2007 – Finnish; Keren-Portnoy et al., 2008 – Italian). The most striking forms are those in which the child departs from the adult target, in different ways for different targets but with an apparent output shape or template as the implicit goal of a 'rule conspiracy'. Priestly (1977) provided such examples of his son's <CVjVC> template as [tajak] for *tiger,* [bajas] for *berries,* and [fajam] for *farmer.* Such forms can be termed 'adapted'. It is notable that a certain number of 'selected' forms can generally also be identified, where the templatic pattern underlying 'adapted forms' also provides a more or less accurate match to certain adult targets attempted (or 'selected') by the child (e.g., [lájən] *lion,* [síjəl] *seal*, in the case of Christopher Priestly).

1. Tentative typology of child templates. In their early word forms children produce matches to only a small proportion of the adult segment inventory in any language and the segments they produce are highly similar cross-linguistically (Vihman, in press). On the other hand, children are influenced by the structure of the ambient language with respect to the length of the word forms they produce (typically one- and two-syllable forms only). Similarly, the structures found in the adult language affect the children's overall word shapes. For example, children acquiring English often produce diphthongs or codas or both in their early words while French children typically produce neither; the word-initial consonant is very rarely omitted in English but the word shape VCV (sometimes arrived at by omission of an early-learned segment, such as a labial stop or glide) is quite common in languages with either (a) an iambic word-accent pattern or (b) common use of perceptually salient word-medial geminates, which seem to attract child attention at the expense of the onset consonant.

With ca. 100 children sampled to date from this perspective, across a dozen languages, the range of templatic patterns observed so far can be summarized as follows:

- Maximum length is two syllables.

- Clusters are generally absent, even word-internally.
- consonantal variation across the lexical unit is restricted to manner or to place only, with full harmony the most common outcome.
- Melodic patterning is also found, though more rarely: In this case the consonantal sequence may be specified for place, but not for manner.
- In the case of melodic patterning, either medial or final position may be specified, but not initial position. Recorded segmental specifications include medial glides [j] or [w], medial glottal or uvular fricative, and final coronal, velar, fricative, nasal or [l].
- Vowels may harmonize but, perhaps due to high variability in vowel production, this is less common than consonant harmony.
- Vowel melodies include <low – high> (but not the reverse), diphthongal specification (<Vi> or <Vu> only as well as cases where both are permitted) and final vowel specification (often [i]).

2. Origins of child templates. The vowels and consonants that are rare in babbling – fricatives and liquids, front rounded or back unrounded vowels, for example – tend to be avoided in the early words (i.e., not even attempted). No metalinguistic 'awareness' of the difficulty need be invoked: Children produce only those target words which they are able to match, within the limits of their sensitivity to or tolerance for error; they may or may not be able to accurately register and remember less accessible word forms. Both consonantal and vocalic sequences (clusters, diphthongs) generally present a difficulty for them, as do changes across the consonants or the vowels within a word. The basis for these difficulties is most likely at the level of speech production planning. Producing target words of more than two syllables may also present a planning challenge, but it is just as plausible that memory for the sequence is the primary hurdle, given the child's developmental task of registering and retaining large numbers of new lexical items with their arbitrary linking of a phonological pattern and its meaning. Both planning for production and memory for novel forms are well served by an established motor routine, whether based on harmony or melody (Menn, 1983).

3. Principles underlying both adult and child templates. The principles of rhythm, alliteration, assonance, etc. which underlie adult poetic practice must also be at least partially rooted in memory requirements, especially where oral tradition is concerned. The kinds of output constraints that affect adult templatic activity (Schluter, this workshop) are all represented to some extent in the child data (with the exception of tone pattern constraints - surely an artefact of the limited range of languages sampled to date). It is unlikely that these constraints, where they play a role in the ambient language, actually help the child to learn, however. If this were so, we might expect differential rates of child phonological mastery in relation to the extent of templatic patterning in the adult language, but this seems improbable – especially since adult templatic effects often involve morphology, which is only dimly perceived, if at all, within the early word period (cf. Peters& Menn, 1993). Alternatively, we can look for principles that explain not the *function* of templates but their *origins* in deeper aspects of speech perception, production and representation that might affect adults and children alike, despite the obvious differences in their knowledge base. To this end, more extended study of both adult and child templates seems warranted - and joint theoretical attention to the two areas can only be beneficial.

References

Ferguson, C. A. & Farwell, C. B. (1975). Words and sounds in early language acquisition. *Language, 51*, 419-439. Reprinted in W. S-Y. Wang*, The Lexicon in Phonological Change.* The Hague: Mouton (1977).

Keren-Portnoy, T., Majorano, M. & Vihman, M. M. (2008). From phonetics to phonology: The emergence of first words in Italian. *Journal of Child Language, 36,* 235-267.

Macken, M. A. (1979). Developmental reorganization of phonology: A hierarchy of basic units of acquisition*. Lingua, 49,* 11-49.

Menn, L. (1983). Development of articulatory, phonetic, and phonological capabilities. In B. Butterworth (ed.), *Language Production*, vol. 2. London: Academic Press.

Peters, A. M. & Menn, L. (1993). False starts and filler syllables: Ways to learn grammatical morphemes. *Language, 69,* 742-777.

Priestly, T. M. S. (1977). One idiosyncratic strategy in the acquisition of phonology. *Journal of Child Language, 4*, 45-66.

Savinainen-Makkonen, T. (2007). Geminate template: A model for first Finnish words. *First Language, 27,* 347-349.

Vihman, M. M. (1976). From prespeech to speech: on early phonology. *Stanford Papers and Reports on Child Language Development, 12,* 230-244.

Vihman, M. M. (1993). Variable paths to early word production. *Journal of Phonetics*, *21*, 61-82.

Vihman, M. M. (in press). Phonological templates in early words: A cross-linguistic study. In C. Fougeron & N. Nguyen (eds.), *Lab Phon 10: Variation, detail and representation*. Mouton de Gruyter: New York.

Vihman, M. M. & Croft, W. (2007). Phonological development: Toward a 'radical' templatic phonology. *Linguistics, 45,* 683-725.

Vihman, M. M. & Velleman, S. (1989). Phonological reorganization: a case study. *Language and Speech*, *32*, 149-170.

Vihman, M. M. & Velleman, S. L. (2000). Phonetics and the origins of phonology. In N. Burton-Roberts, P. Carr & G. Docherty (eds.), *Phonological knowledge: Its nature and status* (pp. 305-339). Oxford: Oxford University Press.

Vihman, M. M., Velleman, S. L. & McCune, L. (1994). How abstract is child phonology? Towards an integration of linguistic and psychological approaches. In M. Yavas (ed.), *First and Second Language Phonology*. San Diego: Singular Publishing.

Waterson, N. (1971). Child phonology: A prosodic view. *Journal of Linguistics, 7,* 179-211.