

Variation in the Pace of Prosodic Development: Nouns vs. Verbs

Noa Handelsman^a, Mor Haim^a, Chen Gafni^b, Daniella Yariv^a, Daniel Asherov^c, Vered Chercez^a, Galit Adam^a & Outi Bat-El^a
Tel-Aviv University^a, Bar-Ilan University^b, MIT^c

1. Introduction: The phonological variation contrasting nouns and verbs to be discussed in this talk relates to a more general and well-studied phenomenon of “category specific phonology” (Kiparsky 1982; Anttilla 2002; Bat-El 2008). This notion refers to cases where within one language, different lexical categories vary in terms of their phonological behavior.

In this talk we will provide evidence that the mechanism that allows speakers to distinguish between nouns and verbs is active at an early stage of language acquisition, before morphological structure overtly appears in the children’s productions. The evidence come from variation in the pace of prosodic development between nouns and verbs.

Our data are drawn from the early natural productions (up to 2 years old) of two Hebrew-acquiring twin boys (IM and SM), where the phonological variation between nouns and verbs is evident in two aspects: (i) the development of the prosodic word, with respect to the number of syllables; and (ii) the prosodic faithfulness of word final codas. We will show that the prosodic development of nouns and verbs is not synchronized, as there are periods where one category lags behind the other. Crucially, verb and noun stems in Hebrew are prosodically identical as they are mostly disyllabic with final codas, with no overt phonological contrast; e.g. *gamal* is both a verb (‘to reward’) and a noun (‘a camel’).

2. Prosodic Word: We attend to two stages within the acquisition of the phonological word: the sub-Minimal-Word stage and the Minimal-Word stage (Demuth & Fee 1995; Adam 2002). The sub-MW stage is characterized by mostly monosyllabic productions, regardless of the number of syllables in the target word. This stage precedes the MW stage, in which productions are maximally disyllabic. In our data, the transition from the sub-MW stage to the MW stage varies between nouns and verbs.

Both IM and SM reached the MW stage in nouns, yet they remained in the sub-MW stage in verbs for two more periods of development (where periods are based on lexical development). That is, there were two periods in the development of the children where polysyllabic nouns were already in the MW stage (i.e. with little truncation to monosyllables), while verbs were still in the sub-MW stage (i.e. with mostly monosyllabic productions).

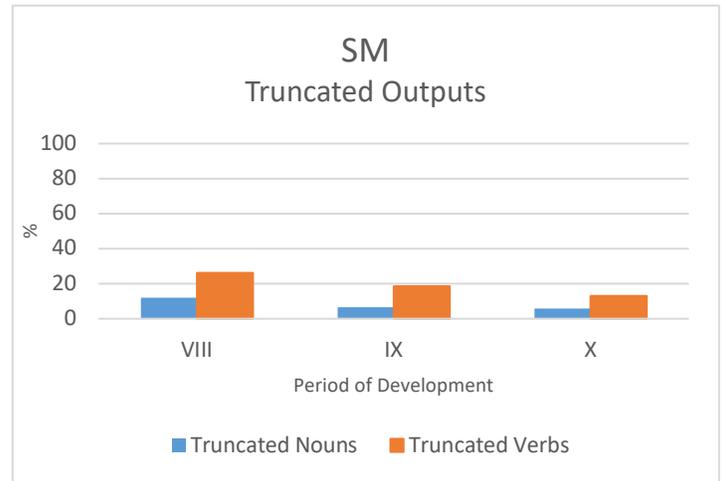
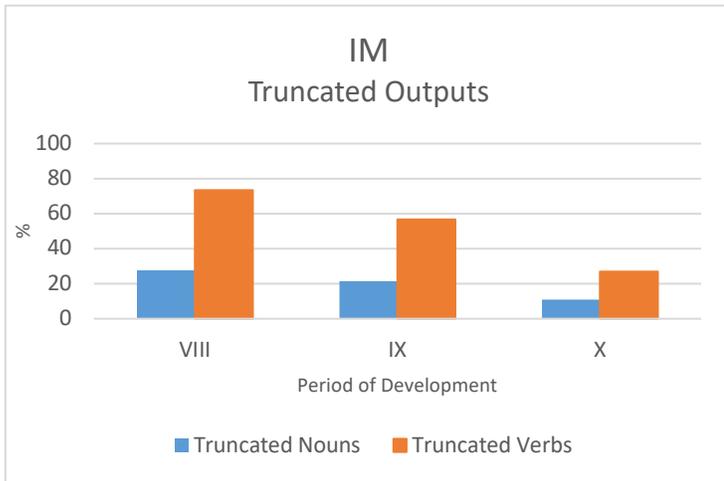
These findings are consistent with the claims that children acquire and produce verbs after nouns (Berman 1999; Gentner 2006; Imai et al. 2008), but this alone does not explain why the prosodic development of the verbs lags behind that of the nouns. Here we argue that the children strive to mark the categorical distinction, and since they have not yet acquired the morphological tools that enhances the contrast (e.g. affixation, morpho-phonological alternation), they use prosodic variation between the categories.

3. Final codas: Both IM and SM acquired final codas around the same period of acquisition, by a criteria of 90% faithful productions (Bed-David 2001). Here again, the children distinguished between verbs and nouns by not reaching faithfulness during the same period. However, in contrast to the development of the prosodic word, final coda faithfulness was achieved earlier for verbs rather than nouns. These findings can be explained by the final codas being more frequent in Hebrew verbs (76.5%) than in nouns (68.7%). Nevertheless, we claim that this variation in nouns and verbs demonstrates the ability to separate lexical items by category.

4. Conclusion: Our study suggests that the contrast between nouns and verbs is available to the children during very early stages of acquisition, much before they acquire the morphology that allows them to express this contrast overtly. To compensate this deficit, they use prosodic variation – verbs and nouns are not at the same stage of prosodic development and thus do not comply with the same phonological grammar.

Adam, G. 2002. *From Variable to Optimal Grammar: Evidence from Language Acquisition and Language Change*. PhD dissertation, Tel Aviv University. **Antilla, A.** 2002. Morphologically conditioned phonological alternations. *Natural Language and Linguistic Theory* 20:1-42. **Bat-El, O.** 2008. Morphologically conditioned V-Ø alternation in Hebrew: Distinction among nouns, adjectives & participles, and verbs. In S. Armon-Lotem, G. Danon, and S. Rothstein (eds) *Current Issues in Generative Hebrew Linguistics*, 27-60. Amsterdam: John Benjamins. **Ben-David, A.** 2001. *Language Acquisition and Phonological Theory: Universal and Variable Processes Across Children and Across Languages*. Ph.D. dissertation, Tel-Aviv University. [In Hebrew]. **Berman, R. A.** 1999. Children's innovative verbs vs. nouns: structured elicitations and spontaneous coinages. In L. Menn & N. Bernstein-Ratner, eds. *Methods for studying language production*. Mahwah, NJ: Lawrence Erlbaum, pp. 69-93. **Demouth, K. & Fee, J.** 1995. Minimal words in early phonological development. *Ms. Brown University and Dalhousie University*. **Gafni, C.** 2015. *Child Phonology Analyzer: processing and analyzing transcribed speech*. In The Scottish Consortium for ICPHS 2015 (Ed.), Proceedings of the 18th International Congress of Phonetic Sciences. Glasgow, UK: the University of Glasgow. ISBN 978-0-85261-941-4. Paper number 531. 1-5 retrieved from <http://www.icphs2015.info/pdfs/Papers/ICPHS0531.pdf>. **Gentner, D.** 2006. Why verbs are hard to learn. In K. Hirsh-Pasek & R. Golinkoff (Eds.). *Action meets word: How children learn verbs*. Pp. 544-564. Oxford University Press. **Imai, M. et. Al.** 2008. Novel noun and verb learning in Chinese, English, and Japanese children: universality and language-specificity in novel noun and verb learning. *Child Dev.* 79 979-100. **Kiparsky, P.** 1982. From cyclic to lexical phonology. In van der Hulst and Smith. *The Structure of Phonological Representations v.1*. Dordrecht: Foris. Pp.131-175.

(1) Truncated nouns and verbs for IM & SM



(2) Final Coda faithful productions for nouns and verbs for IM & SM

