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Do Diminutives Facilitate the Learning of Russian Gender?

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Olmsted (1994) has suggested that the pervasive use of diminutives in Russian child-directed speech reflects not just an accommodation to the smaller world of children but rather constitutes an important precondition for the acquisition of Russian noun morphology, particularly the gender system. Although most Russian nouns have regular morphophonological gender marking (transparent nouns), a subset of end-palatalized nouns is ambiguous with respect to marking as either feminine or masculine (non-transparent nouns). Russian diminutive derivations eliminate gender ambiguity by adding morphemes that preserve the main morphophonological features of feminine and masculine nouns.

In the present study, we investigate whether the presence of diminutives aids second language learners in acquiring Russian gender. If facilitation of gender learning through the use of diminutives can be shown, this will support the idea that child-directed speech registers may simplify aspects of grammar which would otherwise pose learnability problems. It also would point to the importance of input shaping in second language learning and help in clarifying mechanisms underlying gender transfer to novel nouns.

Method

Participants. Forty adult native speakers of English with no prior knowledge of Russian were recruited and tested at the College of Staten Island, CUNY. Half of the participants were assigned to the diminutive and the other half to the non-diminutive condition.

Materials. Twenty masculine and 20 feminine Russian nouns were selected from the Snodgrass and Vanderwart (1980) picture set. Fifteen masculine and 15 feminine nouns had transparent gender marking. The remaining 5 feminine and 5 masculine nouns were non-transparent. Five transparent masculine and 5 transparent feminine nouns were reserved for later testing. In the diminutive condition, all nouns were presented in their diminutive form. In the non-diminutive condition, all nouns were presented in their base form. During training, the pictures were presented either as yellow or as red line drawings on black background. Color was counterbalanced across gender and type of gender markedness (transparent vs. non-transparent).

The testing set, which was identical in both conditions, consisted of the 30 training nouns and 10 new nouns. During testing, 10 familiar transparent nouns were presented in diminutive form and 10 were presented in base form. During testing, each line drawing was presented in the color opposite from the color used during training. This change in color ensured productive use of the adjective suffixes.

Procedure. Participants were trained during three sessions conducted on a Macintosh computer with PsyScope software (Cohen et al., 1993). In the first block of each session (listen and repeat), they were presented with a series of colored line drawings and the corresponding Russian color adjective and nominative noun which they had to repeat. In the second block (color comprehension), they heard the Russian color adjective-noun combinations and had to choose the correct color. During the final block (color production), they heard the noun and were asked to produce the inflected color adjective corresponding to the color of the picture. After three sessions of training, familiar and novel nouns were presented in a generalization test in which the participants had to produce the correctly gender inflected form of the color adjectives. Gender agreement errors and response latencies were measured.

Results

Participants in the diminutive condition showed faster learning of noun gender as indicated lower gender agreement error rates on training items in Session 2 and 3. This group also showed lower error rates and faster reaction times in generalizing gender inflection to novel color adjective-noun combinations. Finally, the diminutive group was faster and more accurate in determining the gender of novel transparent nouns. A closer inspection of the diminutive group's error rates suggests a morpho-phonological basis for gender transfer. We designed a recurrent cascaded backpropagation network to simulate the empirical results. The network's performance matches the main findings of the experiment thereby illustrating how an associative learning mechanism and characteristics of language input affect the acquisition of gender.

References

- Cohen, J., MacWhinney, B., Flatt, M., & Provost, J. (1993). PsyScope: An interactive graphical system for designing and controlling experiments in the Psychology laboratory using Macintosh computers. *Behavioral Research Methods, Instrumentation, and Computation*, 25, 257-271.
- Olmsted, H. (1994). Diminutive morphology of Russian children: A simplified subset of nominal declension in language acquisition. In: *Alexander Lipson: In memoriam*. OH: Slavica Publishers, Inc.
- Snodgrass, J. G., & Vanderwart, M. (1980). A standardized set of 260 pictures: Norms for name agreement, image agreement, and visual complexity. *Journal of Experimental Psychology: Human Learning and Memory*, 6, 174-215.