Before or after? The position of grammatical category markers triggers different learning processes

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Findings from artificial language learning studies suggest that succeeding category markers facilitate acquiring knowledge about categories (e.g., gender) more than preceding markers (e.g., Ramscar, 2013). This can be explained by the discrimination learning account of Rescorla and Wagner (1972), which predicts an order effect for category learning: succeeding category markers trigger discriminative learning which is important for category discrimination and preceding category markers trigger associative learning which is better for within-category item discrimination. However, this order effect only makes a difference for not clearly distinct (non-transparent) categories. In a learning simulation and three behavioral artificial language learning experiments, we tested how category and item learning are affected by the position of category markers and the transparency of the categories. For this, we built an artificial language around a set of nouns. Nouns were categorized along two dimensions: a highly transparent semantic category (plants, animals, random objects) and a non-transparent stress category (stress on 1st, 2nd and 3rd syllable). Training on succeeding markers facilitated learning of features of the non-transparent stress category but not of the transparent semantic category. At the same time, training on succeeding markers made noun item discrimination more difficult. On the other hand, training on preceding markers facilitated noun item learning. Our results suggest that detailed sequential aspects of the input sequence, as well as the transparency of feature sets, determine the triggered learning process. These findings are not only relevant for L2 acquisition research but also for a better understanding of diachronic processes in language evolution.

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