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Pruning incorrect associations in word learning

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Abstract

Word learning requires associating many words and objects to build a lexicon. A model by McMurray et al. (2012) suggests this may not only require building associations, but also pruning incorrect ones. Evidence for the importance of pruning comes from a word learning analog in pigeons, where learning was moderated by the opportunity to prune incorrect associations during training (Roembke et al., 2016). To investigate pruning in humans, we conducted four supervised word learning experiments (N=40 adults/exp.). Participants were first trained to link two objects to each word, and subsequently were tested how quickly these were pruned. We measured association strength using eye-movements to to-be pruned objects, and a post-training accuracy assessment in which the target was not present. Learners showed rapid pruning of incorrect associations, though this was moderated by whether the words were auditory, orthographic or non-linguistic symbols. This suggests that pruning is critical in word learning.