

Construction learning relies on usage *and* function: An artificial language learning study

In usage-based approaches to language development, statistical regularities in the input are often believed to play *the* determinant role in learning. Compelling evidence for this view comes from a number of studies using an artificial grammar learning paradigm. For example, Wonnacott et al. (2008) and Wonnacott (2011) find that learners of a ‘lexicalist’ language, in which each verb is restricted to one construction, tend to be lexically conservative (with both familiar and novel verbs). They also show that if instead learners are exposed a class of *alternating* verbs, they are markedly more likely to assume other verbs also alternate. In these studies, the novel constructions that are used are functionally identical, a situation that rarely occurs in natural languages.

In this paper, we report an artificial language learning experiment with three between-subject conditions. Each included six novel verbs and two word order constructions, SOV and OSV. In a synonymous-lexicalist condition, SOV and OSV were not distinguished functionally; three verbs occurred exclusively in SOV and three in OSV order. In the two other conditions, the novel constructions were distinguishable in terms of their discourse functions: i.e., OSV order was exclusively used with a pronominal patient argument (hereafter Pro-SV). In the distinct-lexicalist condition, three verbs occurred exclusively in SOV and three in Pro-SV. Finally, in the distinct-alternating condition, two verbs alternated, two occurred only in SOV, two only in Pro-SV. After exposure, participants were asked questions such as “what happened to <the patient>?”, which was meant to elicit a pronominal patient argument; or, “what happened here?” in which case, two lexical NPs would be appropriate.

As in previous work, participants in the synonymous-lexicalist condition were uniformly conservative, using each verb in whichever word order had been witnessed for that verb. In the distinct-lexicalist condition the proportion of lexical conservatism was markedly reduced (67% *vs.* almost 100%). Finally, in the distinct-alternating condition, speakers demonstrated a ready tendency to use a previously unwitnessed verb~construction combination even though only 2/6 of the verbs were witnessed alternating. Thus, although speakers could learn the specifics of the input (synonymous-lexicalist condition), they showed a tendency to take advantage of a functionally-distinct alternation, even when no verbs were witnessed alternating (distinct-lexicalist), and especially when even a low proportion of verbs was witnessed alternating (distinct-alternating). These results suggest that learners tend to exploit functional differences between constructions as a learning cue when such distinctions are available. On the basis of these results, we propose a refinement of a *purely* usage-based account of language acquisition, as it appears that construction learning involves an interaction between function and usage. Learners are willing to overlook evidence of item-specific behavior and generalize, if a previously unwitnessed verb~construction combination better suits the demands of the discourse than a witnessed one.

Wonnacott, E. (2011). Balancing generalization and lexical conservatism: An artificial language study with child learners. *Journal of Memory and Language* 65, 1–14.

Wonnacott, E., E. Newport, and M. Tanenhaus (2008). Acquiring and processing verb argument structure: Distributional learning in a miniature language. *Cognitive Psychology* 56, 165–209.