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Testing force variability in modals: A word learning experiment

How do children figure out the meaning of modals like “may” and “must”? The task is complicated by three potential indeterminacies. First, the same modal might be used to talk about different ‘flavors’ of possibilities (epistemic, teleological, deontic, etc.), as in English. Second, the same modal might be used with either weak or strong force, to make a claim of either possibility or necessity, respectively, as in Nez Percé (Deal, 2011) or St’at’imcets (Rullman & al, 2008). Third, claims about what is merely possible often give rise to scalar implicatures: they may be used to conversationally implicate stronger claims about what is furthermore not necessary, exploiting the Horn Scale <may, must>. Previous studies (e.g., Öztürk & Papafragou 2014, Hirst and Weil 1982) suggest that children are more willing to accept possibility modals in situations where adults prefer necessity. Why is this? In preparation for studies with children, we implemented a novel word learning paradigm with adults to assess baseline expectations of what sorts of modals will be used, weak or strong, in various situations. We tested whether adults would be more willing to accept a modal learnt as a possibility modal in a necessity context (i.e., extending from P to N) than a necessity modal to a possibility context (extending from N to P), comparing two flavors of modality (epistemic and teleological). The experiment was implemented online using IBEX Farm. 48 participants per condition were tested (186 total), recruited via Mechanical Turk. Our results show that indeed, extending from P to N is easier than to N to P, for both epistemic and teleological flavour. We further investigated the effect of having learned a scalemate on the likelihood of extending these meanings, comparing the results with cases where people had already learned a word for a possibility (respectively, necessity) modal previously in the experiment. In line with previous results on contrastive effects in the computation of scalar implicatures, our results show that having learned a scale-mate diminishes the likelihood to extend the meaning.