Saliency and cross-linguistic effects in learning verb number inflection morphemes

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Acquiring inflection morphology poses well-known challenges due to its low perceptual saliency and variability [1, 2]. Research suggests that increasing saliency through prosodic or multimodal cues facilitates lexical learning, yet its role in morphology and its interaction with learners' linguistic background is underexplored [3, 4]. This study explores whether prosodic saliency boosts adults' learning of inflection morphemes, whether prosody-accompanying gestures increase such an effect, and to what extent it is influenced by L1 patterns.

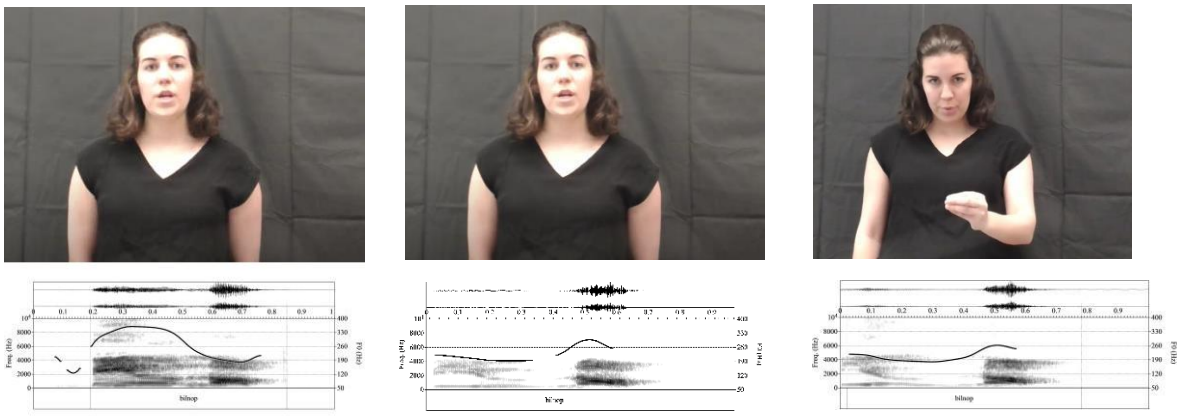
We tested two groups of adults—Catalan and Finnish speakers—using a word-picture associative learning task in an artificial language inspired by [5] now manipulating saliency (no saliency, prosodic, multimodal; Figure 1). While Catalan and Finnish have rich verb-inflectional morphologies: Catalan allows variable stress, but Finnish exhibits fixed initial stress. The prediction would then be that Finnish learners may need more enhanced saliency cues to learn a new lexical stress representation.

120 participants were first trained by watching videos of a person uttering made-up words with singular or plural morphemes (e.g., *dunt-ol* vs. *dunt-op*) matched with pictures representing actions (e.g. one person biking vs. various people biking). Following [6], 75% of the words follow this morphological rule and 25% violate it by using new morphemes (*-ac* & *-am*). The task had a between-subjects design (N=40 per condition): non-salient, prosodically-salient and prosodically&gesturally-salient inflectional morpheme. After, participants completed a word recognition task (4 response types with matching (+) or unmatching (-) elements: stem+suffix+; stem+suffix–; stem–suffix+; stem–suffix–) and a suffix generalization task (with novel stems), in which accuracy and reaction times (RTs) were analysed.

We run a first set of models for each language with Accuracy as dependent variable and Condition, Response_Type, and the interaction between the two, as fixed factors. Catalans responded more accurately in ++ responses compared to +- responses (z= -4.31), but crucially, this difference disappeared when a multimodal training (but not a prosodic training) preceded the test (z= 1.203). Finns were also more accurate in ++ responses compared to +- and -+ responses (z= -5.081, z= -2.378, respectively). This pattern was not influenced by the preceding training condition.

As for RTs, variability was higher in Finnish- than in Catalan- learners, which responded faster in the multimodal (t=.49) and non-prominent (intercept: t=6.23) conditions than in the prosodically-salient condition (t=2.69). Results reveal cross-linguistic differences: multimodal saliency facilitates the learning of verb-inflectional morphemes only in Catalan. These findings suggest that a short multimodal training is not enough to modify Finns' lexical stress representation, but it is helpful when learners' L1 is already flexible in such regard.

Figure 1. Spectrograms and clip captions of the stimuli that listeners were exposed to. On the left, the no-saliency condition: no hand nor head gesture + low pitch on the second syllable of the word, corresponding to the target morpheme; in the centre, the prosodic condition: no hand nor head gesture + high pitch on the second syllable of the word, corresponding to the target morpheme; on the right, hand and head gesture + high pitch on the second syllable of the word, corresponding to the target morpheme. These body movements were chosen after a previous elicitation task with 13 participants.



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