Gradual judgements from rival constructions

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It is commonly accepted that speakers' acceptability judgements of linguistic forms may not be accurately represented in the two-element {0, 1} set, but rather extend to the full 0 through 1 range (as well as to the outright inability or unwillingness to provide a judgement in the first place). Well-known examples from English to elicit such in-between judgements include disfavoured comparatives such as *more green* or *more lazy*, or blends such as *irregardless* and *also played a factor*. Hungarian morphology is particularly ripe with this kind of ambiguity in judgements (as well as hesitancy, uncertainty or failure when trying to produce a certain required word form). Among those morphological phenomena whose distributions seem to continue to defy accurate description are linking vowels [1] (as in *haj* 'hair' : *haj-at* 'hair.ACC', as opposed to *baj* 'trouble' : *baj-t* 'trouble.ACC') where we find e.g. *könyvtár-t* 'library.ACC' with unsure acceptability; and the infamous *-j-* in possessive nouns [2] (e.g. *bot* 'stick' : *bot-ja* 'her/his stick', even though *hát* 'back' : *hát-a* 'her/his back') where we encounter forms like *stég-e ~ stég-je* 'her/his pier', both variants somewhat acceptable.

One way to model this kind of non-discreteness in judgements is to assume that two different, contradictory morphological patterns are present in a speaker's linguistic memory, since both patterns are attested in usage, and both of these patterns may be simultaneously activated by problematic inputs on the basis of phonological similarity. E.g. the iffy form *könyvtár-t* may find support from lexemes such as *tanár-t* 'teacher.ACC', *gitár-t* 'guitar.ACC' and so on, but at the same time be discouraged by *tár-at* 'store.ACC', *vár-at* 'castle.ACC' etc. This effect of analogical attraction would probably be subject to both the number of lexemes on either side, and their respective token frequencies in the individual's linguistic experience.

We attempt to approximate real speakers' in-between judgements of Hungarian nominal word forms using a simple naturalistic, usage-based[3] learning algorithm where a model is fed isolated noun forms and tries to identify analogies between them, while gradually forgetting spurious accidental matches (like *bot* 'stick', a root that might look like the non-existent accusative *bo-t*; or *héja* 'hawk', another root that could be mistaken for a possessive *hé-ja*). The input forms in the training data will reoccur proportionally to their real corpus prevalence. During training, each word form is:
1) stored in memory and assigned a scalar value to keep track of how strongly this form is remembered at present (repeated occurrences bump this value higher, while neglect causes it to decrease);
2) matched against all previously seen forms for phonological similarity and assigned a scalar value for each to reflect how strongly each pair of forms is associated.
Once training is complete, judgements are formed by a similar process: the input form activates (potentially several) similar learned forms that contribute either positively or negatively to a final acceptability score, the influence of each form weighted by how well they are remembered by the model.
Known cases of nearly clear 0 and 1 judgements should also obtain from the same algorithm.

References

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