AESTHETIC PERCEPTION OF PROSODIC PATTERNS AS A POTENTIAL FACTOR IN THE CULTURAL EVOLUTION OF LANGUAGE

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All human cultures appreciate art and can perceive visual, verbal, or musical stimuli in terms of their aesthetic appeal. For example, aesthetic preferences regarding prosodic patterns play a prominent role for the appeal of poetry (Nadal & Vartanian, 2019; Rastall, 2008). If such preferences also apply in the perception of spontaneous everyday speech, they may pose a constraint on language change (Rastall, 2008): we hypothesize that aesthetically appealing linguistic features are learned easily and used frequently, and will thus be culturally transmitted to future generations of speakers more successfully than less appealing features (cf. Smith & Kirby, 2008).

In our exploratory study, we investigated a crucial baseline for this hypothesis, namely if there were indeed differences in listener's aesthetic judgements of linguistic features. Specifically, we focused on the aesthetic perception of temporal rhythmic patterns in polysyllabic words. On the one hand, words might be regarded as most aesthetic if their syllables are isochronous because isochrony has a facilitatory effect on auditory processing, and people have a general propensity for regular patterns (Ravignani & Madison, 2017). On the other hand, listeners may also perceive irregular patterns as aesthetically appealing (Westphal-Fitch & Fitch, 2013). In that case, words with deviations from isochrony might be judged as more pleasing than isochronous stimuli.

To explore the potential link between words' rhythmic patterns and aesthetic perception, we tested 180 native-German-speaking participants on their aesthetic

evaluation of artificially generated trisyllabic pseudo-words. Each participant made valence ratings of 20 words that were each presented in 3 different conditions in a random order: a) with isochronous syllables, b) with the initial, medial or final syllable lengthened and c) with the initial, medial or final syllable shortened by 50% of its original duration (400 ms). Each participant ranked each word three times, namely on its 'likability', on its 'beauty' and on its 'naturalness', which together served as indicators of 'aesthetic appeal'.

Cumulative Link Mixed Models revealed that, overall, isochronous syllables were preferred over deviations of isochrony. Especially, shortened syllables had a prominent negative effect on aesthetic appeal. The only modification that participants judged as slightly more aesthetically appealing than isochrony was word-final lengthening. These results were similar for 'likability', 'beauty' and 'naturalness'.

The positive ratings of rhythmic patterns are unlikely to have been influenced by their occurrence frequencies in the participants' native language (Bybee, 2007) because word-medial syllables, which are typically stressed and thus lengthened in German (Domahs, Plag, & Carroll, 2014) have not been evaluated as aesthetically appealing when lengthened in our experiment.

Interestingly, the aesthetic appeal of prosodic patterns in our study corresponded to their effectiveness for speech segmentation in other experiments, where words with finally lengthened syllables could be extracted from continuous speech more successfully than words with finally shortened syllables (Matzinger, Ritt, & Fitch, 2021). Together, these findings indicate a potential connection between aesthetics and language learning. Thus, overall, this study serves as an important starting point for testing the role of aesthetic perception of linguistic input for the cultural evolution of linguistic patterns.

Further research should test the role of aesthetic appeal in language change more directly, for example in iterated learning experiments (Kirby, Cornish, & Smith, 2008). Also, future research should consider that aesthetic preferences are likely to arise from a combination of factors, including the occurrence frequencies of the target patterns, their position withing a sentence, or an interplay of familiarity and novelty biases (Sluckin, Hargreaves, & Colman, 1983).

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