# AESTHETIC PERCEPTION OF LINGUISTIC FEATURES AS A POTENTIAL FACTOR IN LANGUAGE CHANGE

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Aesthetic perception of visual art or music, but also of linguistic behavior such as pronunciation, word choice or prosodic patterns is common among all human cultures (Nadal & Vartanian, 2019; Rastall, 2008). This has implications for language evolution and language change: linguistic features that are perceived as aesthetically appealing are memorized easily and used frequently, and will thus be culturally transmitted to future generations of speakers (cf. Smith & Kirby, 2008). By the same rationale, less aesthetic forms will get lost over time. Thus, we suggest that aesthetic perception poses a potential constraint on language change (e.g. sound changes or lexical borrowings; Rastall, 2008).

In our exploratory study, we investigated a crucial baseline for this assumption, namely if there were indeed differences in people'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 (e.g. Ravignani & Madison, 2017). On the other hand, people also perceive irregular patterns as aesthetically appealing (e.g. Westphal-Fitch & Fitch, 2013). In that case, words with deviations from isochrony might be judged as more aesthetically pleasing than purely isochronous stimuli. Especially interesting deviations are durational changes on the final syllables of words because final elements are particularly prone to durational modifications in actual speech. For example, lengthening the final syllables of phrases is a language-universal phenomenon, and might thus be linked to positive judgements (Fletcher, 2010). On the other hand, word-final (but not phrase-final)

elements are frequently reduced or deleted in spoken language, possibly being linked to negative evaluations (Kohler & Rodgers, 2001; O'Brien & Fagan, 2016). Similarly, an actual sound change in the history of English might reflect a dislike of finally shortened syllables: in Middle English, words that ended in the reduced and short vowel *schwa* lost this vowel completely (Minkova, 1991).

To explore the potential link between rhythmic patterns of words and aesthetic perception, we tested 120 native German 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 final syllable lengthened and c) with the final syllable shortened. Each participant ranked each word twice, namely once on its 'beauty' and once on its 'likability'. These concepts are highly related but still different manifestations of aesthetic appeal (Conway & Rehding, 2013). Likability refers to purely sensual pleasure and beauty requires higher executive functions (Armstrong & Detweiler, 2008; Brielmann & Pelli, 2017). We divided our participants into two groups to test how salient modifications needed to be to affect aesthetic perception. Group 1 received stimuli with final syllables lengthened/shortened by 50%, and group 2 received stimuli with final syllables lengthened/shortened by 25% of their original duration (400 ms).

We found that in group 1, people perceived isochronous and finally lengthened words as equally aesthetic but found shortened words significantly less appealing (ANOVA: beauty: $F(2, 3597) = 26.6$, $p < 0.001$; likability: $F(2, 3597) = 31.49$, $p < 0.001$). In group 2, shortening did not have a negative influence on the aesthetic perception of the words (ANOVA: beauty: $F(2, 3597) = 0.96$, $p = 0.39$; likability: $F(2, 3597) = 0.32$, $p = 0.72$). Thus, people tolerated deviations that they would normally find less appealing, if these deviations were only small (but still above the perceptual recognition threshold; Ravignani & Madison, 2017).

People's ratings may have been influenced by the intrinsic aesthetic values of the three rhythmic patterns, but also by their native language's typical and thus frequently occurring stress patterns (Bybee, 2007). There is, however, no general agreement on whether highly or less frequent items are regarded as more aesthetic (Hekkert et al., 2003). Still, speakers of German, a stress-based language, might tolerate deviations from isochrony more than speakers from syllable-based languages (Pamies, 1999). We also report results of a follow-up study addressing these issues by considering typical word stress patterns of our participants' native language and including ratings of how natural the participants find the stimuli. Overall, this study serves as a starting point to test the role of aesthetic perception of linguistic input for the cultural evolution of linguistic patterns.

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