Hidden Iconicity in Tones

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The relation of sound and meaning have long been considered to be arbitrary (de Saussure, 1959). Yet, a growing number of psychological experiments can be interpreted as showing a correlation between form and meaning (Fort et al., 2013). Other scholars holding a similar viewpoint employ statistical analysis to prove the existence of iconicity in sound-meaning pairs, called Systematicity (Monaghan et al., 2014). People working on Systematicity, however, focus mainly on phonemes, such as vowels and consonants (Dingemanse et al., 2015). Suprasegmental features such as tone and pitch contour are seldom discussed. Past study on Chinese tone suggests the existence of hidden iconicity in this tonal language (Yap, 2018). A broader range of tonal languages are included in the current study to examine if Yap's claim is universally applicable. We intend to answer (i) whether there is hidden iconicity in tonal languages and (ii) whether such phenomena are universal or language specific.

In the current study, we first gathered valence and arousal ratings from the ANEW word list (Bradley and Lang, 1999). These ratings were then translated into the three tonal languages Mandarin Chinese, Thai and Vietnamese through Google Translate. Naïve native speakers were recruited to review the lists and examine the appropriateness of the translations. The correlations between different aspects of tone and valence and arousal scores have then been analyzed statistically.

Our preliminary analysis of Mandarin Chinese could not completely reproduce the findings of Yap (2018). Results show only a strong positive correlation between rising tone contour and positive valence ratings in the single character category. For two character words, closer examination of tone combinations shows that the fifth tone plays an important role in Chinese and hints at a more complex tone-valence relationship rather than simple tone directionality.

All the languages in the sample show a non-arbitrary relationship between form (pitch) and meaning (valence/arousal). As a general tendency, we can say that tones that are steep, short and falling often correlate with concepts that exhibit low valence ratings. Suggesting that a phenomenon already known from prosody (Scherer, 2003) is also applicable to lexical pitch.

References

Bradley, M. M., & Lang, P. J. (1999). *Affective norms for English words (ANEW): Instruction manual and affective ratings* (Vol. 30, No. 1, pp. 25-36). Technical report C-1, the center for research in psychophysiology, University of Florida.

Dingemanse, M., Blasi, D. E., Lupyan, G., Christiansen, M. H., & Monaghan, P. (2015). Arbitrariness, iconicity, and systematicity in language. *Trends in cognitive sciences*, *19*(10), 603-615.

de Saussure, F. D. (1959). *Course in general linguistics* (W. Baskin, Trans.). New York: Philosophical Library.

Fort, M., Weiß, A., Martin, A., & Peperkamp, S. (2013). Looking for the bouba-kiki effect in prelexical infants. In *Auditory-Visual Speech Processing (AVSP) 2013*.

Monaghan, P., Shillcock, R. C., Christiansen, M. H., & Kirby, S. (2014). How arbitrary is language?. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *369*(1651), 20130299.

Scherer, K. R. (2003). Vocal communication of emotion: A review of research paradigms. *Speech communication*, *40*(1-2), 227-256.

Yap, D. F. (2018). Hidden Iconicity in Gesture, Sign and Spoken Language. Doctoral dissertation, University of Chicago. Retrieved November 12, 2018, from http://hdl.handle.net/11417/1217.