Psycho-typologizing word stress through prosody-music alignment in children's songs

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Linguistic prosody is reflected in both instrumental music and textsetting, where prosodic features are aligned with musical levels. Due to differences in word prosodic systems, different degrees and types of prosody-music alignment are expected crosslinguistically. Alignment occurs between accented syllables and strong beats in English (lexical stress; Palmer & Kelly 1992), in French (fixed stress; Temperley & Temperley 2013), and in Japanese (pitch accent; Cho 2017).

Here, we study Turkish (TK) and English (ENG). While ENG behaves as a lexical stress language, the TK word accentual system is more fixed (canonical word-final accent with cases of non-final word stress).

We coded TK (n=18) and ENG (n=18) children's songs for linguistic (+/-stress) and musical (metrical strength, melodic peak) variables and calculated mean metrical weight (MW) for stressed vs. unstressed syllables in TK, as well as a melodic peak score to determine the degree of stress-pitch alignment.Our results show a significant difference ($p=.006$) between MW in stressed vs. unstressed syllables in TK (no distinction between stressed syllables in +/-word-final position). This suggests that TK shows a degree of stress-meter alignment but the degree of alignment is gradient crosslinguistically. Strikingly, there is significant alignment of stress and musical pitch in TK ($p=.0002$), but not in ENG ($p=.04$). We will discuss the consequences of our findings for phonetic concomitants of word stress and previous accounts of Turkish stress and prosodic typology.

References: Palmer, C., & Kelly, M. H. (1992). Linguistic prosody and musical meter in song. Journal of Memory and Language, 31(4), 525-542. • Temperley, N. & Temperley, D. (2013). Stress-meter alignment in French vocal music. J. Acoust. Soc. Am.134(1), 520-527. • Cho, S. (2017). Text alignment in Japanese children's songs. UPenn Working Papers in Linguistics, 23(1), 31-37.