

**The sound symbolic value of Japanese lexical pitch accent:
A case study of baby diaper names
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Introduction: There is a growing body of literature showing that sounds can be systematically associated with particular meanings, the observation often referred to as *sound symbolism* (Hinton et al. 1994). Previous research has primarily focused on sound symbolism at the segmental level: e.g. [a] is bigger than [i] or voiced obstruents are large (Newman 1933; Sapir 1929). On the other hand, whether prosodic properties can have systematic sound symbolic values have been understudied. A few exceptions are that high tones are often associated with smallness in several languages (Ohala 1984, 1994), and in some languages like Mandarin Chinese, reduplication expresses diminutives. To fill this gap in the literature, the current study explores sound symbolic effects of lexical pitch accent in Tokyo Japanese.

One characteristic of words specifically used in Japanese child-directed speech is that they are always accented (e.g., *wa'nwan* 'dog'; *po'npon* 'stomach'; *ha'ihai* 'crawl'; *ba'aba* 'grandma'; *ku'kku* 'shoes'; *ne'nne* 'sleep') (Kubozono 2019), which can be contrasted with native words, many of which are unaccented. There is thus a possibility that accentedness can be sound symbolically associated with the notion of babies. To address this possibility, the current experiment examines whether accented names are judged to be appropriate for baby diaper names than unaccented names.

Experiment: The current experiment had six conditions, each of which had three pairs of accented and unaccented nonce words. The first three conditions consist of Heavy-Light syllables (HL): the first condition contains a long vowel (LongV) (e.g. *paamo*), the second condition a geminate consonant (Gem) (e.g. *moppi*), and the third condition a coda nasal (Nas) (e.g. *panmo*). The fourth and fifth conditions consist of Light-Heavy syllables (LH): the fourth condition a long vowel (e.g. *pamuu*) and the fifth condition a coda nasal (e.g. *pamon*). The sixth condition contains a reduplicated form of heavy syllables (HH) (e.g. *puupuu*). All the stimuli were recorded by the first author, a male native speaker of Tokyo Japanese. The order of all 18 pairs (6 conditions*3 pairs) was randomized, and the order of accented and unaccented words within a pair was also randomized. Participants were asked to choose which of the paired nonce words was more appropriate for baby diaper names, while listening to the pre-recorded sound files with the RMS amplitude adjusted to 60 dB. A total of 24 adult native speakers of Japanese participated in the current experiment.

Results & Discussion: The figure on the right shows the rate in which accented words were judged to be appropriate for baby diaper names, as compared to unaccented words (HL(LongV) = 0.889; HL(Gem) = 0.944; HL(Nas) = 0.903; LH(LongV) = 0.944; LH(Nas) = 0.944; HH(Redup) = 0.917). A linear logistic regression analysis shows that the choice of accented words was above the chance level ($z = 16.17$; $p < .001$). A series of post-hoc binominal tests shows that the rate of choices in each condition is significantly higher than chance (all $p < .001$). These results suggest that accented words are better suited for diaper names than unaccented words. The current experiment expands on some recent studies which have discovered that baby diaper names in Japanese are preferred to contain labial consonants like [p, m] and a heavy syllable (e.g., *panpaasu*; *muunii*; *meriizu*; *mamiipoko*). All in all, our finding shows that suprasegmental features like lexical pitch accent can possess particular images. It also opens up a new general research question: how common are prosody-based sound symbolic patterns across languages?

