

**The Mora or the Segment? Investigating the basic unit of spoken language
processing through SOT data in Japanese**
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Abstract

Language-specific rhythmic categories play a vital role in the processing of spoken language, which involves both speech perception and speech production. A number of researchers who have conducted perception and metalinguistic experiments argue that in Japanese the **MORA** is the basic rhythmic or timing unit of spoken language processing. However, the evidence from production experiments is less clear, leading some researchers to question the significance of mora-oriented phenomena in speech production (Terao 1992, Morais, Kolinsky, and Nakamura 1996). Thus it may be too much of an overgeneralization to apply the findings from perception and metalinguistic studies to production studies, i.e. to expect the mora to also be the most prominent unit in production.

In previous psycholinguistic research, mora-oriented phenomena in Japanese speech processing have been investigated through the analysis of speech errors, stuttering, various segmentation and blend experiments, and perception experiments. Recently, Cutler and Otake (2002) showed that **nonmoraic** units such as **segments** are also significant in the processing of spoken language in Japanese, particularly during the initial lexical activation period. Can we assume, then, that the segment also contributes in some way to the speech production processes of Japanese speakers? Our experimental study investigates the phonological processing in Japanese through an examination of slips of the tongue (SOT). The current study pays particular attention to the status of the mora during speech production planning.

The study consisted of two tongue twister (TT) experiments designed to elicit SOTs from Japanese speakers. Experiment 1 reports the results from the study with well-known TTs. In Experiment 2, the number of repeated sounds in the TTs was minimized in order to avoid ambiguous mora errors; for example, *pa.n ko-bu* 'bread-bump'. 219 SOTs obtained from 17 subjects were analyzed and categorized as involving phonetic features, segments (consonants, vowels), moras, mora/syllables, rhymes, or syllables. The results of the experiments showed that subjects made far more segmental errors than any other phonological error type, a finding consistent with many SOT studies of other languages (Baars 1992, Cutler 1982, Fromkin, 1973). Hence, whereas many researchers who have conducted perception and metalinguistic experiments have shown that the mora plays a significant role in speech perception, the results of my experiments demonstrate that the segment plays a significant role in speech production and, thus, that the mora is not the only basic unit of spoken language processing in Japanese. Given the fact that segmental errors are common in many other languages, my findings also suggest that there might be some sort of universal underlying cognitive mechanism for speech production planning.

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