This study examines the phonetic and phonological cues that help bilingual speakers recognize code-switching between languages that are typologically close. Previous studies on the recognition of code-switches focus primarily on the effect of accent and language-specific syllable structure on the speed of word recognition in the code-switching between typologically distinct languages (Grosjean 1988; Li 1996). However, it remains unclear as to what phonetic or phonological properties provide bilingual speakers cues for code-switches between languages that have large overlaps in their sound systems. This study employs a reaction time (RT) experiment to examine if a language-specific onset, nucleus, coda, or tone can facilitate the recognition of code-switches from Mandarin to Taiwanese.

In this experiment, bilingual Mandarin-Taiwanese speakers were played audio-stimuli that were created with a Mandarin carrier sentence embedded with a Taiwanese or a Mandarin word at the end. The first syllable of the embedded code-switched words had a Taiwanese-specific onset, nucleus, coda, or tone, or had no potential cues. The participants were asked to identify whether the word at the target position is spoken in Mandarin or Taiwanese through pressing the corresponding key as fast as possible, and the time between the onset of the target word and their key press was measured. It is hypothesized that if a phonetic or phonological property can be a cue for code-switching, the RT for the specific condition should be faster than that of the condition where no potential cue is present.

It was found that when the phonetic or phonological cue appears early in the syllable, i.e., at the onset or on the nucleus, the responses were more accurate and faster than those of the condition without a potential cue. Taiwanese-specific codas do not provide reliable cues for language switching as the RT were similar to the RT of the condition without a potential cue. As for tones, a Taiwanese-specific level tone is not a reliable cue for code-switching. However, when the first syllable of the target word bears an entering tone, which is the combination of a Taiwanese-specific short level tone and a Taiwanese-specific obstruent coda, the responses were faster and more accurate. This difference might be because F0 can be used to mark the information structure in both languages; therefore, a syllable with a Taiwanese level tone can be perceived as a Mandarin level tone with a different information structure while an entering tone can provide cue for code-switching because of its faster air velocity.

The results show that Mandarin-Taiwanese bilinguals can utilize language-specific phonetic and phonological properties in the onset and the nucleus to detect code-switching. This suggests that bilingual speakers of two closely-related languages are sensitive to the differences in the sound systems, and can use the differences for speech perception.
**Figure 1.** Percent correct by condition (CS: code-switching condition, NS: non-switching condition, ons: onset, nuc: nucleus, cod: coda, ent: entering tone, ton: tone, rep: a syllable that exists in both languages)

![Graph showing percent correct by condition](image1.png)

**Figure 2.** Response latency of the code-switching conditions with different potential cues

![Graph showing response latency by condition](image2.png)

**Key References**