

## Recognition of Mandarin spoken words by L2 listeners: A pilot study

### Abstract

The purpose of this study is to investigate how the processes of spoken word recognition are influenced by native language experience. Previous research has suggested that second language (L2) listeners may activate words from both their native and non-native languages even though words from only one of the languages are heard (Broersma & Cutler, 2008; Ju & Luce, 2004; Weber & Cutler, 2004). For example, Weber & Cutler (2004) found that Dutch listeners activated their native vocabulary (e.g., *deksel* 'lid') when hearing English words (e.g., *desk*).

However, these studies primarily focus on Indo-European languages such as English and Dutch, in which lexical tones are not used extensively to distinguish lexical items. The question arises as to whether L2 listeners would activate their native vocabulary when hearing non-native words from a tone language such as Mandarin. To have a better understanding of lexical tone processing, a form priming experiment similar to Lee's (2007) was conducted to investigate how tone influences word recognition by both native speakers and English-speaking learners of Mandarin.

In the present study, two sets of monosyllabic Mandarin words were created, serving as target stimuli. The first set was selected based on words having similar-sounding words in English (e.g. *wai4* 'outside' - 'why'), whereas the second set was selected based on words that do not have similar-sounding English words. For each target, four types of primes were created. These primes included stimuli sharing segmental and tonal structure with the target (e.g. *wai4* 'outside' - *wai4* 'outside'), sharing segmental structure only (e.g. *wai4* 'outside' - *wai1* 'askew'), sharing tonal structure only (e.g. *wai4* 'outside' - *tui4* 'withdraw'), or being unrelated (e.g. *wai4* 'outside' - *zen3* 'how'). Pronounceable non-words were created as well. Listeners from both language groups were presented with the stimuli and were asked to make a lexical decision on a target preceded by one of the four types of primes.

The results of the experiment show that tonal information plays an important role in Mandarin spoken word recognition for both native and L2 listeners. Both language groups demonstrated similar tonal processing patterns, suggesting that the process of spoken word recognition may universally involve simultaneous activation of similar-sounding words and subsequent competition among the activated lexical items. In addition, L2 listeners took a longer time to respond to words that had similar-sounding words in English, than to words without similar-sounding English words. This suggests that L2 spoken word recognition is sensitive to phonological cross-language similarity. In particular, L2 listeners may activate their native vocabulary when processing spoken words in a tone language. This outcome demonstrates that these similar-sounding words may be activated during lexical processing in L2 listeners of tonal languages as well as in non-tone languages (c.f. Broersma & Cutler, 2008; Weber & Cutler, 2004).