Do you hear what I hear? Priming language-specific phonotactic constraints in speech perception

Listeners utilize the structural properties of their language to help them interpret speech, leading to misperception of non-native sounds and sound sequences. For example, Spanish contains no words with initial sCV sequences, a phonotactic restriction well-known to influence cross-language borrowings. Words like snob are “repaired” by appending an initial /e/ (esnob). Interestingly, similar effects are observed in on-line speech perception tasks. Native Spanish speakers confronted with a spoken token of snob report hearing esnob, even though the stimulus lacks the initial vowel, whereas speakers of languages that allow sCV sequences (e.g. French) do not (Cuetos et al., 2011; Hallé et al., 2008; to appear).

How does bilingual perception relate to these monolingual extremes? Second language users can develop native-like perception of sCV sequences—even when this conflicts with their first language (Parlato-Oliveira et al., 2010). However, the perceptual consequences of possessing conflicting phonotactic constraints are unclear. Does acquiring a language that allows sCV structures eliminate misperceptions? If not, can bilinguals dynamically shift constraints during perception?

We investigated these possibilities by examining misperceptions in bilinguals fluent in both Spanish and English. All participants completed a vowel detection task (Cuetos et al., 2011) in a monolingual Spanish experimental context. Half of them then performed an English picture-naming task before repeating the Spanish vowel detection task. The performance of this group was compared to a group that performed the picture-naming task in Spanish. A monolingual English control group was included for comparison.

The bilinguals exhibited higher rates of misperception than monolingual English speakers, but the rate of misperceptions was modulated by priming. English-dominant (but fluent in Spanish) bilinguals reported hearing /e/ less often after naming pictures in English, even though the vowel-detection task was again presented in Spanish. This suggests that bilinguals can dynamically deploy distinct phonotactic constraints depending on their recent linguistic experience.

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