Abstract

Do Cantonese listeners actually use phonotactics information in the segmentation process of Cantonese continuous speech? Because some phoneme transitions across Cantonese syllables occur much more often than the others, they may cue the locations of possible syllable boundaries in Cantonese. Similarly, some sounds appear more frequently at the beginning or ending of Cantonese syllables than others. These kinds of probabilistic information within syllables may also cue the locations of syllable boundaries. Two series of studies were conducted to investigate the role of probabilistic phonotactics in the speech segmentation process of Cantonese. The first series of studies (Experiments 1 - 3) was specifically designed to examine the role of transitional probabilities in speech segmentation. A syllable-spotting task was used in which the listeners were instructed to spot any real Cantonese syllables from a series of nonsense Cantonese syllable strings. It was found that listeners would find it easier to spot the target syllable in the nonsense sound sequence, which consisted of high transitional probability phoneme combinations than the low transitional probability phoneme combinations. These results clearly indicated that listeners indeed made use of those transitional probabilities to segment the continuous speech signal. The second series of studies (Experiments 4 - 6) was designed to examine the role of sequential probabilities in the segmentation process. The syllable-spotting task was used again. It was found that listeners indeed made use of the sequential probabilities of a syllable's onset, but not a syllable's final, in the segmentation process. In addition, these probabilistic phonotactics effects were stronger for information across syllables (transitional probabilities) than within syllables (sequential probabilities). This result implies that Cantonese listeners attended to syllabic information more than to sub-syllabic information in the course of speech segmentation. This result also suggests that "syllable" seems to be a prominent functional

processing unit for Cantonese speech. Finally, together with other relevant studies (Gaygen, 1999; van der Lugt, 1999), I argue that probabilistic phonotactics are one useful source of information in the speech segmentation process.