Abstract of thesis entitled:

Phonological Encoding in Mandarin Chinese Word Production

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The phonological encoding process in Mandarin spoken word production was investigated in the current thesis. In Study 1, participants named pictures while ignoring visual distracting words presented before, at, or after picture onset. When the distractor shared the same atonal syllable with the picture name (all of which were monosyllabic), facilitatory effects were observed all the time, relative to the unrelated control. Distractors sharing word-initial segments generated facilitations when presented at or after picture onset, but null effects were found for distractors sharing word-final segments. In Study 2, participants first prepared and later produced disyllabic Mandarin words upon picture prompts and a response cue while electroencephalogram (EEG) signals were recorded. Each two consecutive pictures implicitly formed a pair of prime and target, whose names shared the same word-initial atonal syllable or the same word-initial segments, or were unrelated in the control conditions. Only syllable repetition induced significant effects on event-related brain potentials (ERPs) after target onset: a widely distributed positivity in the 200- to 400-ms interval and an anterior positivity in the 400- to 600-ms interval. In Study 3, participants named pictures (all of which had monosyllabic names) in different contexts, and their naming latencies in the following conditions were compared: predictable or unpredictable segment repetition between

consecutive picture names, and unrelated control. Different positions in words (i.e., the onset segment and the rhyme) were examined at the same time. Results showed that mere repetition of segments generated an inhibitory effect on naming responses, and this effect was independent of the position of repeated segments in words. More importantly, a facilitatory effect of onset predictability was revealed in Mandarin for the first time, with a smaller size than that in Germanic languages, while the effect of rhyme predictability was not significant. Overall, these findings provide both behavioral and electrophysiological evidence for the primacy of syllables in Mandarin word production. Moreover, it is shown for the first time that segments, although playing a subordinate role in Mandarin, are encoded incrementally from the onset of a word to its end. The implications for cross-linguistic similarities and differences in spoken word production are discussed.

论文摘要: 汉语口语词汇产生中的语音编码过程

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本论文旨在探究汉语口语词汇产生中语音的加工过程。研究一中被试的任务是命名图片并忽略在图片出现之前、同时或者之后呈现的干扰词（所有材料均为单音节）。当干扰词与图片名之间音节相同时，被试的图片命名时间要比当它们两者无关之时更短（无论干扰词何时呈现）。当干扰词由图片名的词首音素组成时，它对图片命名的促进效应只出现在干扰词呈现于图片出现之时或者之后的情况下。当干扰词由图片名的词尾音素组成时，它对图片命名没有促进效应。研究二中被试的任务是对呈现的图片作好命名的准备并在反应信号出现之后尽快说出图片名（图片名均为双音节），其间被试的脑电波被同时记录。前后出现的两张图片的名字构成一对启动词和目标词。这两者之间可能词首音节相同，或词首音素相同，或无关。相较于无关控制条件，只有音节相同对被试的事件相关电位产生显著的启动效应：即在200-400毫秒间广泛分布于全脑的差异正波和在400-600毫秒间分布于头皮前侧的差异正波。研究三要求被试在不同语境下命名图片（图片名均为单音节），并且比较被试在以下条件中的命名时间：图片名中的某音素与上一图片名中的重复并且可以预期，或者音素重复但无法预期，或者音素不重复。研究同时考察了声母位置和韵母位置的音素。结果发现音素重复对被试的命名反应产生了抑制效应（无论声母位置还是韵母位置的音素）。更重要的是，研究首次发现首音（声母位置的音

素）的可预期性对汉语命名产生显著的促进效应，虽然这一效应弱于日耳曼语族中的首音促进效应，而韵母位置音素的可预期性并未产生显著的促进效应。总括而言，上述研究结果为汉语口语词汇产生中音节的首要性提供了重要的行为和电生理证据。另外，结果首次表明音素作为汉语中的次要加工单元遵循由词首至词尾渐增编码的原则。论文讨论了口语词汇产生历程中的跨语言异同。