

Thesis Title: Toward a Model of Cantonese Spoken Word Production

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Abstract

Five experiments were conducted to investigate how phonological information is processed in Cantonese spoken word production using the picture-word interference (PWI) paradigm. Participants were asked to name aloud individually presented pictures and ignore an accompanying auditory word distractor. In the first three experiments of the present study, the target picture names were Cantonese mono-syllables with a consonant-vowel-consonant (CVC) structure. Participants' picture naming latencies were found faster when the target (e.g., 星 /**siŋ**1/, "Star") and the distractor (e.g., /**giŋ**2/, /**sik**6/, or /**soeŋ**3/) shared two identical segments (irrespective of the segments' syllable-internal position), than when they were unrelated, whereas no reliable effects were obtained when they shared only the vowel (e.g., /**dim**3/), the coda (e.g., /**hung**2/), or together with the tone (e.g., /**bit**1/ or /**fung**1/). Furthermore, the facilitation effect observed in the consonant+consonant+tone-related condition (e.g., /**soeŋ**1/) was found reliably larger than that in the consonant+consonant-related condition (e.g., /**soeŋ**3/). In Experiment 4, the syllable structure of the targets was manipulated such that half of the picture names were mono-syllables with a consonant-vowel (CV) structure (e.g., 梳 /**so**1/, "comb") and the other half a CVC structure (/**siŋ**1/). A significant syllable (without tone) related facilitation was found irrespective of the target type, whereas no reliable effect was observed when the target and the distractor (e.g., /**se**6/ and /**sam**2/, for CV and CVC targets, respectively) shared only the onset consonant. Furthermore, Experiment 5 investigated whether phonetic factors modulate the facilitation effect observed in a PWI task. To this end, the sonority level and duration of the target's

rhyme component were manipulated in Experiments 5A and 5B, respectively. A significant rhyme-related priming effect was found in both Experiments 5A and 5B, and such effect was neither affected by the sonority level nor duration of the target's rhyme component. These results are in line with the notions that 1) a single segment does not have a significant impact on Chinese spoken word planning, 2) sub-syllabic constitutes such as rhyme is an important processing unit, 3) the lexical tone has a unique role to play during phonological encoding, and 4) segmental and tonal retrieval are operated in an interactive manner. Based on all the available results from Cantonese PWI research, an interactive model of Cantonese spoken word production is proposed.

(Abstract in Chinese)

摘要

本論文報告了五個圖詞干擾實驗，旨在研究廣東話口語詞彙產生中語音的加工過程。被試的任務是要為每次在螢幕中出現的圖片命名，並要忽略與圖片同時出現的干擾詞。在首三個實驗中，目標詞皆為以子音-母音-子音組成的廣東話單音節詞。結果發現，當聽覺呈現的干擾詞（如：/ging2/, /sik6/, 或 /soeng3/）與目標詞（如：星 /sing1/）之間有兩個音素相同時（不管該兩音素的音節位置），被試的圖片命名時間要比當它們兩者無關之時（即：無關控制條件）顯著的快。可是，當干擾詞與目標詞之間只有韻腹相同（如：/dim3/）、韻尾相同（如：/hung2/），或韻腹及聲調相同（如：/bit1/），又或韻尾及聲調相同（如：/fung1/）時，被試的圖片命名時間與無關控制條件均無顯著分別。此外，當干擾詞與目標詞為聲母、韻尾及聲調俱同的情況下（如：/soeng1/），被試的圖片命名時間要比當它們兩者之間只有聲母及韻尾相同時（如：/soeng3/）顯著的快。實驗四包含了兩種目標詞，分別為以子音-母音組成的單音節（如：梳 /so1/），以及由子音-母音-子音組成的單音節（如：/sing1/）。結果發現，當干擾詞與目標詞為音節（不包括聲調）相同時（不管目標詞的音節結構），被試的圖片命名時間要比無關控制條件顯著的快。而當干擾詞與目標詞之間只有聲母相同時（如：/se6/ 及 /sam2/），不管目標詞的音節結構，被試的圖片命名時間均與無關控制條件相若。另外，實驗五探討了干擾詞本身的語音特質會否對圖詞干擾實驗中的促進效應產生影響。為此，實驗五-甲及五-乙均包含了與目標詞為韻母相同的干擾詞，並且實驗五-甲操控了目標詞韻母部份的響亮程度，而實驗五-乙操控了目標詞韻母部份的長度。結果發現，當干擾詞和目標詞為韻母相同時，被試的圖片命名時間要比無關控制條件顯著的快，而且此促進效應並沒有受到目標詞韻母部份的響亮程度或長度所影響。總括而言，上述結果支持以下論點：（一）單一音素在中文言語產生過程中並沒有顯著的影響，（二）次音節單位如韻母是一個重要的加工單位，（三）聲調信息在語音編碼過程中扮演著獨特的角色，（四）音素和聲調信息的提取過程中存在著交

互作用。最後，論文的總結部份整合了所有從廣東話圖詞干擾實驗中得來的結果，並提出了一個交互激活的廣東話口語產生模型。