

## Component Effects in Reading Chinese Two-character Words: Two Behavioral Tasks

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Component effects of the Chinese single-character processing were of linguistic interest and studied a lot in past decades. But in real use, the majority of modern Chinese words consist of two or more characters. For example, over 65% of them are composed of two characters (Tan & Perfetti, 1999; Liu & Liu, 1999). And few studies focused on the components in multi-character words. Therefore, as a starting point, considering the present exploration and debates on the time course of phonological, orthographical and semantic activation in the character recognition, this study focused on how component-related variables affect the visual recognition of modern Chinese two-character words by comparing two behavioral tasks—word naming and lexical decision tasks, testing 1) component effects (*e.g. component number, component frequency, component combination type and the frequency and family size of initial component of each character*) in recognizing Chinese two-character words; 2) the relationship between the component effects and some other word/character predictors (*e.g. whole word frequency, constituent character frequency, orthographic complexity of the characters and words, the syllable frequency of each constituent character*) in the 2-character words.

Twenty-one native speakers of Chinese participated in the lexical decision task, reading 320 2-character words and 320 2-character non-words presented on the screen in Chinese Song Font with a size of 48. Other 30 native speakers of Chinese did the naming task on the same 320 2-character words. The frequency distribution of the 320 stimuli is approximately normal. The reaction times/naming latencies and error rates on the tasks were modeled using mixed-effects modeling (Baayen, 2008), where participant-background variables (*gender, age, reading habits*) from the questionnaire, component-related variables and lexical predictors were combined to determine which have significant effects. After checking on either task, the author compared the two behavior tests.

Generally, the author found that, first, in the lexical decision task, the second character's component effects on response latencies and accuracy (*number, frequency and combination type*) were bigger than those of the first character, which suggests the sequence of orthographic and semantic activation. But in the naming task, the first character's component effects on naming latencies and accuracy were bigger than those of the second character, which suggests the parallel route of orthographic and phonological activation before the semantic activation. Furthermore, the subjects tended to make naming errors if the initial component of first character has a bigger family size (*i.e. able to form more characters*), which implies the decomposition trend in recognizing the 2-character words in the experimental environment. Secondly, among many intriguing interactions between component variables and lexical predictors, the interactions between the frequency of the initial component of each character and the frequency of each character were outstanding, which also shows a strong decomposition possibility in reading Chinese multi-character words supported by the connectionist models which are based on the component nodes.

**Key words:** Chinese 2-character words, component effects, behavioral tasks, activation, decomposition