EFFECTS OF TEXT SEGMENTATION ON SILENT READING OF CHINESE REGULATED POEMS: EVIDENCE FROM EYE MOVEMENTS

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ABSTRACT

Interword spaces have been reported to play an important role in silent reading of alphabetic languages. However, it has not yet been clear whether text spacing/segmentation facilitates the cognitive process in silent reading of Chinese, a logographic language, especially in reading Chinese regulated poems which have predefined rhythmic structures. An eye-tracking experiment was conducted to monitor eye movements of native participants in reading Chinese regulated poems in four segmenting conditions: normal text, character segmentation, rhythmic

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segmentation, and syntactic segmentation. By comparing a set of measures of eye movements, both global and local analyses showed that syntactic segmentation boosted reading efficiency, while rhythmic segmentation did not. The findings demonstrate that not rhythmic but syntactic structure plays major roles in the cognitive process in reading Chinese regulated poems, suggesting an intrinsic difference in the information structure between spoken and written languages.

KEYWORDS
Text segmentation  Reading  Chinese regulated poem  Rhythmic structure  Syntactic structure  Eye movement

1. INTRODUCTION
Interword spaces play an important role in silent reading of alphabetic languages such as English, facilitating lexical cognition and saccade programming, as shown consistently in previous studies (e.g., Epelboim et al. 1997; Malt and Seamon 1978; Morris et al. 1990; Perea and Acha 2009; Pollatsek and Rayner 1982; Rayner et al. 1998; Spragins et al. 1976). When the spaces between words were eliminated, the reading speed decreased by 50%, the average fixation duration on the critical words increased, the initial landing position of the words in unspaced sentences shifted to the beginning of the words, and the saccades to the upcoming words became shorter. An explanation by Rayner et al. (1998) was that reading without spaces hindered word recognition and disturbs eye movements – it would be difficult for readers to locate the beginning and the end of every word.

Unlike English and other alphabetic languages, Chinese is a logographic language which is written in a string of Chinese characters without any spaces in between. Then, whether text segmentation (i.e., spacing) has impacts on reading unspaced languages such as Chinese also deserves investigation. In the last decade, however, among the studies on the effects of spacing on reading Chinese text (Bai et al. 2008; Bassetti 2009; Hsu and Huang 2000a, 2000b; Inhoff et al. 1997; Shieh et al. 2005; Zang et al. 2013), there have been seemingly contradictory findings. Inhoff et al. (1997) examined the eye movements in reading Chinese


提要

以往的研究表明，词间空格在字母文字的阅读过程中有重要作用。然而，这种间隔或切分对于语素文字如汉语的阅读，特别是对具有固定节律的汉语格律诗的阅读，是否有促进作用，仍属未知。为此，我们采用眼球追踪技术，考察了文本切分对汉语格律诗阅读的影响。实验设计了四种文本切分模式：正常文本、逐字切分、节律切分、句法切分。通过全局分析和局部分析，我们发现，与句法结构相吻合的切分会有效加快汉语格律诗的阅读，而与节律结构相吻合的切分会对汉语格律诗的认知加工并无促进作用。研究结果表明，是句法结构而不是节律结构，在汉语格律诗的阅读中发挥主要作用，这也体现了书面语言与口头言语在信息结构上的区别。

关键词

文本切分 阅读 汉语格律诗 节律结构 句法结构 眼球运动