Title	文の読解における内的な音声化の機能:異なる日本語文字表記による実験的検討
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文の読解における内的な音声化の機能：
異なる日本語文字表記による実験的検討

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Through reading texts, we can learn a wide variety of knowledge. Thus, reading is one of the most important cognitive activities to gain our knowledge. It has been believed that we have two styles of reading. One is *reading aloud*, in which the reader vocalizes a given text. The other is *silent reading*. Many previous studies have investigated the cognitive processes underlying in each reading style by analyzing differences between the two reading styles. With respect to silent reading, they have paid attention to the role of inner voice or subvocalization. Inner voice is a voice-in-mind that one subjectively "hear" only in one's mind. It has been supposed that inner voice plays an important role in suppression, integratiion and organization of one's planning and thinking. Recently, many attempts have been made to quantitatively evaluate the quality and frequency of inner voicing.

Subvocalization is expected to transform textual or visual information into phonetic information in the reading process. That is supposed to be a process prior to inner voicing. Previous studies on subvocalization have reported that it affects memory retention and sentence comprehension. Comprehension of a sentence is supposed to consist of the low-level processing, such as segmentation of letter series into words or clauses. However, the role of subvocalization in reading process has remained unclear. In this study, we investigated the functional role of subvocalization in sentence comprehension. Specifically, in our experiment, we asked the 12 participants to read in multiple styles: either reading aloud, reading silently, reading with suppressed articulation or reading silently by conscious subvocalization. Each participant read the three types of sentences to control the difficulty level of visual segmentation of the sentence. By these experimental controls on reading styles and the difficulty level of visual text segmentation, we investigated the relationship between subvocalization and clause-level segmentation of sentences. To do so, we measured and analyzed the accuracy in semantic comprehension, reading time, and gaze behaviors. In addition, by a questionnaire, we also asked the participants how often the participants meta-recognize their own inner speech in reading silently. Based on their responses to this questionnaire, we classified them into two groups with or without often subvocalization experience.

As a result of the experiment, we found that the average reading time increased by suppressing subvocalization, regardless of the participant group with or without often subvocalization. Also, the analysis of gaze behaviors

during reading revealed that the number of fixations increased only in the frequent-subvocalization group of participants. This increase in the number of fixations was correlated to the increase in the number of read-back behaviors. In sum of these analyses, we concluded that there was an interaction between the suppression of subvocalization and segmentation failures in silent reading.