"Guess Reading" Impairement of Kanji Characters in Pure Alexic Patients

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Experiment 1: Alexic and non–alexic patients with nearly identical lesions in the left medio–occipital lobe were asked to guess at the reading of perceptually ambiguous kanji characters (japanese logographic symbols representing lexical morphemes). Each character was processed with a Gaussian filter with 14 different envelop sizes creating a total 15 versions of each stimulus kanji character. Presentation of target kanji characters gradually and continuously became clearer until the subject correctly guessed the target character.

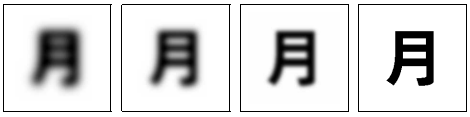

Figure 1: stimulus examples of Exp.1

The results showed that alexic patients had significantly more difficulty guessing the blurred kanji than non–alexic patients, indicating alexic patients' inability to hypothesize possible characters from ambiguous images.

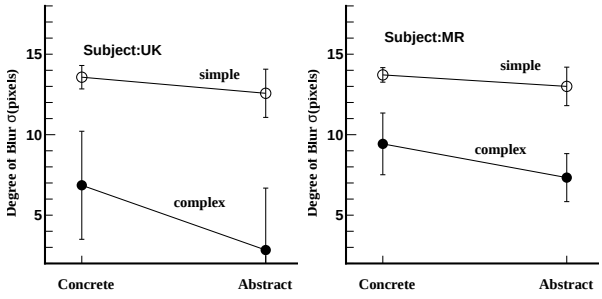

Figure 2: results of blurred character reading

Experiment 2: An alexic patient with a lesion in the left medio-temporoocipital lesion and a non–alexic patient with a lesion in the left lingual gyrus were asked to guess at readings of kanji characters where either the upper or lower portion of the kanji character was presented on the CRT. Their readings of the same whole kanji characters served as a base line measurement.

Figure 3: stimulus example of Exp.2

The patients' responses were measured along with RT. The RT patterns indicated that the non–alexic patient had more difficulty in "guess reading" with the lower portion of kanji than with the upper portion of it, while the alexic patient did not show any difference in reading between the two. These results suggested that alexic and non–alexic patients used different strategies in reading.

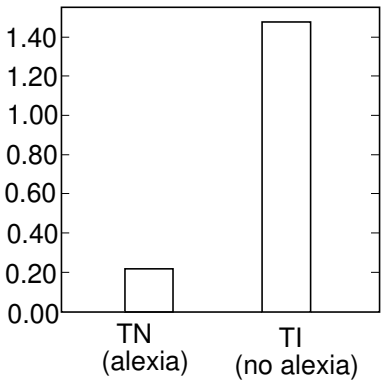

Figure 4: RT differences between lower and upper kanji character reading standarized by control (whole character reading)

A preliminary cognitive neuropsychological model based on the object–superiority effect proposed by Weisstein and Harris (1974) is used to interpret the result of Experiment 1 and 2.

(Any comments and suggestions are welcome. Please e-mail to *fukuzawa@mn.waseda.ac.jp* and *asakawa@mure.twcu.ac.jp.*)

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