

KANA AND KANJI PROCESSING IN JAPANESE APHASICS*

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The fact that Japanese is written using two kinds of symbols creates some unique symptomatology in certain cases of aphasia among Japanese, such that use of the two kinds of written symbols is impaired disproportionately to the other. Kana signs are phonetic symbols for syllables (strictly speaking, mora-size units), and kanji characters are essentially non-phonetic logographic symbols.

Over the past few years, the language disabilities of more than 300 aphasic Japanese adults have been investigated by giving each of them a battery of subtests specifically designed to assess the relative impairment of kana versus kanji processing. Among these subtests are: visual matching, auditory recognition, reading comprehension, reading aloud, copying written material, spontaneous writing, writing to dictation of various materials including individual kana signs, words of different length and complexity in kana and kanji, and sentences in which both kana and kanji are used in normal combinations.

The test data were analyzed for each patient in terms of relative performance levels of kana versus kanji tasks, and the kinds of errors made on each task. These findings were then related to the overall pattern of aphasic involvement in each case.

The results indicate that the impairment patterns of the patients thus analyzed can be divided into at least three different types: selective impairment of kana processing (Type 1), selective impairment of kanji processing (Type 2), and nonselective, mild impairment of both kana and kanji processings (Type 3).

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Those patients with the Type 1 impairment pattern fell into two sub-groups, i. e., those with verbal apraxia accompanying aphasia (Type 1-a), and those with a specific impairment of phonemic discrimination accompanying aphasia (Type 1-b). The former sub-type overlapped with such diagnostic categories as "Broca's aphasia," "afferent or efferent motor aphasia" of Luria, or "aphasia with sensory-motor impairment" of Schuell; while the latter showed some correspondence with "Wernicke's aphasia," "acoustic aphasia" of Luria, or Schuell's "aphasia with partial auditory imperception." A common denominator underlying the two sub-types appeared to be the impairment in various degrees of phonological analysis and/or synthesis of verbal material, although some specific differences existed between the two in terms of the patterns of kana errors.

Those patients who showed Type 2 impairment were relatively rare. The overall pattern of impairment in this group of patients had some similarity to Goldstein's "transcortical aphasia", or to Imura's "semantic-form aphasia." A prominent feature of these forms of aphasia is an impairment of the semantic comprehension of words, with relatively well retained phonological function, as reflected in such symptoms as correct repetition, and reading aloud and writing to dictation in kana, both words and sentences, but without comprehending their meaning.

Type 3 patients constituted the largest group. Their aphasic involvement was relatively mild, as a group, and did not accompany so-called "transmission disorders" such as verbal apraxia or impairment of phonemic discrimination. Schuell's "simple aphasia" seemed to be the best classification for this group: the likelihood of improvement in both kana and kanji processings in such cases is good.

Longitudinal studies were made of a limited number of patients representing each of the three types above. The results showed that the recovery processes for kana and kanji impairment were significantly different from type to type, and that different therapeutic approaches seems to be effective for different types of impairment.

On the basis of these findings, it was concluded that three types of impairment with reference to kana versus kanji disabilities could be reliably distinguished by appropriate clinical procedures, and that a different thera-

peutic approach is indicated for each type of impairment.

The theoretical implications of these facts for a model of language processing in aphasia will be discussed.