Literacy East and West : Data from Linguistics and Psycholinguistics

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1. INTRODUCTION

The purpose of this paper is threefold. I will first attempt to clarify the meaning of the terms logogram and phonogram, which are used extensively to describe different kinds of written characters in both the popular and technical literature. Specifically, I will show that it is much harder to classify characters in terms of their function in a writing system than is usually supposed; it follows that the classification of entire writing systems as logographic or phonographic is neither as easy nor as insightful as generally imagined. I will then introduce a variety of research results that support this line of reasoning. All the research I will discuss involves the comparison of literacy in Japan, China, and North America, and it all points in the same direction: although the differences between *kanji*, on the one hand, and *kana* and *rōmaji*, on the other, are striking and obvious, they have no significant long-term impact on the psychology of the reading process, which is more or less the same for all literate individuals, no matter what language or writing system they happen to use. Finally, I will spell out the implications of these conclusions for future research on Japan.

2. THE LOGOGRAM/PHONOGRAM DISTINCTION

In the West, Chinese characters are often referred to as *ideograms*, meaning symbols that convey ideas or thoughts directly, without any reference to language. This is, for example, how Chinese characters were described by Saussure [1959: 25–26]. A more modern term equivalent to ideogram is *semasiogram*. Some scholars, such as Sampson [1985] and Haas [1970], believe that international road signs, mathematical notation, and similar kinds of symbols constitute semasiographic, *i.e.*

language-indepedent, writing systems; they call all other kinds of writing *glotto-graphic*, meaning that they transcribe actual language. The majority of linguists, however, reject the notion that road signs and mathematical notation are true writing systems; for them, reference to language is a necessary property of any true writing system.[1] The accepted theory (*teisetsu*), in other words, is that all writing systems are glottographic.

Fortunately, even the minority who talk about semasiographic writing systems no longer include Chinese writing among them. Instead, they divide glottographic systems into two kinds, *phonographic* and *logographic*, putting Chinese writing in the latter category.[2] According to this view, Chinese characters, when used, for example, to write Chinese, do not convey meanings directly, without reference to language, but rather represent *morphemes* of Chinese, *i.e.* the smallest meaning-bearing units of the (spoken) language. By contrast, kana and alphabetic letters are all called phonograms because they represent phonemes, moras (Japanese *onsetsu*), or sylla-bles, *i.e.*, units of phonological structure that have no intrinsic semantic content.

In the *kokugogaku* tradition, the terms *hyōi moji* and *hyōon moji* are, respec-tively, translation equivalents for the terms logogram and phonogram as just de-fined. The clear-cut distinction between these two categories is widely accepted because it seems to explain the many obvious differences between kanji, on the one hand, and kana and rōmaji, on the other. Furthermore, the classification of a character as a logogram or a phonogram appears to be simplicity itself: one merely sees whether the character corresponds to a unit of morphological or phonological structure. In reality, however, the determination of a character's function is seldom such an easy task.

For one thing, the historical fact that a character was once intended to repre-sent a single sound or a single word does not determine the strategy a present-day reader uses to deal with it. Synchronically speaking, a symbol cannot be called a phonogram unless the reader first figures out its phonemic value and then makes sense of that phonemic value in terms of the surrounding context; likewise, a sym-bol is truly a logogram only if the reader first associates it with a particular mor-pheme and then decides what form of that morpheme (*i.e.* allomorph) is required in

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1) There are three reasons for this. First, people can, with suitable prearrangement, use literally anything as a means of communication. If we call any kind of communication other than speech writing, the term "writing" becomes overburdened and meaningless. Second, mathematical notation, international road signs, and other so-called semasio-graphic writing systems lack the robust expressive potential of glottographic (*i.e.* all true) writing systems. A true writing system enables one to transcribe practically anything that can be said, not just a few prearranged messages. Third, since the prearrangements necessary for people to use semasiograms depend on linguistic communication, it simply isn't true that they have nothing to do with language, even if they do not transcribe it directly. For a full discussion of all these issues, see Unger & DeFrancis [Forthcoming].
2) This is Sampson's position. Less careful writers seem to think that the terms logo-graphic and ideographic are synonyms, e.g. Geoghegan *et al.* [1979: 131], which, of course, they are not.

the given context. The same symbol may, in short, have different functions in different contexts. For example, the Mandarin noun *dōngxi* 'thing, stuff' is written with the characters 東 and 西, which are more commonly used to write *dōng* 'east' and *xī* 'west'; *dōngxi* is not, however, a compound of *dōng* and *xī*. It is simply an unanalyzable dissyllabic noun, just like English *orange* or Japanese *sora* 'sky'. Since the individual syllables that comprise *dōngxi* do not have independent meanings (*i.e.*, are not morphemes), the two characters 東 and 西 are clearly phonograms when used to write *dōngxi* even though they are arguably logograms when used to write the free nouns *dōng* and *xī* separately.[3]

A second and more serious problem with the definitions of logogram and phonogram (*i.e.* hyōi moji and hyōon moji) is that they implicitly suggest that the smallest graphic units of a writing system (individual letters of the alphabet, individual Chinese characters) are necessarily the basic functional units of the system as well. As the following English example shows, however, this is simply not true. To make things clear, I will use the established convention of putting slants (/ /) around phonemic notation and angled brackets (< >) around orthographic strings.

The symbol <&> (called *ampersand*) is used in English for the word usually written <and>. Either you know this fact or you don't; if you don't, even perfect knowledge of the spelling rules of English will not help you figure out what <&> stands for. It is therefore a logogram. On the other hand, the letter <r> is, to the extent it stands for the English phoneme /r/, a phonogram. Anyone who knows how to spell English can tell you, for example, that in the word <right>, <r> and <t> correspond to the sounds (phonemes) /r/ and /t/; <g> and <h> are "silent"; and <i> represents the diphthong /ai/.

Now let's look at the word <right> more carefully. The pattern of letters <right> is always flanked by blank spaces or punctuation marks, and so is easily perceived as an orthographic unit. Yet it provides only a rough (indeed, a somewhat misleading) guide to the pronunciation /rait/—you must, in effect, recognize the word *as a whole* in order to be able to describe the letter-phoneme correspondences. No mature reader of English actually "sounds out" spellings like <right> in order to arrive at the form /rait/—in fact, they couldn't even if they wanted to because of the imprecision of the phonetic information conveyed by the letters. Furthermore, the spellings <right> and <write> are never used interchangeably even though both are pronounced /rait/. All these observations show that, in English writing, the orthographic word provides the reader with both mor-

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3) The idea that all Chinese characters are logograms runs into historical problems in another way too. Consider the Mandarin word *gōngfu* 'leisure time', which is written the same way as Korean *kengpu* 'study', and Japanese *kufū* 'method, arrangement', *viz.* 工夫. Obviously, if there were one consistent semantic value for each character in these three words at some point in the past, it does not exist today; even within each of the three languages, it is hard to provide an etymology for these words in terms of the "meanings" each character would have to have if it really corresponded to a morpheme.

phological and phonological information, and that it, and not the individual letter, is the true functional unit of the writing system. To say that <&> is a logogram (because it represents a morpheme) whereas <r> is a phonogram (because it is associated with a phoneme) is, at best, a half-truth. Both <&> and <r> may be comparable visually, but <&> and <right> are comparable functionally; at the same time, <right> is clearly phonographic in a way that <&> is not.

Evidently, the smallest graphic units of a writing system are not necessarily its basic functional units. Let us apply this insight to Chinese characters, the so-called hyōi moji of the Japanese writing system. Are they more like <&> or like <right>? More than two-thirds of all commonly occurring characters in Mandarin writing are so-called radical-plus-phonetic characters (Japanese *keisei moji*); i.e., more than two-thirds convey reliable information about the pronunciation of the syllable for which they stand through their phonetic indicators (Japanese *tsukuri*) [DEFRANCIS 1984a: 108]. Only about one percent of all actively used characters are of purely pictographic origin and provide no phonetic information whatsoever [DEFRANCIS 1989]. The so-called semantic indicators, or radicals (Japanese *bushu*), by which characters are sorted for lexicographic purposes, only hint broadly at conceptual categories such as those found in a thesaurus. These categories provide little or no information that the reader cannot infer from the surrounding context anyway. Clearly, then, most of the Chinese characters used to write Mandarin are analogous to English orthographic words like <right>. Only the few that give no clue to the pronunciation of the syllables they represent are genuine logograms, like <&>.

The situation in Japanese is largely the same as in Chinese. When used in the transcription of *kango* (Sino-Japanese borrowings), keisei moji provide Japanese readers with more or less the same kind of phonetic information they provide readers of Mandarin. The ratio of keisei moji to other types of kanji in ordinary Japanese texts is about two to three, the same as for Chinese [HAYASHI *et al.* 1982: 216]. Some kanji take *kun'yomi* (native readings), for which phonetic indicators are not helpful, as well as *on'yomi* (Sino-Japanese readings), for which they are; but many kanji take only on'yomi. Moreover, when a kun'yomi exists, it does not always match an actual Japanese morpheme. This happens most conspicuously in cases of *ateji* (including many personal and place names), *jukujikun*, and whenever *okurigana* are used to write part of the morpheme associated with the kanji they complement. Since the kanji does not correspond to a whole meaningful unit in such cases, it cannot, strictly speaking, be a logogram.[4]

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4) For example, none of the readings of any of the kanji used to write *medetai* 'auspicious' 目出度い (ateji), *kyō* 'today' 今日 (jukujikun), and *oshieru* 'teach, inform' 教える (divided morpheme) corresponds to a true morpheme; if logographic information is being conveyed in cases like this, it is not symbolized by an individual character but by the *juxtaposition* of two or more characters. This is exactly parallel to the situation with English <right> and <write>: the individual letters function more or less phonographically—certainly none is, by itself, a logogram—but the linear sequencing of the letters serves to convey additional morphological information.

To repeat, a functional unit of a writing system cannot be considered a logogram unless (1) it actually corresponds to a morpheme and (2) the reader uses knowledge of that correspondence to recall the morpheme, only later determining the morpheme's specific realization (pronunciation) in context. Chinese characters thus have more in common with orthographic words of English than with symbols like the ampersand. Most Chinese characters (whether used to write Chinese or Japanese) and most English words have a readily perceived internal structure that provides crucial phonetic information, and even those Chinese characters that lack such internal structure are not always used logographically (recall the example of Mandarin *dōngxi* and Japanese ateji).

Those accustomed to thinking of Eastern and Western writing systems as polar opposites may find this parallelism between Chinese characters and English words hard to believe, but it really shouldn't be surprising: a writing system for *any* language that consisted entirely or predominantly of genuine logograms would be unlearnable. In other words, if a writing system for a language is constructed in such a way that the ratio of logograms to phonograms in ordinary texts exceeds a certain limit, no one can use the system in a normal, everyday way without constant resort to artificial memory aids. Although this conclusion follows almost directly from the definition of "logogram," I don't know of any other linguists who have pointed it out explicitly. This is probably because of the widespread belief that Chinese and Japanese writing are prime examples of highly logographic systems; in fact, they are rather poor examples compared with some well-known but little noticed systems, namely the codes used by commercial, military, and espionage organizations.

It is important to note that "code" here means something quite different from "cipher." As I have noted elsewhere (in a different context),

> In cryptography, a *code* is an arbitrary substitution of one word or phrase for another. There is no rhyme or reason to it, and *only* those words or phrases in a message for which there is a prearranged substitution can be encoded or decoded. A *cipher*, on the other hand, is a procedure for changing or scrambling the letters of a message. Once you know the rules of the procedure, you can encipher or decipher *any* message whatsoever. [UNGER 1987: 40]

A codebook is thus an example of a genuine logographic system. Even if every word of an encoded message were a word of English, knowledge of the English lexicon would be of no help in cracking it. That is why big bulky codebooks must be compiled; why no one can commit more than a very small code to memory; why intrinsically less secure ciphers, rather than codes, form the foundation of most cryptographic systems. A code can *either* be learnable *or* comprehensive, but it cannot be both.

Now if all the thousands of Chinese characters used in everyday Chinese and Japanese writing were genuine logograms all of the time, they would be just like

codewords; nobody could learn to use them fluently for everyday purposes. But people do learn and use them fluently; it is undoubtedly more difficult (everything else being equal) to attain mastery of several thousand Chinese characters than several thousand English spellings, but that relative difference in difficulty pales in comparison with the decisive difference between codes (*i.e.* true logographic writing systems) and ordinary writing. Virtually every ordinary writing system contains some symbols that function as logograms at least some of the time, but a practical system consisting solely or primarily of logograms is a theoretical impossibility.[5] To call the entire Japanese and Chinese writing systems logographic is therefore meaningless.

3.   EMPIRICAL EVIDENCE

Of course, it is one thing to show that it *ought to be* the case that Chinese characters function phonographically and quite another to show that it actually *is* the case. I will therefore introduce three kinds of empirical evidence that give us some insight into how so-called hyōi moji actually function: experiments in perceptual psychology; medical observations of reading and writing disorders; and studies of the differences in reading acquisition between East Asian and North American children. In every case, the preponderance of evidence suggests that the strict identification of kanji as hyōi moji is mistaken.

3.1   Experimental Observations

Michel Paradis and his colleagues at McGill University in Montreal, Canada, have reviewed all the experimental and medical literature published before 1984 on the question of whether kanji are essentially different from kana and other kinds of

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5)   It has been shown experimentally that people can learn to recognize and recall a virtually unlimited number of photographic images [STANDING 1973], but nothing can be inferred about the use of Chinese characters as code signs from these results for two reasons. First, a collection of the plainest snapshots possesses infinitely more visual redundancy (detail) than an equal collection of Chinese characters. Second, the same study showed that, though subjects made fewer errors with pictures than with words, they made about the same number of errors with both printed and spoken words. (Incidentally, Standing also found that, although the error rate was lower for picture stimuli, the retrieval time for words was shorter.) The syllabary used by the Yi nationality in China consists of 819 symbols that show no systematic graphic patterns suggestive of the phonemic relationships among the syllables they represent [RAMSEY 1987: 261]. This is the largest number of elemental (unanalyzable) characters in writing systems of which I am aware, and one must wonder how many people could make use of such a plethora of logograms. As Ramsey [1987: 258–259] remarks, "For the Yi, writing is not a means of communication. It is associated with divination and magic, and the Yi are content to leave their sacred books and scripts in the hands of their practitioners of religion, the men called *pimu*. ... The *pimu* are professionals. They spend their lives training for and practicing their art, which is usually hereditary, being passed down in a *pimu* family from father to son or from uncle to nephew."

writing. The experimental work can be categorized as shown in Table 1.

Table 1. Types of Experimental Kanji/Kana Processing Studies

I. Differential processing studies
    A. Kanji versus kana processing studies
        1. Stroop tests
        2. Naming latency tests
    B. Cross-language studies
        1. Phonemic coding studies
        2. Cross-language Stroop tests
II. Laterality studies
    A. Perceptual discrimination tasks (physical matching—simultaneous presentation)
    B. Recognition tasks
        1. Physical matching—successive presentation
        2. Nominal matching
        3. Lexical decision
        4. Learned discrimination
    C. Recall tasks
        1. Identification (naming)
        2. Immediate recall
    D. Miscellaneous
        1. Lateralized Stroop tests
        2. Grammatical categorization
        3. Semantic congruency
        4. Rotation, flipping

So-called laterality studies (group II) are distinguished from other experiments (group I) by the fact that they assume the *cerebral dominance hypothesis*, according to which visual stimuli presented by means of a tachistoscope (a device for displaying images for a fraction of a second) produce different results depending on whether they are received in the right or the left visual field. Different results arise, according to the hypothesis, because one hemisphere of the brain dominates over the other during the execution of different kinds of cognitive tasks.

Certain experimental techniques are common to studies in both groups I and II, notably Stroop tests. In the classic experiment reported by J. R. Stroop in 1935, subjects are timed as they name the color of the ink in which various words are written; the object of the experiment is to observe what happens when the printed word is the name of a color that conflicts with the color of the ink. Many variations on this basic method have been devised for the purpose of exploring how the use of kanji rather than kana affects differences in the subconscious processes of reading.

Although there is obviously no shortage of experimental methods, the difficulty of designing and carrying out a properly controlled experiment in any of the categories listed in Table 1 cannot be overemphasized. In Stroop tests, for example,

one cannot simply write the same color names in kanji for some trials and in kana for others, for although the Japanese writing system allows some freedom, most color names in Japanese are customarily written one way or the other; therefore, no inferences can be drawn from the slower reaction times of subjects exposed to a color name written in an unconventional way. Similarly, in the cross-linguistic studies, one cannot simply compare how, for example, Japanese and Chinese subjects react to the same characters, for the characters' frequencies of occurrence and representational values in Japanese and Chinese are often quite different. In tachistoscope tests that use manual feedback to check reaction times, care must be taken to compare right-handed and left-handed subjects since cerebral dominance presumably plays a role in handedness as well as in perception. The list of pitfalls that await the unwary experimenter can extended almost indefinitely.

It is therefore hardly surprising to learn that Paradis and his colleagues could not find a single published experiment that demonstrated a consistent laterality effect or other psychological difference between the reading of kanji and kana. Every study was flawed in one way or another, usually by faulty procedures stemming from a failure to choose unbiased stimuli, but sometimes simply by exaggerated inferences drawn from suggestive but inconclusive data. While this finding does not by itself prove that kanji and kana are processed in the brain in the same way, it certainly casts doubt on the idea that they are processed differently.

We can now take a step beyond mere doubt to positive refutation of such an idea thanks to a brilliant Ph.D. dissertation completed two years after the publication of Paradis *et al.* [1985]. In order to test the hypothesis that kanji convey meaning directly to the reader, without reference to speech, Horodeck [1987] analyzed errors made by Japanese in actual reading and writing. Examples of the kinds of errors found are shown in Table 2.

Table 2.　Varieties of Kanji Errors [Horodeck 1987]

	Error Type			Error	Target	(Intended Word)
	S	F	M			
1.	+	−	−	不 恐	不 況	*fukyō* 'business slump'
2.	−	−	+	迅 早	迅 速	*jinsoku* 'rapid'
3.	+	+	−	予 側	予 測	*yosoku* 'forecast'
4.	−	+	+	否可能	不可能	*fukanō* 'impossible'
5.	−	+	−	埋 投	埋 没	*maibotsu* 'bury'
6.	+	+	+	最 底	最 低	*saitei* 'lowest'
7.	−	−	−	正 明	正 面	*shōmen* 'front'
8.	+	−	+	元 価	原 価	*genka* 'cost'

Key to Error Types:
　S=Sound; erroneous kanji can (+) or cannot (−) take reading of target kanji.
　F=Form; erroneous kanji resembles (+) or does not resemble (−) target kanji.
　M=Meaning; erroneous kanji is (+) or is not (−) said to have same meaning as target kanji.

Horodeck found that, in ordinary writing, type-1 errors outnumbered type-2 errors by nearly 10 to 1, showing clearly that the readings of kanji strongly influence their recall. (When analyzing written manuscripts, errors of types 3 through 8 are uninformative or ambiguous with respect to the hypothesis.) Horodeck then measured how well Japanese readers detected errors of different types in newspaper headlines; for this purpose, the crucial errors are of types 3 and 5. If the hypothesis is correct (*i.e.*, if kanji are logograms), readers ought to spot almost all errors of both types; if, however, the hypothesis is wrong (*i.e.*, if kanji are really phonograms), then many of these errors should pass unnoticed. Moreover, if the hypothesis is correct, type-3 errors should be spotted just as often as type-5 errors, but if the hypothesis is wrong, a greater percentage of type-3 errors should slip by. Once again, Horodeck found statistically strong evidence refuting the hypothesis.[6]

3.2   Clinical Reports

Besides reviewing published experiments, Paradis and his colleagues also studied the medical literature on Japanese alexia and agraphia, a total of 69 cases reported (mostly in Japanese) between 1901 and 1983. While each of these reports of abnormal patients, viewed in isolation, suggests hypotheses about the way normal people read, no consistent pattern emerges when one examines all of them together.

In 25 cases, patients showed better performance in kanji than in kana, but in 28 others, they showed better performance in kana than in kanji; in 8 cases, better performance in oral reading than in reading comprehension was observed, but in 4 others the opposite was found. In many instances, the patient was reported as using inappropriate on'yomi for expected kun'yomi, but the reverse pattern was seen elsewhere, and often the nature of the error was not a simple substitution of one kind of reading for the other, as the reporting physician seemed to think. Different kinds of disorders did not necessarily correlate with different types of aphasia, and autopsies did not show a clear relationship between kind of brain lesions and type of disorder. In short, the clinical literature, like the experimental work reviewed by Paradis and his colleagues, suggests that differences between the ways the brain processes kanji and kana, if they exist at all, are much too subtle to be explained by the gross distinction between hyōi moji versus hyōon moji.

3.3 Research on Reading Acquisition

Finally, let us turn to the extensive surveys of literacy among children from the first and fifth grades in Sendai, Japan; Taipei, Taiwan; and Minneapolis, Minnesota supervised by Harold Stevenson of the University of Michigan. A full explanation of Stevenson's testing procedures and an analysis of the many variables that he

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6)   Similar results have recently been reported for Chinese. In an experiment comparing types and rates of errors for native and non-native readers of Mandarin, "the native Chinese immediately associated the symbol (*i.e.* character) with a particular sound and ... seemed to see the symbol foremost as a representation of sound" [HAYES 1988: 192].

and his colleagues had to take into account is readily available in a series of articles [STEVENSON 1984, 1985; STEVENSON et al. 1982, 1986, 1987; LEE et al. 1986], so I will discuss only the most essential elements of his research here.

Altogether nearly 5,000 students were tested using carefully graded vocabulary, reading, and comprehension tests. Test items were designed simultaneously in English, Japanese, and Chinese.

> Decisions about their acceptability were made through group discussion by persons from each culture who were familiar with at least two of the languages. All items were reviewed by professionals in each culture to insure that they were satisfactory for children of the ages included in our study, culturally appropriate, and written in standard forms of the language. [STEVENSON et al. 1986: 221]

It must be kept in mind that the work of Stevenson's group is the first of its kind. Authorities such as Makita [1968] have claimed that reading disabilities simply do not exist in Japan, and have attributed this alleged fact to the use of kanji. Others, such as Martin [1973], have suggested that it is the syllabic nature of kana that facilitates Japanese reading, but have tacitly accepted the claim that dyslexia does not occur among Japanese readers. Stevenson's work is so far the only attempt to put these claims to the test.

From this perspective, the comparison of the performance of Japanese and American fifth-graders is particularly revealing. They were tested first on the fifth-grade items; if they missed three-fourths of them, they had to go back to fourth-grade items; if they missed three-fourths of those, they had to go back to third-grade items. "In this way, a child could be forced to go back as far as the first grade."

> The results indicate that 8 percent of the Japanese children and 3 percent of the American children failed to meet the criteria for success at grade-three and were therefore reading at least three years below their grade level—a common criterion for reading disability. [STEVENSON et al. 1986: 233]

The proportion of poor readers in the Chinese sample was not significantly different.

> These results are in marked contrast to a prevailing but previously untested belief that children who must learn to read an alphabetic form of writing are disadvantaged, in comparison to children who are learning to read a script based on distinctive whole units, such as Chinese characters, or symbols with high grapheme-phoneme correspondence, such as Japanese hiragana. We found, instead, that children's abilities to decode and interpret written symbols were very similar among these three written languages and that some children in each culture found this task extremely difficult. [STEVENSON et al. 1987: 175]

4. CONCLUSION

In sum, there is no experimental, medical, or educational evidence to support the hypothesis of a fundamental psychological difference in the way people read and write scripts that do and do not utilize so-called hyōi moji. Indeed, Horodeck's results constitute positive evidence *against* this hypothesis. We should therefore stop expecting to find scientific proof for the belief that kanji-based and alphabet-based writing systems are fundamentally different, and start looking instead for the sociological and historical meaning of this belief. To illustrate the richness of this new line of research, let me, by way of conclusion, sketch out some possibilities for the field of Japanese studies.

First of all, theories that attempt to explain differences in the way Japanese and non-Japanese deal with reading and writing strictly on the basis of allegedly unique psycholinguistic properties of the Japanese writing system must be rejected. Suzuki Takao of Keiō University, who claims that kanji are superior to kana and rōmaji for writing Japanese [SUZUKI 1975], is probably the best known propounder of such a theory. As we have seen, the data simply do not support his position. The differences between the Japanese and Chinese writing systems and those like English are more apparent than real. This does not mean, of course, that Chinese, Japanese, and members of other cultures all think the same way about literacy and the many higher cultural forms (literature, science, politics, etc.) that depend heavily on literacy for their existence. It means, rather, that these differences in cultural outlook must be explained on the basis of other factors—social, political, and economic—not on the basis of the writing system per se.

Second, having abandoned the idea that kanji actually facilitate Japanese reading and writing, we need to reexamine the well-known claim that Japan enjoys a literacy rate of 99 percent, and has had literacy rates in excess of 95 percent for at least for the past forty years. Perhaps the main reason such claims have been accepted so widely is the superficial plausibility of theories like Suzuki's. In fact, however, as the work of Stevenson and others suggests, Japanese children are just as likely to fall behind in reading as American children. Clearly, we need to go back to the primary data and look critically at the definitions of literacy used in deriving the figure of 99 percent.[7]

Third, we should take a fresh look at efforts, past and proposed, at limiting or eliminating kanji in Japanese writing. Such efforts have all too often been dismissed as unnecessary, but obviously, once we start to question claims of 99 percent Japanese literacy, this judgment too comes into question. Some even suggest that script reform would destroy Japanese culture:

> For anyone who knows Japan, it is difficult to conceive of its culture divorced from
> the form of its written language. Just suppose that Japanese were henceforth to be
> written in Rōmaji .... The reform would constitute a break in the historical develop-

7) For some preliminary work, see Unger [1987: 79–95].

ment of Japanese culture, without historical precedent. For a people such as the
Japanese, who attach so much importance to historical identity, to say that this break
would be traumatic would be something of an understatement. [CRUMP 1988: 143]

But, as I have argued elsewhere [UNGER 1987: 104–108], the fabric of Japanese
culture is made of much more than kanji, and to claim that script reform would
necessarily entail an irreparable break with the past is to trivialize centuries of
Japanese cultural history. Furthermore, it is idle to speculate on impossibilities.
Even if the government of Japan inexplicably decided to proceed at full speed with
radical script reform tomorrow, the existing stock of written material in traditional
script is so enormous that, at most, the country would enter a long, perhaps in-
definite period of what DeFrancis has called "digraphia" [DEFRANCIS 1984b], a coex-
istence of two writing systems (in this case rōmaji and kanamajiribun) side by side.

Fourth, we need a better appreciation of the people and organizations that
have carried out or proposed script reform in Japan. With some notable excep-
tions [e.g. UMESAO 1987: 12–63], discussions of the history of the script reform
movement tend to dismiss it as a utopian fringe phenomenon. It is high time that
scholars stopped letting their opinions about script reform itself interfere with an ob-
jective appraisal of its history.

Fifth, there are questions of intellectual history that need to be reopened. For
example, the idea that kanji are "semantically transparent" and therefore superior
to kana for the writing of Japanese (Suzuki's thesis) would not have been accepted
by Kamo no Mabuchi, Motoori Norinaga, and other *kokugakusha*, who saw kanji
as an impediment to true understanding of *kotodama* [HAROOTUNIAN 1988: 51–
75]. In fact, Motoori's discovery of the *jōdai tokushu kanazukai* and its elabora-
tion by his follower Ishizuka Tatsumaro would have been impossible without the
key realization that speech, not writing, is the primary manifestation of language.[8]
Considering the later influence of kokugaku thought on Meiji and post-Meiji politi-
cal and social thought, one must wonder why this key insight gave way to the uncriti-
cal view of kanji as indispensable logograms in post-Meiji times.[9]

Sixth, trends in Japanese literary criticism need reappraisal in light of recent
research on kanji-based literacy. Of particular concern is the deconstructionist
approach, based on ideas propounded by Roland Barthes [1982] and Jacques

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8) The recognition of the primacy of speech over writing, along with the realization that
    phonological changes proceed regularly, has been a cornerstone of scientific linguistics
    since the time of Saussure; it is therefore remarkable that the kokugakusha, though
    motivated by quite different intellectual concerns, independently hit upon the essence of
    the same idea about a century earlier.

9) Another important question is that of the origin and development of the erroneous
    belief that Chinese charcters are ideograms. Mungello [1989] presents a wealth of evi-
    dence suggesting that it gained ascendancy because it conveniently supported enlighten-
    ment ideas about universal logic. One therefore wonders to what extent Chinese and Jap-
    anese versions of the "Ideographic Myth" [DeFrancis 1984a] are indigenous and to what
    extent they are simply the modified repetition of a misconception received from the West.

Derrida [1976], which assumes that writing is somehow the fundamental form of language. There may perhaps be some advantage for literary analysis in the metaphor of language as writing, but one plays with this metaphor at the risk of delusion and misunderstanding, for in reality language is, first and foremost, speech. An example of what can go wrong is provided by Pollack [1986]: the author, after paying lip service to the fact that kanji partake of both logographic and phonographic functions, immediately goes on to say, "Whatever phonetic coherence remained embedded within the Chinese script by the time it came to be used in Japan between the third and fifth centuries A.D. was already problematic *even in China*" [POLLACK 1986: 22; emphasis added]. (This statement is simply false.) He then develops his thesis by claiming that "when they began for the first time to use the Chinese script, the Japanese were already emptying these handy *semiotic* markers of their culture-bound Chinese content, even though the script had been brought to them quite full" [POLLACK 1986: 27; emphasis added]. It is certainly true that the Japanese turned the foreign technology of Chinese writing to their own cultural ends, but Pollack's seemingly willful confusion of symbols with ideas makes it hard to understand what he really means and casts a shadow over his subsequent discussion of early Japanese literature.

Last but not least, a proper understanding of the role of kanji in reading and writing cannot help having an effect on our approach to the teaching of Japanese as a foreign language. All too often, what passes for instruction in reading Japanese is really instruction in decoding strings of kanji and kana, an approach that seems feasible only because of the false belief that kanji are nothing but logograms. Scholars such as Eleanor Harz Jorden [1976] have pioneered in developing textbooks that put language first and writing in its proper subordinate position, but much work remains to be done in this area, especially at the intermediate level of instruction.

Some may feel uneasy at giving up the old, comfortable dichotomy of hyōon and hyōi moji, but the facts are simply against them. Let them take solace in the new vistas for research that spread before us once we open our eyes to the psychological realities of reading and writing.

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