

A New Syllablewise Transcription System j-pinyin from Chinese Proper Nouns to Japanese ones

Hiroyuki KAMEDA*, Shumei CHEN**, Sumio OHNO* and Jinhua SHE*

This paper discusses pronunciation problems of transcription from Chinese proper nouns into Japanese, and also proposes a new transcription system from Chinese to Japanese (henceforth, “j-pinyin”). First, the backgrounds of this research and the emergent necessities of a new transcription system from Chinese to Japanese are described, and then our policies for j-pinyin are proposed to be used in daily life, in term of smoothing international communications between China and Japan. Psychological experiments are reported to evaluate the current version of j-pinyin. The results show the j-pinyin is fundamentally valid, and the remaining problems are also clarified.

1. Introduction

Proper nouns, especially the names of persons and places in foreign languages, are usually transcribed into Japanese with use of katakana characters in accordance with their original sounds. An English word “New York” is, for example, transcribed into “ニューヨーク” and phonetically pronounced as /niu iou ku/ in Japanese.

On the other hand, although both Chinese and Japanese people use Chinese characters (which are usually called “kanji” in Japan) in common, Chinese proper nouns in the form of Chinese characters are differently pronounced as Kanji in Japanese. This causes us to use two alternatives of transcription of Chinese proper nouns, i.e., phonetic spellings in terms of both Chinese original sounds and the pronunciations of Japanese kanji sounds. To avoid such confusions, we propose a new system of how to transcribe Chinese syllables into Japanese katakana spellings, which was named “j-pinyin” by Yokoi (Professor, Tokyo University of Technology) and we call it so henceforth in this paper.

2. Transcription of Chinese by katakana characters and its problems

2.1 Katakana spellings of Chinese

The table 1 shows three ways of transcription from Chinese proper nouns into Japanese, which are ad hoc adopted as usual. “Japanese-based style” is quite often used in Japan, partly because the style is straightforward and easy for Japanese people in terms of written-language. But Japanese pronunciations of Chinese proper nouns are neither the same as the original sounds in standard Chinese nor similar to those, because the pronunciations are based on Japanese reading style. This demerit is brought up because that Japan and China have the partially same character systems in common. But the long-term cultural interaction between Japan and China results this situation. From this cultural point of view, it seems difficult to discard this style of transcription, because this is one of heritages in Japan. For examples, the Chinese empress “西太后” is usually pronounced not as “シータイホウ” (/shii tai hou/) but as “セイタイゴウ” (/sei tai gou/), while “鄧小平,” one of journalistic words, should be pronounced not as “トウショウヘイ” “デンシャオピン”

from the mutual communication point of view between Japan and China.

*School of Engineering / **School of Media Science
Tokyo University of Technology
1404-1 Katakura, Hachioji, Tokyo 192-0982, JAPAN

TABLE 1. Three styles of transcription from Chinese proper nouns into Japanese ones.

Styles	Examples Chinese style—Japanese style
Japanese-based style	邓小平 (鄧小平) トウショウヘイ 重庆 (重慶) — ジュウケイ 桂林 — ケイリン
Chinese-based style	邓小平 — デンショウピン 重庆 (重慶) — チョンチン 青岛 (青島) — チンタオ
English-based style	北京 — ペキン 厦門 (厦門) — アモイ 香港 — ホンコン

“Chinese-base style” is a phonetically spelling way of Chinese-Japanese transcription based on Chinese original sounds themselves. From the international communication point of view, this style is desirable, but tends to be subjective and ad hoc, because the number of syllables of Chinese is much greater than that of Japanese, and because there are so far no standard transcription rules. In fact, various spellings are adopted by newspaper companies, atlas publishers and etc.

“English-based style” is a transcription way to assign Chinese proper nouns the English sounds of the Chinese proper nouns in English. As it was determined that Chinese place names should be spelled with use of Chinese pinyin in the third conference of the United Nations on standardization of place names in 1977, this transcription way is now

disappearing. For this reason, we will not discuss the English-based transcription style any more in this paper.

In these situations, our research is aiming to propose a solution how to realize a standard system of Chinese-Japanese transcription.

2.2 Related works and problems

From the points of view mentioned above, we investigated several main examples of Japanese spellings of Chinese proper nouns^{3-8,10-13}. Based on the investigation, we got results as we mention below. In order to avoid notational confusion, Japanese sounds are hereafter denoted in italic and bold katakana characters, and Chinese pinyins in italic and bold roman characters.

At first, the transcription system adopted in “Daijirin” is designed for Chinese learners¹⁰. In this dictionary, many symbols, e.g., hiragana, katakana, complicated accent marks are used, so it is not appropriate for people who are not familiar to Chinese. From this point of view, the transcription system of “Daijirin” is not a feasible one as a standard.

“Trends in China 2000” adopts a transcription system, in which *n - ng*, *l - r*, *zh - ch - sh*, *j - q - x* are confused⁶.

“Japanese-Chinese Dictionary” adopts a system, which is highly well designed and worth to be paid attention to¹¹. But in this transcription system, *l - r* is confused, so some more improvements are inevitable.

“Traveling in China by Words” is outstanding in that Moriya attaches much importance to Chinese original sounds, but has problems in that too many fonts are used to distinctively express the sounds and tones of Chinese⁷. As results, the transcription system is too complicated to be used as a standard.

“Taiwanese-Japanese Dictionary” tries to express Chinese sounds distinctively, but *l - r* is confused¹².

As we have mentioned above, there is no transcription system that all 407 syllables are transcribed only in katakana characters with neither special-purpose marks and fonts nor confused sounds in it. From these results, main problems on previous transcription systems are as follows:

- (1) *l - r*: no or unclear distinction of *l - r*
- (2) *n-ng*: no distinction. Too apart from original sounds even if they are phonetically distinctive.
- (3) *si-su- se* etc.: unclear distinction or ad hoc.

These problems are mainly due to imbalance of the number of Chinese syllables (about 400) and that of Japanese (about 100), which means a single Japanese syllable is

roughly mapped to four Chinese syllables. This fact suggests that the problems as we mentioned above cannot be solved without no appropriate point of view. Our research proposes a new transcription system j-pinyin by considering these situations and problems².

3. Proposal of j-pinyin^{1,3,4}

To begin with, we propose the following four principles to transcribe Chinese syllables into Japanese katakana:

- (1) to distinct all Chinese syllables clearly,
- (2) to be as similar as possible to Chinese original sounds,
- (3) to be distinguishable for Chinese people when they hear the sounds,
- (4) to be pronounceable for Japanese people when they read.

On these principles, we built a transcription system with some additional conditions as follows by considering the imbalance of the number of syllables in Chinese and Japanese,

- (1) Each Chinese syllable is transcribed with at most 5 katakana characters. The maximal number is set to five katakana characters because newspaper publishing systems used, e.g., by Asahi Newspaper cannot manipulate “Rubi” of the length of more than 6 characters.
- (2) Both uppercase and lowercase katakana characters are used, e.g., “**ア**” and “**ア**”.
- (3) Prolonged sound mark “**—**” is affirmative and effectively used.

The new transcription system we propose is henceforth called *j-pinyin (Version in 2002)* to differentiate it from Chinese pinyin (henceforth, *c-pinyin*) used in China officially. Our new system has the following features:

- (a) *e* and *ü*:
e is pronounced as a sound phonetically between **オ** and **ウ**. To avoid collision with **オ** corresponding to *o* and **ウ** corresponding to *u*. *e* is transcribed as **ウオ**. A diphthong *uo* is transcribed as **ウオ**, and *ü* as **イウイ**.

- (b) aspirates and unaspirates: Aspirates versus unaspirates in Chinese are respectively mapped to unvoiced/voiced in Japanese as follows:

	<i>p</i> → パ line	／	<i>b</i> → バ
line	<i>t</i> → タ line	／	<i>d</i> →
ダ line	<i>k</i> → カ line	／	<i>g</i> → ガ
line	<i>q</i> → チ line	／	<i>j</i> →
ジ line	<i>ch</i> → チュ line	／	<i>zh</i> → ジュ
line	<i>c</i> → ツ line	／	<i>z</i> → ズ

line.

(c) *zh - j, ch - q* and *sh - x* : Katakana is mapped to consonantal part as follows:

zh → ジュ / *j* → ジ
ch → チュ / *q* → チ
sh → シュ / *x* → シ

(d) *l* and *r* : As no *r* exists in Japanese, *r* is transcribed as ウ+ラ line (ラ, リ, ル, レ and ロ), as follows:

rao → ウラオ / *lao* → ラオ
rong → ウローン / *long* → ロン

(e) *h* and *f* : *h* is mapped to ハ、ヘ、ホ, and *f* to フ

(f) *n* and *ng* : *n* is mapped to ン and *ng* to

ン as follows:
an → アン / *ang* → アン
in → イン / *ing* → イン

According to these principles, we designed our transcription system j-pinyin. For more details, please check our web pages on the WWW (<http://www.teu.ac.jp/kmdit/jpinyin/>).

4. Psychological experiments^{1,9)}

Three psychological experiments were conducted to validate j-pinyin with j-pinyin utterances by a Japanese native speaker as experimental material for stimuli, and with Chinese native speakers as subjects to hear the j-pinyin utterances. The experiments were conducted at Broadcast University of Beijing in China as follows.

4.1 Speech materials for stimuli

J-pinyin (in katakana) utterances were used as speech materials, which were spoken by a Japanese female native speaker living in Japan with no familiarities with Chinese sounds.

4.2 Conditions of the psychological experiments

20 experimental subjects (10 male students and 10 female students living in Beijing in China), who have no familiarities with Japanese and also have good command of standard Chinese (普通话; pu tong hua) in daily life, heard j-pinyin utterances as stimuli in a quiet room together. Subjects heard stimulus speeches by way of closed-type headphones and wrote answers on answer sheets every time they heard stimuli.

4.3 Experiments for evaluating j-pinyin

Three experiments were conducted as follows.

[Experiment No.1]

Subjects hear j-pinyin speeches as stimuli,

and write down the recognized sounds in the form of c-pinyin.

[Experiment No.2]

Subjects just hear a single sound out of two-paired sounds. And the pair is selected out of 26 pairs of monosyllables similar to each other. After that, subjects decide which one is heard alternatively. Examples of stimuli are as follows: *bo-po*, *li-ri*, *zi-zu* etc.

[Experiment No.3]

Subjects look at a two- or three-polysyllabic quasi-Chinese personal name on experimental sheets and then hear j-pinyin utterances of the name to decide which quasi-word is heard alternatively. 18 pairs of quasi-Chinese personal names of two-syllables or three-syllables were prepared in advance, e.g.,

鲁少发 *lǔ shào fā* / 鲁笑花 *lǔ xiào*

hua

童伟 *tóng wei* / 董伟 *dǒng wei* etc.

4.4 Results and considerations

(a) M

o
n
o
p
h
t
h
o
n
g
s

Figure 1 shows the results of the Experiment No. 1 to identify

monophthongs (*a, o, e, i, u, ü* except *er*), where “ratio of correct answer” is defined as a rate of how many times

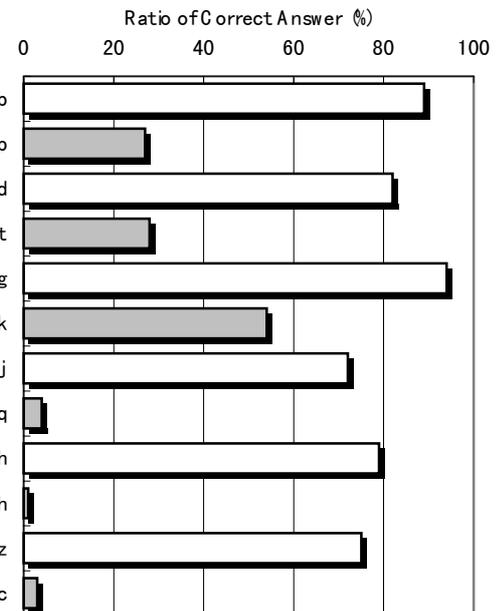


Fig. 2 The ratios of correct answer of just consonants with respect to aspirates versus unaspirates.

subjects can answer a correct c-pinyin when j-pinyin speech given. This measure does not represent the abilities of subjects to recognize Chinese speech but the qualities of j-pinyin.

As every monophthong *a*, *o*, *e*, *i*, *u*, *ü* is different from 5 Japanese monophthongs /a/, /o/, /e/, /i/, /u/, no vowels are perfectly recognized as we intended. The ratios of correct answer of *a* and *i* are comparatively high, because they have few corresponding similar syllables (vowels). The ratio of correct answer of *a* is a little bit lower than that of *i*, because Chinese *a* is pronounced with mouth open more widely than when pronounced Japanese /a/. Both *o* and *u* have lower ratios, because they have many similar vowels such as *uo*, *ou*, *u*, *ao* and *e*, *er*, etc. to each other respectively and also they and their similar vowels were confused. On the other hand, the ratios of *e* and *ü* are quite low. More investigations are strongly needed for them. The fact that stimuli *ウ*, *ウア*, *ウル* were unexpectedly recognized as *e* to some extent may give a breakthrough to this problem.

(b) Aspirates/Unaspirates

Figure 2 shows the ratios of correct answer of just consonants with respect to aspirates versus unaspirates. Consonants all *b*, *d*, *g*, *j*, *zh* and *z* have comparatively high ratios of correct answer. This fact affirmatively supports our ideas that Chinese unaspirates should be transcribed into Japanese voiced consonants are fundamentally valid. On the other hand, unvoiced sounds *p*, *t*, *k* etc. have the low ratios. More intensive research is also required for affricates *q*, *ch* and *c*.

(c) *l* and *r*

As mentioned before, *r* is transcribed into *ウ+ラ*-line sounds (*ラ*, *リ*, *ル*, *レ*, *ロ*). This results *r* has the ratio of correct answer 58%, showing our transcription system j-pinyin is fundamentally valid for *l* and *r*.

(d) Other considerations

Low ratios of correct answer were also found in others, exception the syllables mentioned above, due to confusing of the opposed sounds *n* and *ng*, existence of three kinds of *i* in Chinese, discrimination of *zi-zu-ze*, etc. These are always main obstacles for Japanese to learn Chinese, too. To investigate these in more details, we have made the second stage of psychological experiments with help of a few dozens of students of the Tianjin Foreign Studies University in China, and now are in process of analysis. New results will be open soon as report.

5. Promotion policies of j-pinyin

When we spread our j-pinyin as a transcription system from Chinese into Japanese, we grouped users of it roughly into three as follows:

- (1) Japanese people who learn Chinese,
- (2) Travelers in China,
- (3) The Mass Media.

Firstly, we intend to make the j-pinyin spread to be

used as auxiliary way of transcription for the people of (1) in the early stage of the first year education as well as for the Chinese learners of old age. For the people of (2), we intend to make j-pinyin spread to be used as expedient means to communicate more smoothly with Chinese people at worst about proper nouns (names of people and places in China). Because the people of (2) are, as is usual with them, neither having any familiarities with Chinese pronunciation, nor may travel many times in their lives. Finally, for the people of (3), we intend to make j-pinyin spread as a new transcription system for writing Chinese sounds more clearly and discriminatively with restrictions that the length of j-pinyin is equal to or less than five characters for a single Chinese syllables etc., with respect to electronic publishing. In any case, it is necessary to make elaboration one by one for (1)-(3). Spread as de fact standard may be one of feasible solutions for our research.

6. Conclusions

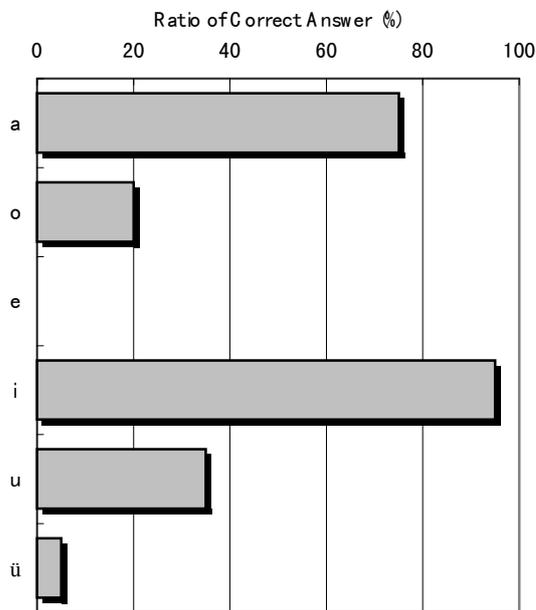


Fig. 1 Ratio of Correct Answer of Monophthongs.

An exhaustive and systematic transcription system from Chinese syllables into Japanese katakana mainly for the names of persons and places in China was proposed under the name of j-pinyin and was experimentally evaluated to be valid fundamentally, so that Chinese syllables may be transcribed into Japanese katakana characters. As mentioned before, for more details, please check our home pages on the WWW (<http://www.teu.ac.jp/kmdit/jpinyin/>).

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