

A Study on Characteristic of Calligraphy Characters Part 2 Case of One Character of Calligraphy Letter “Kanji” and “Hiragana”

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Abstract. During long history of Kanji in china, “Kaisho” (Regular script), “Gyosho” (Semi-cursive script), “Sousho” (Cursive script) were born from 3rd century to 5th century. The Japanese improved a kanji and devised a Hiragana originally. “Kaisho” letter is form not to transform. “Gyosho” letter is the form transformed a little than it. “Sousho” letter is the form transformed more. Hiragana letter has thin, long and smooth form. 4 kinds of calligraphy letters are analyzed by using proposed system and characteristic of calligraphy letters were thrown into relief from three viewpoints. The technique to evaluate the characteristic of the shape of the writing brush style quantitatively is proposed in this study. This study is classified into three parts. Part-2 treats one character of calligraphy Letter “Kanji” and “Hiragana”. 188 characters are analyzed by using the proposed technique in part-1.

Keywords: Kanji · Hiragana · Iroha poem · One calligraphy character

1 Introduction

1.1 Characteristic of One Character 3 Kinds of “Kanji” and “Hiragana”

During long history of Kanji in china, “Kaisho”, “Gyosho”, “Sousho” were born from 3rd century to 5th century. The Japanese improved a kanji and devised a Hiragana (平仮名) originally. “Kaisho” letter is form not to transform. “Gyosho” letter is the form transformed a little than it. “Sousho” letter is the form transformed more. Hiragana letter has thin, long and smooth form.

The culture to catch the form of the letter as an art object other than a function to perform communication exists in the world. The history of the calligraphy to express a kanji and a hiragana letter with a writing brush style is very old.

As shown in Fig. 1, when the writing brush is lowered and strongly pushed to the writing paper, width of the line of character grows big. When the tip of the writing brush completely leaves the writing paper, line disappears.

An impression to receive from a writing brush style, namely the sensitivity evaluation is subjective and is hard to quantify it. 4 kinds of calligraphy letters are analyzed by using proposed system shown in Part-1.

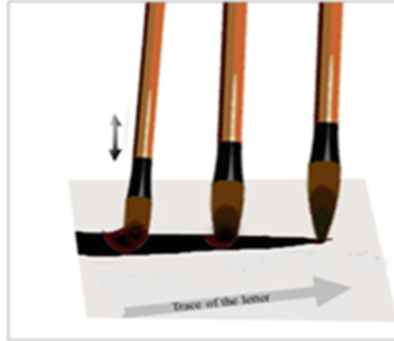


Fig. 1. Relationship between movement and width of line by writing brush

1.2 Iroha Poem

The “Hiragana” letter consists of 48 characters. Iroha poem is very famous Japanese poem written during 11th century, This poem has the characteristic made without repeating 47 hiragana letters. This poem is the song which sang of Buddhism-like mutability. The author of this song is missing. This poem has been used as handbook for Japanese to do writing practice hiragana since 11 century. Iroha poem translated into English was quoted from the site of Watanabesato, as shown as follows.

As colors smell but fall. Who are eternal in our world? Today, I went through deep mountain of existing form, and saw a shallow dream without being drunken.

1.3 Influence of Illusion on the Character by Writing Brush Comparison Between 3 Kinds of Kanjis and Hiragana

In order to compare hiragana with 3 kinds of kanjis, each one character of calligraphy letter of iroha poem is taken up in this study. 188 characters are analyzed, as shown in Table 1. Three kinds of kanjis, that are, “Kaisho”, “Gyosho” and “Sousho”, which derived each Hiragana are illustrated in 47 ways of cases at this table. The calligraphy letter adopted in this study is selected from the Dictionary for three types of calligraphy letter¹. As shown in Table 1, it is clearly to find an evolved trend from square and upright feeling to randomize and flow feeling step by step for the same character of calligraphy letter among “Kaisho”, “Gyosho”, “Sousho” and “Hiragana”.

¹ Takada, C.: Dictionary for five types of calligraphy letters, Houshokai (1998).

2 Result and Discussion

As proposed in Part-1 with “Method-1”, influence of illusion on the character by writing brush could be considered by analytical method with computer technology. Therefore, averaged ink element ratio among 188 characters to horizontal part in diagonal left, vertical and diagonal right parts summary results were illustrated in Fig. 2. In general, all Kanjis and Hiragana showed most ink element distribution in diagonal left direction, following by diagonal right part and vertical part. As well know, diagonal left part and diagonal right part is a pair of symmetrical evaluation indicators, which could support character’s structure symmetry judgment. According to plotting in Fig. 2, comparative smaller difference between diagonal left and right parts were clarified in “Kaisho” and Hiragana character type, however “Gyosho” and “Sousho” showed bigger gap. In other words, “Gyosho” and “Sousho” types of

Table 1. Relationship between movement and width of line by writing brush I. Kaisho II. Gyosho III. Sousho IV. Hirakana.

	I	II	III	IV		I	II	III	IV
1	似	以	一	い	13	為	為	为	为
2	呂	呂	呂	乃	14	乃	乃	乃	の
3	波	波	波	は	15	於	於	お	お
4	仁	仁	仁	に	16	久	久	久	く
5	保	保	保	保	17	也	也	也	や
6	部	部	部	へ	18	末	末	末	末
7	止	止	止	止	19	計	計	計	計
8	知	知	知	ち	20	不	不	不	不
9	利	利	利	り	21	己	己	己	己
10	奴	奴	奴	ぬ	22	衣	衣	衣	衣
11	留	留	留	る	23	天	天	天	天
12	遠	遠	遠	を	24	安	安	安	安

(Continued)

Table 1. (Continued)

	I	II	III	IV		I	II	III	IV
25	和	和	和	わ	37	左	左	左	さ
26	加	加	加	か	38	幾	幾	幾	き
27	与	与	与	よ	39	由	由	由	ゆ
28	太	太	太	た	40	女	女	女	め
29	禮	禮	禮	れ	41	美	美	美	み
30	曾	曾	曾	そ	42	之	之	之	し
31	門	門	門	つ	43	惠	惠	惠	え
32	祢	祢	祢	ね	44	比	比	比	ひ
33	奈	奈	奈	な	45	毛	毛	毛	も
34	良	良	良	ら	46	世	世	世	せ
35	武	武	武	む	47	寸	寸	寸	す
36	宇	宇	宇	う					

character displayed unbalanced impression in left and right direction. Referring to the evolution of character change, it is obvious to find a decreasing ink element trend from “Kaisho” to final “Hiragana”, which verified visual impression difference of heavy/thick and light/thin quantitatively.

In Fig. 3, calculated average value of character’s total ink elements (“sumi” area) and stability among 188 characters were plotted in group of “Kaisho”, “Gyosho”, “Sousho” and “Hiragana” for comparison, especially all the value was standardizing by dividing Hiragana value. Among three kinds of Kanjis, both Sumi area and stability parameters showed similar decreasing trend from “Kaisho” to “Sousho”. Comparing with Hiragana, “Sousho” still displayed less “sumi” area and stability. In a word, “Kaisho” occupied the largest “sumi” area and best stability among all as a basic character origin. Furthermore, evolved Hiragana still kept a larger “sumi” area and stability than “Gyosho” and “Sousho”, thus accepted and adopted by Japanese people finally.

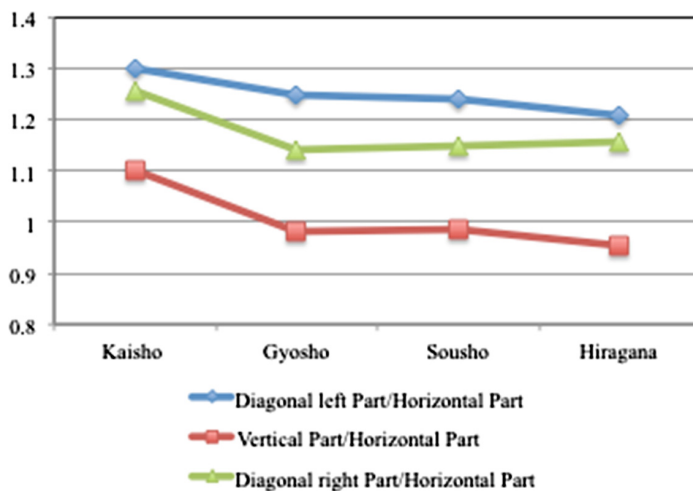


Fig. 2. Average result of Diagonal left part/Horizontal part, Vertical part/Horizontal part, Diagonal right part/Horizontal part, based on four types of 47 characters.

In previous discussion, similar data plotting of “sumi” area and stability overlapped phenomena was found in Fig. 3. In order to clarify the relationship between character’s “sumi” area and stability, sets of stability index and “sumi” area data array were arranged in Fig. 4 following with a trend line drawing. It is worthwhile to find a positive correlation between stability and “sumi” area parameter with a linear regression ratio of $R^2 = 0.97$. That is to say, no matter what the type of character showed character’s “sumi” area made the great influence on character’s visual stability.

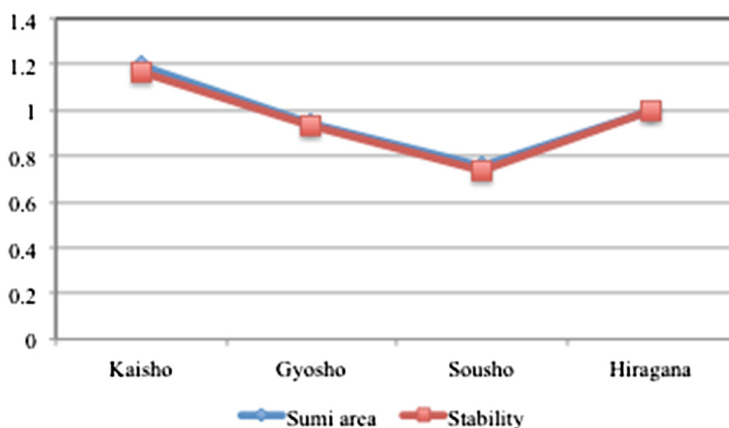


Fig. 3. The average “sumi” area and the stability index in the case based on four types of 47 characters.

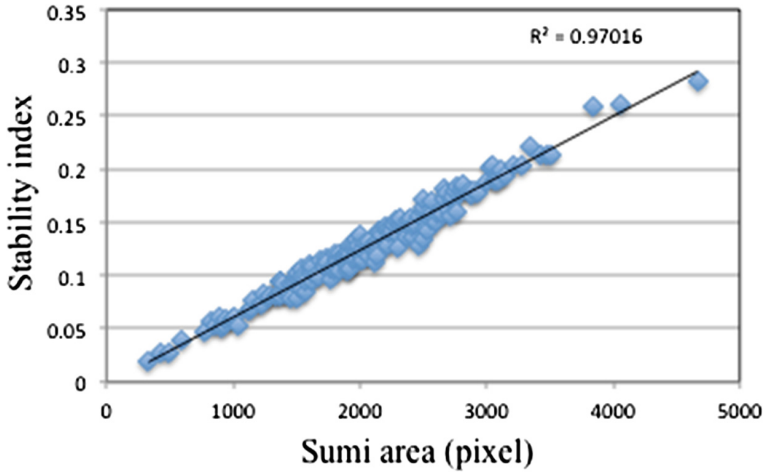


Fig. 4. The relationship between stability index and “sumi” area among four types of 47 characters.

For better understanding of various types of character’s structure feature, the first character of iroha poem “い” (Fig. 5) was explained in Figs. 6 and 7 deeply. As showed in Fig. 5, “い” character displayed the largest ratio of diagonal left, diagonal right and vertical parts to Horizontal part in “Sousho” type.

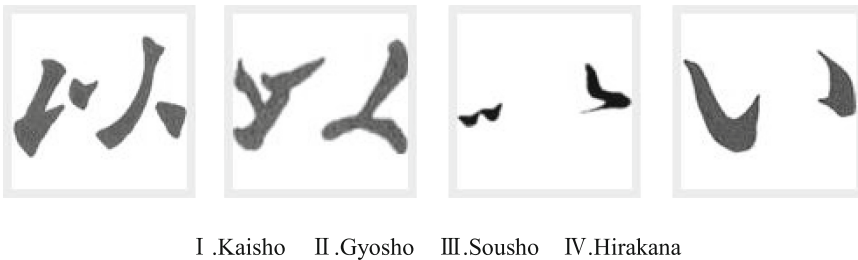


Fig. 5. The four types character the first character of character “い”

The balance analysis for individual character in different types was carried out by stability evaluation in Fig. 6. As the same with 188 character’s average value trend, “い” character also displayed the smallest stability in “Sousho” type with the similar data value as “sumi” area.

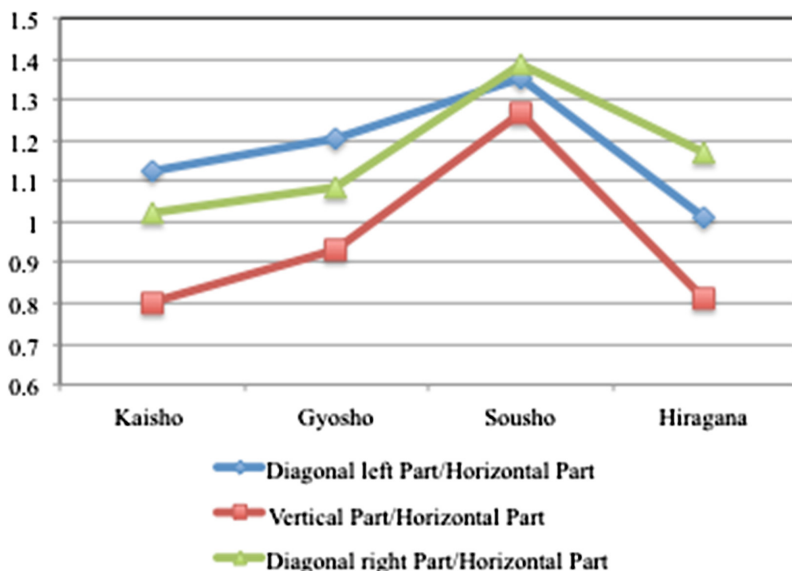


Fig. 6. Average result of Diagonal left part/Horizontal part, Vertical part/Horizontal part, Diagonal right part/Horizontal part, based on four types of characters “ㇿ”.

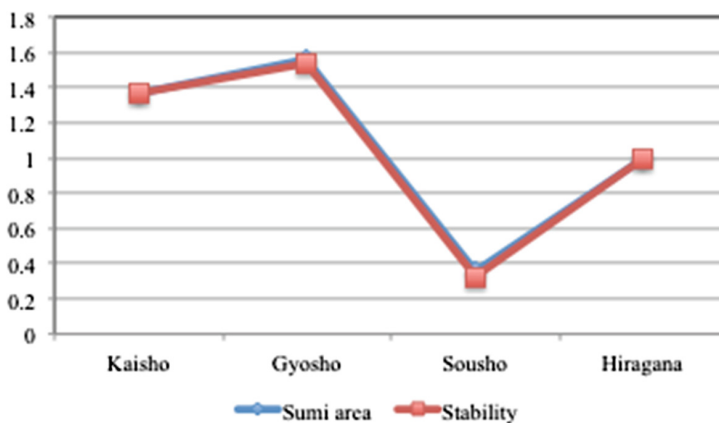


Fig. 7. Sumi's area and the stability index in the case based on four types of characters “ㇿ”

3 Conclusions

In this paper, hiragana letter consists of 48 characters and their corresponding Kanji characters of “Kaisho”, “Gyosho”, “Sousho” and “Hiragana” were analyzed and compared quantitatively by various parts length ratio, character’s “sumi” area and structure stability. Finally, Hiragana’s evolution process and feature were demonstrated, which clarified that Hiragana could keep comparative larger “sumi” area and

structure stability except for Kasho. Furthermore, high positive correlation between character's "sumi" area and structure stability index was also clarified in the end.

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