Marked Hand Configurations in Asian Sign Languages

Susan Fischer and Qunhu Gong

Abstract

In East Asian sign languages, as in Western sign languages, some marked handshapes appear only in restricted contexts or vocabulary, most of which are in signs borrowed or adapted from nonnative sources; fingerspelling (if it exists) and numbers are recent overlays onto the native vocabulary. East Asian sign languages also have character signs, which are functionally equivalent to fingerspelled loan signs. Character signs can be traced or depicted; while tracing does not violate any posited constraints for sign language phonology, depicting can. Many depicted character signs have not only marked handshapes but also marked phonotactics. Character signs display a type of iconicity related to the written form rather than, or in addition to, the shape of the referent. Another source of marked handshapes is the conflation or combination of two morphemes into one handshape, a process that seems to be rare in Western sign languages. The study of East Asian sign languages thus provides insights into the integration of non-native phonology into a sign language, as well as information about the interface between signed and written languages.

1. Introduction

1.1 History and geography

In this paper we will be discussing the Chinese (CSL) and Japanese (JSL) families of sign languages in East Asia. The CSL family comprises northern and southern dialects of CSL proper as well as Hong Kong Sign Language (HKSL: see works of Tang and her colleagues). CSL appears to have had some influence from British Sign Language (BSL; Bencie Woll, p.c.), and one apparently finds some similarities in grammatical constructions...
in Southeast Asia, i.e., Thai, Singapore, and perhaps Malaysia (Marianne Collins-Ahlgren research notes). The first school for the deaf in China was founded in 1887.

The Japanese Sign Language (JSL) family comprises Japanese, Taiwanese, and Korean Sign Languages (JSL, TSL, KSL). The first schools for the deaf in Japan were established during the Meiji era (1868-1912), after Japan had opened its doors to Western influences. In the late 19th and early 20th centuries Japan colonized Taiwan and Korea, and sent teachers to those regions to set up schools for the deaf; JSL was exported along with the teachers. Since the Japanese occupation ended in 1945, KSL and TSL have had 65+ years of near-isolation from JSL and have diverged in interesting ways. Sasaki (2003) estimates that about 60–70% of the vocabulary of TSL and KSL are cognate with JSL, but this is probably an underestimate, due to the existence of productive classifier predicates, which are largely identical in the three languages. Since 1949, with large influxes of mainland Chinese into Taiwan, CSL has had some influence on TSL.

1.2 Goals of this paper

In this paper, we have two major aims:

− To describe the marked handshapes in Asian sign languages
− To elucidate the sources of those handshapes.

The sources we have been able to identify include iconicity of the shape of the referent, iconicity related to Chinese characters or syllabary, iconicity related to other symbols, visual puns, and compositionality, i.e., handshapes resulting from a combination of two morphemes.

We are using an intuitive notion of “marked,” based on frequency in the language, frequency in the world’s sign languages, timeline of acquisition, and ease of articulation (see Jakobson 1968). We are concerned not only with the handshapes themselves but also their phonotactics; a handshape might by itself be unremarkable, but its orientation or relative position with respect to other handshapes could still be marked.

2. Iconicity and Phonological Marginality

One of the things that we have often swept under the rug with regard to sign language phonology is the interaction of phonology with iconicity. As we shall discuss below, some unusual handshapes relate to the shape of referents
(this is distinct from classifier systems, which integrate visual motivation into sign language structure). Brentari (1998), following Itô & Mester (1986), makes a distinction between native and foreign vocabularies, which can have different phonologies. This idea is elaborated further by Brentari & Padden (2001). Even though initialized signs may count as foreign, they have a long and established history in ASL, as evidenced by the older signs for “thousand” and “doctor” which utilize M handshapes, based on French mille and médecin. The 19th century LSF (French Sign Language) sign for “king” (Lambert, 1865) is the same as the ASL sign KING except that instead of a constant K handshape, the signer spells R-O-I while moving diagonally across and down the torso. A few fingerspelled loan signs such as #NO also participate in grammatical processes such as agreement.

Many “foreign” handshapes come directly or indirectly from written language. Note, for example, that the ASL letters C, D, F, I, J, K, L, M, N, O, P, R, T, V, W, Y, and Z bear some resemblance to the corresponding Roman letters (F to upper-case and R to lower-case). Van der Kooij (2002) suggests that sign language phonology can be simplified and made more restricted by having an iconic component alongside more traditional phonological structure. Her proposal can account for the vast majority of foreign handshapes in ASL. The same approach appears to work for Asian sign languages. Figures 1-2 show two examples of signs with unusual handshapes that mimic the shapes of their referents; first is the CSL (and TSL) sign for ‘ginger’, and the second is the TSL (and CSL) sign for ‘goose.’ In both cases, the handshape is unique to the sign; no other sign in the language uses it.

![Figure 1. CSL sign for ‘ginger’](image1)

![Figure 2. TSL sign for ‘goose’](image2)
3. Symbols and character signs

3.1 Symbols

In Japan, there are two symbols that are common enough to have their own Unicode symbols; each has been internalized to JSL, but in somewhat different ways. Figure 3 shows the JSL sign for ‘post office’ accompanied by its Unicode symbol. In Figure 4, we see the JSL sign for the agreement verb ‘mail.’ When used as an agreement verb, it is signed horizontally instead of vertically and moves from source to goal. The symbol (seen outside every post office) has thus been grammaticized, similar to the ASL fingerspelled loan sign #NO.

![Figure 3. JSL sign for ‘post office’](image1)

![Figure 4. JSL sign for ‘mail’](image2)

A second symbol with its own Unicode character represents hot springs. Figure 5 shows the JSL sign for hot spring accompanied by its Unicode symbol; the fingers wiggle in the sign. Figure 6 shows the JSL fingerspelling symbol YU. Yu is the Yamato Japanese word for ‘hot water,’ which of course one finds in hot springs.

![Figure 5. JSL sign for ‘hot spring’](image3)

![Figure 6. JSL YU (卐)](image4)
Roman letters too can become symbols, even in a language that does not use them alphabetically. This is what has happened to the abbreviation WC. Figure 7 shows the East Asian (it may be more ubiquitous) symbol for WC, which, when moved from side to side, becomes the sign for ‘toilet’ in all the languages being considered here.

![Figure 7. Representation of WC](image)

3.2 Character Signs

Ann (1998) has described the interface between Chinese characters and TSL in her discussion of so-called character signs. These are signs based on the shape of a Chinese character, usually by either tracing the character or depicting it; see also Fischer & Gong (2010) for further discussion. Just as any word in English can be fingerspelled, any Chinese character can be drawn in the air or on the palm of the hand. Character signs are analogous to fingerspelled loan signs (Battison, 1978) in that they may not show the entire character and can be grammatically active. Depicted character signs are in a sense more iconic in that they reflect, again often in a simplified way, how the character looks on the page as opposed to being drawn.

The order of magnitude of character signs is roughly that of fingerspelled loan signs; CSL has about 30, JSL slightly fewer, and TSL quite a few more, (see Ann 1998). One could conjecture that TSL may have more character signs than JSL or CSL because it lacks fingerspelling as a way of borrowing words into the sign language. Note that KSL has vestigial character signs for place names, though written Korean no longer uses Chinese characters (Byun Kang-Suk, p.c.).
3.2.1 Depicted character signs

Signs that are depicted rather than traced are usually fairly simple, but even these simple signs may have marked configurations. Consider for example the depiction of the character 田 meaning rice paddy. JSL and TSL depict 田 as in Figure 8, while CSL depicts it as in Figure 9; the differences in handshape are due to frequency, perhaps related to differences in the representation of the numeral 3 in the two cultures.

![Figure 8. TSL, JSL representation of 田](image)

![Figure 9. CSL representation of 田](image)

The markedness of the configurations in Figures 8-9 lies not necessarily in the individual handshapes but in their relation to each other. Another example of a depicted character sign that is exceptional in its phonotactics is one JSL sign for 日 (‘day’) shown in Figure 10. It occurs only in compound signs such as ‘birthday;’ otherwise the sign for ‘day’ is unrelated to the Chinese character.

![Figure 10. JSL sign for 日 ‘day’](image)

Ann (1998) points out that in TSL, not only the fingers but the mouth can be recruited to depict Chinese characters. She shows one TSL sign for “middle” with the forefinger on the mouth. The Chinese character for “middle” is 中,
which is composed of a line and the classifier □, which means ‘mouth’. It is therefore perhaps natural to sign middle’ using the mouth in place, say, of a finger configuration representing the box in 中. CSL can do the same thing: see Figure 11. By contrast, the JSL sign for ‘middle’ is a two-handed depicted sign, as in Figure 12; that is also an acceptable option for CSL and TSL.

TSL uses the mouth in other ways as well: for example, the sign for “product”, whose character is 品, is shown as in Figure 13.

Depicted characters can participate in grammatical processes. Two examples from the northern dialect of CSL are based on the sign for ‘person’ (Yang, 2004): The CSL language family depicts the character 人 as in Figure 14 In the northern dialect, twisting the finger on the dominant hand changes the meaning from “person” to “who”, while changing the dominant index finger to a wiggling “5” handshape changes the meaning to ‘how many people’; both the twisting and wiggling are semi-productive and can be superimposed onto other signs to change the meaning appropriately.
Two other examples of depicted character signs participating in grammatical processes is the CSL and TSL sign for “introduce” (Figure 15) and the JSL sign for “enter” (Figure 16). Both participate in agreement: “introduce” moves between the direct and indirect objects, while “enter” shows spatial agreement with goal.3

![Figure 15. ‘enter’ CSL sign for 介入 ‘introduce’](image)

![Figure 16. JSL sign for 入 ‘enter’](image)

There are a few depicted character signs in CSL that appear to violate Battison’s (1978) phonotactic conditions on monomorphemic signs. Battison stipulates that if both hands move and one hand does not impinge on the other, then both hands must have the same handshape. One Chinese sign for ‘prosperity’ violates this condition. The source of this violation is transparent: the character has one instance of 上 above another. The sign reflects this relationship and uses a combination of two handshapes to depict 上. The two hands do not touch; hence one hand does not affect the other. See Figure 17.4

![Figure 17. CSL sign for 昌 ‘prosperity’](image)

3.2.2 Traced character signs

We have already mentioned that many very complex Chinese characters can be drawn in the air or on the palm of the nondominant hand. The difference between drawing a Chinese character and executing a traced character sign lies in how the latter interacts with the grammar of the sign language. One way in which this grammatical activity is shown is with the possibility of numeral incorporation. We saw above, Figure 14, that the sign for ‘person’ in
CSL depicts the character 人. In the JSL family, that same character is traced with an index finger. Members of the JSL family can add numeral marking by tracing the 人 character using the appropriate numeral handshape in place of the forefinger. Similarly, in both the CSL and JSL families, one can do a simplified, cursive trace of the character for thousand (千) while incorporating numeral handshapes. See Ann (1998), Fischer and Gong (2010) for other examples.

4. Numerals

4.1 A few CSL numerals

We shall not discuss CSL number signs in general. There is, however, one curious type of formation in CSL that we would like to mention. Similar to what we saw in the depiction of characters like 丁 in CSL and TSL where the mouth replaces 口, the Xi’an variety of CSL depicts some numerals using another part of the face to show part of the numeral. Numerals for hundreds (100, 500, 700, etc.), are signed with the handshape for the first numeral placed at the side of the head, and the eyes representing the two zeroes. This is somewhat reminiscent of jokey signs in ASL for wow, where the mouth represents the o and w is signed on either side of the face. See Figures 18-20 for the CSL examples.5

![Figure 18. Xi’an ‘700’](image1)
![Figure 19. Xi’an ‘500’](image2)
![Figure 20. Xi’an ‘100’](image3)

Some numbers in the CSL family also have marked handshapes. The number 10 is represented in two ways: one with the handshape (thumb bisecting the forefinger [Shanghai variety]) and the other with the index and middle fingers crossed (Beijing variety).6

One interesting type of phonologically (and spoken-language) conditioned borrowing has occurred in TSL. In JSL, all but one of the signs for days of the week are based on the meaning of the Chinese characters for the Japanese names, so Monday = moon day, Tuesday = fire day, etc. The one
exception is “rest day” instead of “sun day”. However, in spoken Chinese, the days are numbered, so in CSL Monday = the numeral 1 signed at the armpit, Tuesday = the numeral 2, and so forth. Since TSL has contact with written Chinese, the CSL signs have replaced the original JSL signs, but with JSL phonotactics; while the CSL sign for Wednesday uses an $F$ hand (cultural sign for 3 in Chinese-speaking regions), TSL nativizes the CSL 3 by substituting the $W$ handshape for the CSL 3, which is an ASL $F$. The use of the $F$ handshape for the numeral 3 is part of Chinese culture, but the phonotactics of TSL trump the hearing cultural gesture for 3.

4.2 Numerals in the JSL family

JSL, KSL, and TSL have essentially the same number system. The JSL numerals 1-10 are shown in Figure 21. One exception is that JSL and KSL do not have the handshape for the numeral 7 that TSL appears to have borrowed from CSL (see Figure 21) though TSL also uses the JSL 7 handshape in Figure 21, and uses it morphologically in signs like WEEK, which has a JSL: 7 handshape as its nondominant hand. The TSL numerals for 100 and 1000 are shown in Figure 22.

The handshapes shown in Figure 22 are now used in JSL only in the Osaka dialect and only for talking about money; the hands move in an ipsilateral direction to show ¥100 or ¥1000.

Not all of the handshapes in Figure 21 are marked. We have included them here to show the number system and also to show how the Japanese names and *katakana* for the numbers (shown in a corner of each figure) are exploited in the fingerspelling system, to be discussed in the next section.

The sign for 10, as well as teens and multiples of 10 in the JSL family involve bending the relevant extended fingers; however, the bent extended fingers themselves without movement are sufficient for the recognition of the numeral. This is what happens in signs like 30-YEARS, where a $\text{ HAND}$ handshape (3 middle fingers extended and bent) substitutes for the 1 handshape in the sign YEAR (Hung, 2010; Fischer, Hung, and Liu, 2011). See below, section 7, for more discussion of numbers in the JSL family.
Figure 21. JSL numerals 1–10

Figure 22. TSL 100, 1000; JSL Osaka dialect ¥100, ¥1000
5. Fingerspelling

HKSL and TSL do not have fingerspelling. The current JSL syllabary was borrowed and adapted from ASL, but is new enough that older Japanese do not know it; and CSL fingerspelling, also adapted from ASL, was introduced in the early 1960s to represent Pinyin. Although JSL, CSL, and KSL all have fingerspelling, it is used much less than in ASL, and at least in JSL, is done much more slowly even by native signers (Leslie Greer, p.c.). KSL has fingerspelling (Byun Kang-Suk, p.c.), which is based on Hangul; each Hangul character compositionally represents a syllable in spoken Korean but is structured like a Chinese character; and this is reflected in the fingerspelling system, which is also spatially compositional.

JSL has relatively few initialized signs, which are seen as quite recent additions; JSL also does not use initialization for name signs; nor does KSL, though CSL does. The role of fingerspelling in JSL and CSL appears to be more marginal than it is in ASL, and until recently was used chiefly in schools where signed Japanese or Chinese were employed. Not only the handshapes, but some of the orientations appear to be quite unusual. Figures 5 and 6 show the JSL representation for the syllables HE, KI, TI and TU.

According to Bradshaw (2007), JSL fingerspelling is based largely on the two kana syllabaries, though more on the katakana than on the hiragana. The syllabaries are in turn based on kanji, and in the case of simple kanji, the syllable and the kanji are the same, but the syllable has been bled of the meaning of the kanji. For example, the kanji for the name of the number 2, ‘ni,’ is 二; the katakana for the syllable ‘ni’ is ニ. Similarly with ‘mi’ meaning 3 (參 vs. 卯). In developing fingerspelling, JSL has made use of this kind of overlap, and even where there is no overlap between the kana and the kanji, has also made massive use of homonymy. Thus, the syllable KU can be based on the representation of the number 9 because one pronunciation of 9 in Japanese is ‘KU’. Other examples are hi (1), ni (2), mu (6), si (7) (see figure 23). Other fingerspelled syllables in JSL appear rather transparently to be either depicted (ko コ, su ス, tu ツ, so ソ, huフ, he へ, yo ヨ, ru ル, re レ, ro ロ) or traced (no ノ, ri リ, syllabic n ン)versions of katakana. Note also that the orientations for the fingerspelled syllables NI, YO and MI shown in figure 24 follow the orientation of the written symbol for the syllable and are distinct from the JSL numerals seen in Figure 21, which suggests strongly that these syllable representations are based on the written syllable rather than the number concept. The overlap between pronunciation, kanji, and meaning can be rather complex. Thus, we saw a representation for the number 1000 in figure 22. On one level, this could be iconic with
Figure 23. JSL fingerspelling based on number names

Figure 24. JSL fingerspelling resembling kana: KO, SU, TU, NO, HU, HE, YO, RI, RU, RE, RO, syllabic N
the extended pinky representing the numeral 1 and the other closed fingers representing three zeroes. Now, one pronunciation for 1000 in Japanese is ‘ti’ (phonetically ‘chi’). The handshape in Figure 22 is thus used to represent the Japanese syllable ‘ti’. At the same time, however, it bears some resemblance to the hiragana representation of that syllable, namely つな. There is thus a kind of convergence in which there are several possible sources for one handshape.

The handshape for HE ewise in Figure 24 is not particularly marked, but because it is mimicking the Japanese kana ewise, its orientation with the palm facing in and the fingers pointing downward is highly unusual. The only other JSL sign we know of that uses the Y handshape in the HE orientation is one dialectal sign for tea.

Bradshaw (2007) also shows that several of the syllables in the JSL inventory are semantically and/or iconically based:

KI~ kitune ‘fox’ (with outside fingers raised like ears and middle two touching the thumb like a snout); SE ~ se ‘spine’ (a raised middle finger, but with the palm facing the viewer); SO ~ sore ‘that’ (pointing); TE ~ te ‘hand’ (an open hand); TO ~ to ‘and’ (first two fingers side-by-side); NE ~ ne ‘root’ (all fingers pointing down); HO = ho ‘sail’ (back of hand like billowing sail); ME ~ me ‘eye’ (between thumb and forefinger); MO ~ mo ‘too, also’ (JSL sign for onaji ‘same’); YU ~ yu ‘hot water’ (three fingers like symbol for public bath house).

We have in fact already seen the syllable YU in our discussion earlier of representations of symbols, cf. Figure 4. The syllabary sign for KI comes from a hearing gesture for “fox”, which in Japanese is kitune. This handshape is also used by some signers as a classifier for foxes, dogs, and occasionally cats (Fischer 2004). See Figure 25. Some of these iconic handshapes are quite common, while others are marked, but the important thing to note here is that there is iconicity with respect to the written form.
6. Cultural and linguistic determinants of handshape frequency

In ASL, the extended pinky (i) handshape is rather infrequent outside of initialized signs like I and INSURANCE. However, because it has morphological significance in both the JSL and CSL families, it is more frequent. In the JSL family, this handshape is a female gender marker (the male gender marker in JSL is the ‘thumbs-up’ (fist with thumb extended upward). In CSL, the extended pinky handshape is used as a negative morpheme (the thumbs-up handshape is its positive equivalent). This results in greater frequency of an otherwise marked handshape in East Asian sign languages. For example, the CSL signs for “deaf” and “hearing” are shown in Figure 26.

![Figure 26. CSL DEAF, CSL HEARING (from Fischer & Gong 2010)](image)

The pinky extended, the ‘thumbs-up’ and the kî (or kitune) (Figure 25) handshapes are all part of Japanese culture; hearing people with no knowl-edge of JSL use them, but in JSL they have become grammaticized. The same appears to be true for the positive and negative thumb-extended and pinky-extended handshapes in the CSL family. Kinship signs provide another source for marked handshapes in the JSL family. The signs for male siblings in JSL, KSL, and TSL use the extended middle finger, which is not taboo as it is in American culture. The extended ring finger is used for female siblings in TSL and KSL; in older JSL sign language lexicons, this finger is shown, but in contemporary JSL it has been regularized to the i (i) handshape. Note that the ‘sister’ handshape violates Eccarius’s *RING condition (Eccarius, 2008). The extended middle finger and ring finger handshapes are fairly frequent because of the fact that they are used frequently, though only in kinship signs.
7. Marked handshapes through compositionality

ASL has a couple of handshapes that result from compositionality: one is the now well known I-LOVE-YOU, combining I, L, and Y, which in turn can be made even more compositional by adding an R for I-REALLY-LOVE-YOU, shown in Figure 27a. This handshape is also used for SPACE-SHUTTLE, a combination of ROCKET and AIRPLANE. Analogously, I-HATE-YOU or HOLIER-TAN-THOU (see Figure 27b) combines I, H, and Y. In both cases, the result is a marked handshape.

![Figure 27. ASL I-REALLY-LOVE-YOU(a), I-HATE-YOU (b)](image)

At least one fingerspelled letter in CSL is also compositional. CSL has adapted some of its fingerspelled letters from ASL, but invented others. Figure 30 shows the CSL letter Z; Figure 31 shows the letter ZH, which is effectively Z+H. (CSL H was borrowed from ASL). The result of this composition is again a highly marked handshape.

![Figure 28. CSL Z (a) CSL ZH (b)](image)

Another source of compositionality that results in marked handshapes occurs in Korean Sign Language KSL, for names signs in particular. In KSL, as in many sign languages, name signs are based on temporary (e.g., black eye) or permanent (e.g., dimples) individual characteristics. Like JSL and TSL,
KSL also has gender marking, which is added simultaneously in name signs, resulting in a marked handshape. For example Figure 29a shows the KSL sign for ‘dimple.’ Figure 29b shows the KSL name sign for a female who is known by her dimple (DIMPLE + FEMALE).

A really striking form of compositionality occurs in the signs for 12-19 in the JSL family. These have been reported for TSL by Hung (2010) and Liu (2010), but have been confirmed to exist also in both JSL (Osugi Yutaka, Tomita Nozomi, p.c.) and KSL (Byun Kang-Suk, p.c.). The JSL number system is basically agglutinative; for example, 23 resembles a compound of 20 and 3. Recall that the signs for 10, multiples of 10, and teens involve bending the requisite number of fingers. Normally, then, a sign for ‘12’ would involve a sequence of $10^2$, i.e., the sign would have internal movement. However, there is a shorthand for 12 that involves no internal movement, but the result of combining 10 and 2 into one handshape results in a shape that is so marked that it does not appear in existing handshape inventories. The TSL handshapes for 12-19 are presented in Figure 34. Note that the sign for the numeral 16 is exceptionally not compositional, nor is the sign for 11, which is simply $10^1$.

There are consequences of the availability of these reduced compositional forms elsewhere in the grammar. Generally movement within a sign reduces the likelihood that it will be able to combine easily with other signs. For example, in ASL one can sign 2-YEAR, 4-YEAR substituting 2 and 4 for the fist with which one usually signs YEAR, but not *12-YEAR because 12 has internal movement; rather, two separate signs are required. Similarly, one can sign 2-APPROACH-CAR but not *12-APPROACH-CAR. However, in the case of the JSL family, such signs are possible precisely because of the lack of movement, bizarre though the handshapes might be. (Hung, 2010; Liu, 2010; Fischer, Hung, and Liu, 2011). In TSL, 80-YEARS or 18-YEARS or 12-APPROACH-CAR are all in fact grammatical.
Figure 31. TSL numerals 12–19
8. Conclusions

We have seen that there is a multitude of sources for marked handshapes in Asian sign languages: fingerspelling, Chinese characters (both katakana and kanji), written symbols, spoken language/visual language “puns”, cultural influences, and combinatorial processes. We have also seen that, even though different sign languages may have different selected fingers, accounting for the different phonotactics, some differences remain that are related to the iconicity of Chinese characters and syllabary symbols.

We have shown that there is an intimate connection between the use of Chinese characters and syllabaries in written Asian languages and their representation in their respective sign languages. It is our general impression that the use of Chinese characters in signing is more extensive in those sign languages that lack fingerspelling (e.g., HKSL and TSL) than in those that have it (CSL, JSL, KSL), since sign languages that have fingerspelling would have two options for borrowing from the written language rather than just one. In a way, Chinese fingerspelling is more “foreign” than Japanese, in that it is based on a romanization of Chinese that serves as a notation system for the pronunciation of standard Chinese and which is used only minimally in Chinese writing; in contrast, Japanese uses syllabaries in everyday writing. We have also seen that Chinese characters function analogously to fingerspelling and fingerspelled loan signs in Western languages like ASL. However, the use of character signs, as opposed to the more widespread use of drawing complex Chinese characters in the air or on the palm, appears to be more extensive in TSL than in JSL or CSL.

Many of the handshapes we have discussed are fairly recent overlays and have thus not yet fully assimilated into the existing phonological systems of these languages. Some, especially in CSL, require a familiarity not only with the written language but also with the spoken language (e.g., “pun” signs in CSL).

Although there is handshape iconicity in Western sign languages as well as in Asian sign languages, we would argue that the type of iconicity found in borrowings from Chinese characters is of a different character, one that permits restricted violations of phonological constraints. Phonological theories that take language history as well as language acquisition into account in order to deal with markedness may provide helpful insights into explaining how these foreign handshapes and combinations of handshapes finally integrate into the Asian sign languages.
Acknowledgements

We gratefully acknowledge the valuable insights of colleagues, students, and consultants who have afforded us the opportunity to explore or discuss the issues addressed here. These include Jean ANN, Diane BRENTARI, BYUN Kang-Suk, CHEN Yijun, Sung-Eun HONG, Harry van der HULST, HUNG Yu, ITIYOSI Tetuo, IWATA Mayumi, LEE Hsin-Hsien, LIU Shih-Kai, OSUGI Yutaka, SASAKI Daisuke, SU Shiou-Fen, James H-Y TAI, Gladys TANG, TOMITA Nozomi, YANG Junhui, YOSHIDA Minoru, SHEN Chengxiang, ZHANG Yan, and Ulrike ZESHAN, as well as our TSL consultants. Thanks to Peggy Swarzel Lott for modeling some of the handshapes. We are also grateful for the helpful comments of two anonymous reviewers. Parts of this paper are based on Fischer & Gong (2010), and Section 7 is based on Fischer, Hung, and Liu (2011); some of Fischer’s research was supported by a grant from the Taiwan National Science Council to National Chung Cheng University, Minsyong, Taiwan.

Notes

1. See, however, Kuroda’s 2002 critique of Itô and Mester with regard to certain phonological processes in Japanese.
2. 是 is in fact depicted in TSL, CSL, and JSL, but differently in all three; in JSL, one hand sequentially shows three circles, while in CSL, one hand holds the top circle while the other hand places two circles sequentially underneath.
3. The CSL and TSL (probably borrowed) sign for โฉ่ is the only instance of which we are aware in which agreement is between two objects rather than between subject and objects. However, it still follows Meir’s theory in that it is in some sense moving from source to goal.
4. One reviewer suggests that even though the hands do not touch, there is still a close relationship between them. It is interesting that in other pronunciations of this sign, the fingers of one hand actually grasp the extended finger of the other, thus indeed regularizing the phonotactics.
5. Note that this is not a character sign, as 500 and 700 would be written in Chinese characters as 五百 and 七百, respectively.
6. The Mandarin pronunciation of “10” is identical with the word for “yes” aside from the tone, and the CSL sign for “yes” uses the ASL R (index and middle finger crossed) handshape, constituting a cross-linguistic pun.
7. TSL signers also make these signs near the armpit but not in it.
8. ‘ti’ is one possible reading of the character for 1000 in Japanese. If one stretches the imagination, one could think of the syllable/number in Figures 22 and 24 as a 1 followed by 3 zeros.
9. There are two possible reasons for this difference in velocity: first, JSL requires 50 handshapes as well as some diacritics to convey the Japanese syllabary. This requires finer distinctions than those found in ASL, hence more attention. . . . A second possible explanation is that since one is dealing with syllables rather than segments, each fingerspelled syllable is carrying more information.
10. Fingerspelled loan signs are extremely rare in Asian sign languages, as their function is subsumed by character signs; rather, full fingerspelling is used, which again shows that fingerspelling is not as fully integrated into even those Asian sign languages that have it as in ASL. One which we have observed is the name Mayumi, the spelling of which involves a sequence of syllables all of which have three extended fingers in the same plane but with three different fingertip orientations: down, up, side.
11. The ksi handshape (index and pinky extended, middle and ring fingers contacting thumb) is used in Makaton, an invented sign system previously prevalent in special education in the UK as a classifier for animals.
12. CSL uses the same handshape to represent the Pinyin letter ‘t.’
13. Bencie Woll (p.c.) suggests that the thumb extended and pinky extended handshapes for positive and negative may have entered CSL from contact with either BSL or British culture via Shanghai.
14. It is interesting to note that CSL also distinguishes among older and younger brothers and sisters. In CSL, kinship signs are made in the area of the chin and mouth. Handshapes distinguish FATHER (extended thumb), MOTHER (extended index finger), OLDER-SIBLING (extended middle finger) or YOUNGER-SIBLING (extended pinky); to distinguish sisters from brothers, a sequential gender marker is added.
15. Thanks to Byun Kang-Suk for pointing this out and for demonstrating the handshapes.
16. Harry van der Hulst (p.c.) has an interesting take on the composite shapes discussed in this section. He suggests that what we have in the cases of Figures 27, 28b, 30, and 31, are the simultaneous production of two unmarked handshapes, similar to mechanisms of fast speech, where, for example, unacceptable clusters show up due to vowel elision. This approach is appealing; the one response we would have that goes against that view is that a lot of fast speech results both in and from ease of articulation. In this case, the composite handshapes are much more difficult to produce than either element alone. This idea is worth further exploration.
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