Modality Effects Revisited: Iconicity in Chinese Sign Language

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Tai (2005) argues for the importance of iconicity as a fundamental property of language, illustrating the modality effects of iconicity through the study of a set of iconic devices used in Taiwan Sign Language (TSL). This paper extends Tai's research, in exploring the iconic devices used in another Asian sign language, Chinese Sign Language (CSL). Some preliminary comparisons are made in this paper between CSL and TSL lexical items, based on an examination of the iconic devices used in the CSL and TSL signs, and determining the iconic motivations underlying the signs that are formed. The study provides a glimpse into the prevalence of iconicity in CSL and TSL, a strong trend across sign languages, making iconicity one of the most significant modality differences between sign and speech, with important ramifications for future studies on language structure, language acquisition, language processing, language change, etc. (Quinto-Pozos 2007b).[*]

0. Introduction

The seminal work of William C. Stokoe and his associates (Stokoe 1960; Stokoe et al. 1965) and the ensuing research by Klima and Bellugi (1979) and their associates have firmly established that signed language is natural language, with a full system of linguistic structures: phonetics, phonology, morphology, syntax, etc.[1] Moreover, as natural language, signed language shares with spoken language such non-effects of modality as conventional vocabularies involving pairings of form and meaning; duality of patterning (i.e., combining of discrete, meaningless components into meaningful units); productivity in the creation of new vocabulary through derivational processes, compounding, and borrowing; syntactic structures involving same parts of speech, embedding structures, and trade-offs between marking of agreement in grammatical relations and freedom in word order; similar acquisition timetables; lateralization in the left hemisphere; etc., as analyzed by Meier (2002).[2]

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[1] Contra Stokoe, Pulleyblank (2008) argues against treating ASL as a fully independent language.

[2] Tai (2008), however, offers a few words of caution, noting that these non-effects of modality are only first approximations; his further scrutiny reveals more nuanced differences between the two modalities. See Tai (2008) for details.

The fundamental difference between spoken and signed languages lies in the modality each uses for production and perception. Spoken language makes use of the auditory-vocal modality, whereas signed language utilizes the visual-gestural modality. Despite commonalities between the two modalities, there are some fundamental differences in their properties that are ascribable to modality effects. Iconicity has been singled out as one of the modality effects playing a greater role in signed languages than in spoken languages, and the degree to which it is employed in the former has generated much interest.[3]

Studying Taiwan Sign Language (TSL), Tai (2005) examines (visual) iconicity in TSL in the context of modality effects on the structural differences between signed and spoken languages, and argues that iconicity is a fundamental property of natural language.[4] In this paper, we revisit iconicity in signed languages by examining the iconic devices used in another Asian sign language, Chinese Sign Language (CSL), and comparing some of the lexical items in CSL with those in Tai's (2005) study of TSL. This paper will also explore the various iconic motivations that underlie the signs in CSL and TSL that may use similar or different iconic devices. The interrelationship between iconic motivations and iconic devices that emerge in this study will be examined across four distributional patterns.

The paper is organized as follows: Section 1 provides a brief background on the deaf population in China and Taiwan, and on research on CSL and TSL; section 2 outlines the corpora for this study on CSL and TSL; section 3 is on iconicity and a set of seven iconic devices that are used in CSL and TSL; section 4 discusses the temporal ordering of iconic devices; section 5 examines four patterns in the interplay of the selection of iconic motivation and iconic device in corresponding CSL and TSL signs; and section 6 concludes with a few remarks on the pervasiveness of iconicity across signed languages and some implications of this truly striking modality difference between signed and spoken languages.

1. Background

China today has a large population with hearing impairments. As shown in recent statistics from the report prepared by China Disabled Persons' Federation (2006), there are an estimated 20.04 million people with hearing impairments in that country.[5] The total

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[3] See Taub (2001), Pietrandrea (2002), Pizzuto & Volterra (2000), Quinto-Pozos (2007a), etc. For example, Quinto-Pozos (2007b:15, citing Liddell 2002) notes, "The degree of iconicity in signed language can be considered a true modality difference between sign and speech: Both have iconicity, but signed languages are much more characterized by visual iconicity than spoken languages are by auditory iconicity."

[4] Tai (2005) also argues that iconicity, rather than arbitrariness, is a fundamental property of language and offers reasons for the apparent arbitrariness observed in spoken languages. He further makes the bold suggestion that, due to modality effects in the duality of patterning, human language may have evolved from gestures prior to the development of speech. See Tai (2005) for details.

[5] The 2006 CDPF survey is based on a sampling of 2,526,145 people in 771,797 households, in which 38,370 people have hearing impairment. The estimate of 20.04 million hearing-impaired in China in 2006 is based on statistical extrapolation from the sampling survey. Fairly large discrepancies

population of China at the time (which excludes Hong Kong, Macao, and Taiwan) was 1.30948 billion people. For comparative purposes, Tai (2005:21) gives a figure of 110,000 deaf and hearing-impaired people in Taiwan, based on government census. The overall estimate of the hearing-impaired in China is probably low, as many Chinese may still be unwilling to admit to suffering from major hearing impairments or deafness, since deafness is often viewed negatively in Chinese society.[6]

Chinese Sign Language (CSL) is a term that may be used to refer to a language family with regional varieties that are used in China. The two most important varieties are the Beijing variety and the Shanghai variety, with Shanghai the more prominent. In addition, there is also a Hong Kong variety (which, following current trends, will be referred to as Hong Kong Sign Language (HKSL), to distinguish it from CSL varieties used in the mainland[7]). In this paper, unless stated otherwise, CSL refers specifically to the Shanghai variety. The history of Chinese Sign Language (CSL), broadly construed or limited to the Shanghai variety, is largely unknown. Western research on Chinese Sign Language is also very limited (e.g., Bellugi & Klima 1979, Woll 1984, Callaway 2000). There has been relatively more research done by Chinese linguists themselves. Zhao (1999), for example, discusses the history and features of Chinese Sign Language, while Song (2000) discusses the history of the Chinese deaf community. More recent studies of CSL include Lytle et al. (2005/6).[8]

As in the case of CSL, Taiwan Sign Language (TSL) also has more than one regional variations. Smith (2005:188) divides TSL into two main varieties, with one founded in 1915 in the south in Tainan, and the other in 1917 in the north in Taipei. Furthermore, due to Japanese occupation of Taiwan, Japanese Sign Language (JSL) was also introduced, with the Osaka variety of JSL taught by teachers from Osaka in Tainan, and the Tokyo variety taught by teachers from Tokyo in Taipei. At the same time, the situation accounts for TSL belonging to the JSL language family. Additional sign language contact took place in 1949 when mainland refugees brought CSL with them (among whom included teachers who have taught the Nanjing, Shanghai, Nantong, and other varieties of CSL); and later, Hong Kong visitors and students studying in Taiwan contributed the HKSL variety of CSL

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can, therefore, occur. For instance, the 2003 CDPF survey gives an estimate of 20.57 million people with hearing and speech impairments (with no break-downs for each subcategory), compared to the 2006 estimate of 31.31 million, a rather drastic change over a mere three-year period. A national census in the future, with clear definitions of deafness, consistency in collecting methods, etc., is needed to obtain more accurate and reliable statistics.

[6] The U.S. has also encountered difficulties in collecting reliable, accurate statistical data, as indicated in Mitchell (2005:112) where four constraints are identified: (1) the context of the inquiry, the indicators used to establish group membership, (3) the methods employed to collect indicator data, and (4) the resources available to execute the project.

[7] Earlier studies on the Hong Kong variety of CSL (e.g., Bellugi & Klima 1979; Fok et al. 1986, etc.) simply refer to that signed language as Chinese Sign Language (CSL).

[8] For a brief overview of the historical background of CSL, see Xu (2006:9ff).

to the mix. Smith (2005:189) observes that "years of separation have now resulted in numerous differences between TSL, JSL, and CSL, but the basic relationship among them still holds." Note that Hurlbut's (2008) survey report on sign language in Taiwan, based on wordlists, found just over 50 percent similarity between TSL and JSL. However, the report was based on only ten subjects, and the JSL signer was from Akita City in Akita Prefecture, Japan, and very likely did not use the Tokyo or Osaka variety of JSL.

Overall, the above shows that TSL is much better documented than CSL. Records of TSL research date back to the late 1950's (Smith 2005), with more recent studies (e.g., Sasaki (2001, cited in Smith 2005), Myers & Tai 2005, Sasaki 2007, Ann et al. 2007) building upon that collection of TSL research.[9] Given the paucity of linguistic studies on CSL in general, there have not been detailed comparisons of CSL and TSL, or across CSL varieties.

2. The CSL and TSL Corpus

The corpus for this study consists of a combination of two video databases, one for each of the two sign languages, CSL and TSL. The CSL database is part of a larger project—led by Professor Gong Qunhu (龚群虎) at Fudan University, Shanghai—entitled, "Chinese Deaf People and Linguistic Research on Chinese Sign Language." The TSL database is also part of a larger project, namely, "A Study of Taiwan Sign Language: Phonology, Morphology, Syntax and Digital Graphic Dictionary," which is headed by Professor James H-Y Tai (戴浩一) at the National Chung Cheng University in Taiwan.[10] The CSL corpus draws from the Shanghai variety of Chinese Sign Language, a natural sign language that is used on the Chinese mainland, while the TSL corpus represents a naturally-occurring variety of sign language used by deaf communities in Taiwan, one that, for historical reasons, belongs to the Japan Sign Language (JSL) family.

The lexicon in the CSL database is part of Professor Gong's Swadesh list of 200 words in different varieties of CSL, collected through videorecording in different parts of China. The CSL corpus for the current study is a subset of that Swadesh list, namely, 100 words from the Swadesh list that was modified by Woodward (1993a) for sign language comparison. The TSL database for this study is a corresponding set of 100 words that are in that modified Swadesh list.

3. Iconicity and Iconic Devices

Signed and spoken languages make use of different modalities, or channels of transmission, one visual-gestural and the other auditory-vocal. Meier (2002) offers three ways in which these modalities may differ that may be potential sources for the linguistic

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[9] Also see Miles (2007-08) for an extensive, European-language bibliography of sources on disability and deafness in East Asia.

[10] We are immensely grateful to Professors Gong and Tai for their generosity in providing us with the video clips that are used for this paper. In an earlier comparative study that uses the same set of video data, Xu (2006) proposes a new model for lexical comparisons across sign languages.

differences between these two modes of human language. One pertains to differing properties of the articulators that affect production (e.g., light source is external to the signer vs. sound source is internal to the speaker). A second pertains to differing properties of the sensory and perceptual systems that subserve the comprehension of sign and speech (e.g., signer must be in view of the addressee vs. speaker need not be in view of the addressee; high bandwidth of vision vs. lower bandwidth of audition; visual stimuli generally not categorically perceived vs. categorical perception of speech; etc.). And the third pertains to the two modalities' differing potential for iconic representation and indexic/ostensive identification of referents. Of particular importance to us is the third difference, in the greater potential of the role for iconicity in the visual-gestural modality over that in the auditory-vocal modality. The pervasiveness of iconicity in signed language stems, in part, from the medium, or channel, through which signed language is conveyed in interpersonal communication. The visual-gestural modality has access to three-dimensional space for forming of signs in the language plus the time dimension, hence a quad-dimensional channel for transmission (Meier 2002:11). The auditory-vocal modality, in contrast, is much impoverished, being strictly limited to one dimension, that of temporal space, which is measured uni-dimensionally as a line (cf. Saussure (1916/1983) on the linear character of the sign).

The recognition of the greater role that (visual) iconicity plays in signed languages provides the launching ground for this paper. The study examines the similarities and differences in the use of iconic devices in the CSL and TSL lexicon, and explores the iconic motivations that may underlie the selection of one iconic device over another for the production of a given sign in CSL and TSL.

Taub (2001) considers language, in any modality, to be motivated, contra Saussure's Principle I on the arbitrariness of the linguistic sign (i.e., the arbitrariness in the link between signal (sound pattern) and signification (concept)). Iconic motivation comes from language drawing on structures and associations in the speaker/signer's conceptual system. As elaborated by Taub (2001:231), "Iconicity, a feature of all languages, is based on our ability to associate sensory images with concepts, simplify those images, and create analogues of them using the resources of the language, all the while preserving the essential structure of the original images." In her model for the creation of an iconic sign, Taub (2001: 44) offers the following steps: "one *selects* an image to represent, modifies or *schematizes* that image so that it is representable by the language, and chooses appropriate forms to show or *encode* each representable part of the image." Since iconic devices serve as a means to encode the schematic sensory images, Taub proposes ten iconic devices, and illustrates them using American Sign Language (ASL). These devices are: (1) physical entities represent themselves; (2) shape of articulators represents shape of referent; (3) movement of articulator represents movement of referent; (4) a special set of patterns: representation of body parts; (5) shape of articulators' path represents shape of referent; (6) locations in signing space represent locations in mental spaces; (7) size of articulation represents size of referent; (8) number of articulators represents number of referents; (9) temporal ordering of signing represents number of referents; and (10) signing represents signing.

Tai (2005) proposes a different set of iconic devices for the study of TSL, based on the synthesis and simplification of the sets developed by Mandel (1977, cited in Tai 2005) and Taub (2001) that use ASL as the language base. Tai presents eight iconic devices for the study of TSL: (1) direct presentation; (2) number representation; (3) shape representation; (4) size representation; (5) part-for-whole representation; (6) proform representation; (7) temporal order representation; and (8) metonymic/metaphorical representation. Among these eight iconic devices, all but two (the sixth and seventh) deal with the lexical level. We will, therefore, take a closer look at the six iconic devices that are relevant to the present study of the CSL and TSL lexicon. Adding to the six iconic devices is a seventh one for this CSL-TSL lexical comparison, namely, movement representation, which corresponds to Taub's third iconic device, movement of articulator represents movement of referent.

The rest of this section is organized as follows. Section 3.1 studies direct presentation, section 3.2 that of number representation; Section 3.3 shape representation, section 3.4 movement representation, section 3.5 size representation, section 3.6 part-for-whole representation, and section 3.7 metonymic/metaphorical representation. In the following subsections, the presentations of the iconic devices from Tai (2005) are based largely on his descriptions. Overlaps with Taub's set of iconic devices are mentioned where relevant.

3.1. Direct Presentation

Direct presentation involves pointing to an object as a means to name the object. As Tai (personal communication) explains, the device is so-named both to emphasize the function of pointing in generating meaning and to sharpen the contrast with other kinds of representations. This iconic device corresponds to Taub's first iconic device, in which physical entities represent themselves. As Tai (2005) observes, both TSL and ASL name body parts by pointing to them. CSL uses the same iconic device. For example, the CSL and TSL signs NOSE are formed by the signer pointing to his/her own nose (Figures 1 & 2).

Figure 1. CSL NOSE   Figure 2. TSL NOSE

3.2. Number Representation

Number representation is a means to indicate directly the number of referents by the number of fingers. Taub (2001) describes this as "number-for-number iconicity." The

CSL and TSL signs THREE illustrate this iconic device. CSL uses the middle finger, ring finger and little finger (or pinky) to represent the number "three" (Figure 3), while TSL uses the index finger, the middle finger, and the ring finger (Figure 4). There are only two main differences between the two signs: (1) the specific fingers used, and (2) the direction that the hands are facing, namely, towards the signer (CSL) or away from the signer (TSL).

Figure 3. CSL THREE   Figure 4. TSL THREE

3.3. Shape Representation

Shape representation refers to the signer using certain handshapes and hand-forearms to depict particular shape images of the referents. Taub (2001) refers to this device as "shape-for-shape iconicity." An example is BIRD in CSL and TSL. The CSL sign BIRD (Figure 5) is a compound sign (BEAK^BIRD-FLY): the sign starts with using the right hand to represent the shape of a bird's beak (Figure 5a), and then uses both hands and fore-arms to represent the shape of a bird's wings, together with movement representation, in the up-and-down motion to represent the flapping of the wings (Figure 5b).[11] In the sign BIRD in TSL (Figure 6), the signer uses the right hand to represent the shape of a bird's beak and left hand to represent the shape of a bird's wing, with up-and-down movement of the hand through wrist movement to represent the flapping of a bird's wing.

Shape representation may also involve tracing, in which the signer may trace out the referent's shape in space. An example of tracing is MOUNTAIN in CSL and TSL. In both

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[11] It is worth noting that the CSL sign BIRD appears to be identical to the old form of BIRD in ASL, depicted in Frishberg (1975:708-709). This suggests that at least some CSL signs (in the Shanghai variety of CSL at least) have been borrowed from ASL at some earlier stage of sign language contact, potentially allowing for rough dating of the time period for when the borrowing took place. Clearly, much research is needed to study sign language contact between CSL and other unrelated sign languages, as well as that among different CSL varieties, such as HKSL and the Shanghai variety of CSL, given the large number of refugees, including wealthy families and entrepreneurs, from the Shanghai area to Hong Kong in the first half of the twentieth century. For example, CSL TREE (Figure 23) appears to be identical to HKSL TREE (based on the line drawing in Fok et al. 1986: 179), while TSL TREE (Figure 24) and ASL TREE (Fok et al. 186:179) are quite similar, differing mainly in fingers side-by-side and touching in TSL versus fingers spread apart in ASL.

cases, the signers move their hands in front of their body, going from one side to the other, with undulating movements to trace the outline of the mountains (Figures 7 & 8). Taub (2001:77-78) refers to this device as "path-for-shape iconicity" since "shape of articulators' path represents shape of referent."

Figure 5a. CSL BIRD (BEAK)　　　　Figure 5b. CSL BIRD (BIRD-FLY)

Figure 6. TSL BIRD

Figure 7. CSL MOUNTAIN　　　　Figure 8. TSL MOUNTAIN

3.4. Movement Representation

Movement representation depicts movements of the referent by means of movement of the hands, fingers and/or forearms. This iconic device involves movement iconicity.

Taub (2001:70) notes that this form of iconicity often occurs in conjunction with shape-for-shape iconicity; this is because "when the articulators themselves are configured to represent a referent's shape, the signer can move that configuration around to represent movement of the referent." This is already encountered in the second component of the CSL compound sign BIRD (Figure 5b). Another example is CSL and TSL signs WORM (Figures 9 & 10), where a finger—index finger in the case of CSL and little finger in the case of TSL—is used to represent the shape of the worm, and its wiggling movement depicts the image of a worm inching along on the ground. In the CSL sign, the index finger moves away from the signer, and in the TSL sign, the little finger of the right hand moves across from right to left.

Figure 9. CSL WORM   Figure 10. TSL WORM

3.5. Size Representation

Taub (2001) refers to this iconic device as "size of articulation represents size of referent," and is a case of "size-for-size iconicity." Tai (2005:27) points out that size representation can "represent both absolute and relative sizes of the referents" and gives as his TSL example the absolute size of a sheet of paper which, if small enough in dimension, can be traced to represent its actual physical size.

Tai further notes that size representation also applies to length representation as well as to distance representation. A pair of CSL examples is LONG and SHORT (Figures 11 & 12). In the sign LONG (Figure 11), the signer moves her hands away from each other to lengthen the distance between the two hands. This contrasts with signing of SHORT (Figure 12), where the signer moves her hands toward each other, along the horizontal axis, thereby visually shrinking the distance between the two hands. A corresponding pair in TSL for LONG and SHORT is given here for comparative purposes (Figures 13 & 14). As one can see, in the TSL sign as well, expanding the distance visually between the hands is used to depict something as being long, and shrinking or reducing that distance serves visually to depict something as being short.

Figure 11. CSL LONG

Figure 12. CSL SHORT

Figure 13. TSL LONG

Figure 14. TSL SHORT

3.6. Part-for-Whole Representation

Tai (2005:27) describes the part-for-whole representation as using the characteristic part of the referent to represent the referent. Tai illustrate using TSL DOG, represented by flapping the two hands on either side of the head to depict a dog flapping its ears. One component of the dog, namely, its head—with its ears flapping—is used to represent the entire dog. (Note that CSL DOG simply depicts the action of shooing away the dog.) The example here is the CSL and TSL signs CAT (Figures 15 & 16), where the head portion of the cat is represented and the focus is on the cat's whiskers. In the case of CSL CAT, the signer first puffs up her cheeks to depict the cheeks of the cat, and, with the middle, ring, and little fingers of the hands representing the whiskers, the hands are moved outwards across the cheeks, thus tracing the cat's whiskers. The palms of the hand face the signer. In the case of TSL CAT, the signer's fingers are extended, with the tip of the index finger in each hand touching the tip of the thumb; in this way, the handshape represents a cat's whiskers. The signer's cheeks correspond to the cat's cheeks, and two hands are placed on the signer's cheeks, where the whiskers are located on the cat; the handshape is then accompanied by a rotating motion. Thus, in these two animal examples, the head is represented to depict some salient characteristics of that animal—the ears flapping in the case of TSL DOG and the cat's whiskers in the case of CSL and TSL CAT.

Figure 15. CSL CAT

Figure 16. TSL CAT

While the CSL and TSL signs CAT (Figures 15 & 16) involve nouns, a pair of examples using verbs is CSL and TSL WALK (Figures 17 and 18). Both CLS and TSL signs depict a person walking. As can be seen in the figures, the person is represented by the depiction of only his/her two legs (part-for-whole representation), which is the important body part that will be doing the "walking." Both CSL and TSL signers use their index and middle fingers to represent a person's two legs (which can also be analyzed as involving "shape-for-shape iconicity"). Thus, the index and middle fingers represent the two legs (shape representation); the legs in turn represent the whole person (part-for-whole representation); and the back-and- forth movement of the index and middle finger represents the action of "walking" (movement representation).

Figure 17. CSL WALK

Figure 18. TSL WALK

3.7. Metonymic/Metaphorical Representation

Tai (2005:30) notes that, as in spoken languages, "abstract ideas can be expressed through metonymic and metaphorical representations." Whereas metonymic devices express abstract concepts by means of association, metaphorical devices express abstract concepts by means of metaphorical mappings. A metonymic example given by Tai is the TSL sign HUNGRY. The signer lightly presses both hands against his stomach to indicate "hungry"— that is, the stomach is depicted concave in shape to represent a person not having eaten for

some time. A CSL example is the sign WOMAN (Figure 19). The signer pinches the earlobe to indicate the earrings that women wear, in associating earrings with women.

For metaphorical devices involving "metaphorical mappings," a TSL example is the sign MARRY (Figure 20). As Tai (2005:30) explains, the TSL sign uses the thumb to stand for "male" and the pinky to stand for "female"; the thumb and the pinky are then brought together to express the concept, "to marry," to depict the union of a man and a woman. (The TSL sign DIVORCE involves physically moving those two fingers apart.)

| Figure 19. CSL WOMAN | Figure 20. TSL MARRY |

In this section, seven iconic devices are exemplified using CSL and TSL. These iconic devices are, by no means, complete or exhaustive. As Tai (2005:31) points out, the iconic devices used in sign languages are based on the following: "(i) our perception of overall shapes, locations, and movements signified by means of hands, arms, and fingers; (ii) our ability to see the structural correspondence between human bodies and animal bodies; and (iii) our ability to represent particular activities with body movements."

From the CSL and TSL signs presented here, a sign may involve only one iconic device, as in CSL and TSL NOSE (Figures 1 & 2), or it may involve two (or more) iconic device, as in CSL and TSL WORM (Figures 9 & 10), and CSL and TSL WALK (Figures 17 & 18). Moreover, iconic devices may involve simultaneity or sequentiality. The temporal ordering of iconic devices is the topic that will be discussed briefly in the next section.

4. Temporal Ordering of Iconic Devices: Simultaneous versus Sequential

Different iconic devices can be used by themselves, or together, either simultaneously or sequentially. The TSL and CSL signs WORM (Figures 9 & 10) illustrate the use of different iconic devices that are produced simultaneously. The representation of a worm's shape using the little finger involves shape representation, while the movement of the finger that of movement representation.

Iconic devices can also be used in sequence, and this is particularly relevant in the case of compound signs, such as the CSL sign BIRD (Figure 5). The signer first places the thumb and the index finger in front of the mouth and repeatedly taps the thumb with the index finger to represent a bird's beak, and then puts her hands and forearms flat out on

both sides of the body, waving them up and down to represent a bird's wings. We can see in this sign that there is a mixture of different devices used simultaneously and in sequence. The corresponding TSL sign BIRD (Figure 6) involves the simultaneity of iconic devices. The signer uses his right hand to depict the shape of the bird's beak and, simultaneously, uses his left hand to depict the bird's wing, accompanied by up-and-down movement of the hand (through wrist movement) to represent the flapping of the bird's wing.

Having briefly discussed the temporal ordering of iconic devices in sign production, we turn to the final section before the conclusion, to examine the interplay of the selection of iconic motivations and iconic devices in the corresponding signs used in CSL and TSL.

5. Patterns and Selection of Iconic Motivations and Iconic Devices

In section 3, a set of seven iconic devices, six from Tai (2005) and an additional one from Taub (2001) were discussed and illustrated using examples from CSL and TSL. The examples offer a glimpse into the richness and prevalence of iconicity in these two signed languages. Iconicity plays a crucial role in CSL and TSL. All the signs that are presented in section 3 are iconically motivated, realized via the iconic devices that were chosen to form a given sign. Studying across the two signed languages, it can also be seen in section 3 that some signs in CSL and TSL share the same iconic motivation and use the same iconic device, such as CSL and TSL signs NOSE (Figures 1 & 2) and THREE (Figures 3 & 4). However, many of the signs in these two unrelated signed languages may differ in iconic motivation or in iconic device used, or, the corresponding signs in these two unrelated signed languages may differ both in iconic motivation and in their choice of iconic device(s).

Table 1. Iconic Motivation and Iconic Device: Patterns A to D

Parameter / Pattern	A	B	C	D
1. Iconic Motivation	+	+	−	−
2. Iconic Device	+	−	+	−
Examples				
Pattern A: WORM, KILL$_a$				
Pattern B: KILL$_b$				
Pattern C: TREE				
Pattern D: MAN				

The two parameters, *iconic motivation* and *iconic device*, yield four simple combinations with respect to same or different parameters in the corresponding signs in CSL and TSL. As shown in Table 1 above, the result is a set of four possible patterns, A through D, for comparing across two (or more) signed languages. In the table, the plus (+) sign represents 'same' while the minus sign (–) represents 'different' for selection of iconic

motivation or iconic device. A few examples are given in the table. KILL appears twice due to dialectal differences for this sign in TSL. In general, TSL exhibits few significant, regional differences (Smith 2005:188), probably due to convergence from decades of contact on the island. In the following subsections, the four patterns will be discussed in turn.

5.1. Pattern A: Same Iconic Motivation and Same Iconic Device

For Pattern A, two (or more) signed languages have a common iconic motivation in the choice of image to represent the referent or concept, and a common iconic device by which the referent or concept is depicted. As an example, the same iconic motivation and iconic device are used in CSL and TSL signs MOUNTAIN (Figures 7 & 8). Both CSL and TSL signs are motivated by the image of mountains and their outline, and both utilize shape representation via tracing the outline of the mountains. Another example discussed earlier is CSL and TSL WORM (Figures 9 & 10). The CSL and TSL signs are both motivated by the same iconic image of a small, longish-shaped creature wiggling and inching along the ground, and both adopt the same iconic device, or iconic devices, in this case, as the sign involves not only shape representation (index finger for the worm's body) but also movement representation (the wiggling of the worm as it inches along the ground).

5.2. Pattern B: Same Iconic Motivation and Different Iconic Device

In Pattern B, the signs in the two signed languages share a common iconic motivation in the choice of image to represent the referent or activity, but different iconic devices are adopted to convey the concept. For example, the CSL and TSL signs KILL are both motivated by the image of killing people by beheading, in making a cut at the neck. However, CSL KILL (Figure 21) chooses to use the part-for-whole representation as its iconic device: the left hand is used to represent a person, with the thumb representing the head, and the bottom of the thumb then representing the neck portion of a person's body. The action of beheading the person is accomplished using the right hand as a knife. TSL KILL$_b$ (Figure 22), in contrast, adopts direct presentation to depict the action of beheading a person as a means to kill him/her. (TSL KILL$_a$ is similar to CSL KILL in sharing the same iconic motivation and iconic devices; hence, that pair of signs is appropriately placed under Pattern A.)

Figure 21. CSL KILL   Figure 22. TSL KILL$_b$

5.3. Pattern C: Different Iconic Motivation and Same Iconic Device

In Pattern C, signs from the two signed languages are motivated by different images to represent the referent or activity, but share in using the same method, that is, the same iconic device, to convey the image or concept. A pair of examples is CSL and TSL TREE (Figures 23 & 24). The CSL sign TREE (Figure 23) is motivated by the image of the trunk of the tree; the depiction of the concept uses the iconic device of shape representation via tracing the outline of the trunk of the tree. The TSL sign TREE (Figure 24) is motivated by the image of the entire tree standing tall and erect on the ground. As in the case of the CSL sign, the TSL sign TREE uses the iconic device of shape representation.

Note, however, that despite a shared choice of shape representation in the pair of CSL and TSL signs, the iconic device is actually executed differently in the two signs, in that the tree trunk is traced in the case of CSL, while handshape and positioning are used in TSL to represent the tree. Moreover, because the TSL sign depicts both the trunk and the upper portion of the tree (its branches and leaves), it also takes advantage of the option of adding movement to the branches and leaves, by rotating the wrist back and forth to capture a more dynamic image of the tree. The result is that, although both signs use the same iconic device of shape representation, the actual signs are, in fact, quite different. Our limited corpus yields no examples of a simpler pair of signs to illustrate Pattern B; hence, more research is needed to explore examples of Pattern B and the frequency of occurrences of signs that use precisely the same iconic device but are motivated by different images.

Figure 23. CSL TREE   Figure 24. TSL TREE

5.4. Pattern D: Different Iconic Motivations and Different Devices

Pattern D pertains to signs from two signed languages that are motivated by different images to represent the referent, and also use different methods by which the image is conveyed. It may seem self-evident that the greater is the remoteness of two unrelated signed languages, the greater will be the proportion of lexical items in the two signed languages falling under Pattern D. Nonetheless, empirical evidence is still need for substantiation.

An example of Pattern D in CSL and TSL is the sign MAN (Figures 25 & 26). CSL MAN (Figure 25) is iconically motivated by the image of men's short hair. TSL MAN (Figure 26), on the other hand, is motivated by the social status of men. Hence, the two signs have

different iconic motivations. Given the different iconic motivations, one would not be surprised to find the use of different iconic devices. Whereas CSL uses metonymic representation for MAN, associating men with short hair, TSL uses metaphorical representation for the sign, depicting men as high in social status (i.e., as number 1). Observe that the CSL pair MAN:WOMAN (Figures 25 & 19) is produced using metonymic representation. The corresponding pair in TSL is produced using metaphorical representation: MAN is signed via displaying the thumb (Figure 26) and WOMAN via displaying the little finger (not shown).

Figure 25. CSL MAN   Figure 26. TSL MAN

Having introduced the four patterns, future research can explore which pattern or patterns are more frequent, and potential reasons behind that frequency. In a lexical comparison of two unrelated signed languages, one might predict that Pattern D would be the most common pattern, and Pattern A the least so. However, which of Patterns B and C is likely to be more common in occurrence can only be determined through further research. The current, preliminary study paves the way to more in-depth investigation of the present (or extended) set of iconic devices and their distribution patterns across the lexicon.

6. Concluding Remarks

Over the past half century since the pioneering research of William C. Stokoe and his associates, there have been tremendous linguistic research on the world's signed languages, the oldest dating back to perhaps no more than three centuries (Meier 2002:12). Factors such as the youth of signed languages and the multi-dimensional nature of the visual-gestural modality have contributed to the pervasiveness of iconicity in signed languages. As a result, unrelated signed languages show some lexical similarities that can be attributed to the role played by iconicity. At the same time, signers of unrelated languages with very different lexicons can, nonetheless, communicate more easily with each other than speakers of unrelated languages (Quinto-Pozos 2007b:15). To what extent are signed lexical items, conveyed through iconic motivations and the multi-dimensionality of iconic devices, contributing to the greater intelligibility of signed languages? The present comparative study, using a small set of CSL and TSL lexical items, is a very preliminary step to pave the way towards addressing this and related questions. Much exciting research lies ahead.

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