

## **Lexical Variation and Change in Taiwan Sign Language**

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**Abstract.** This paper gives a preliminary report of lexical variation and change in Taiwan Sign Language (TSL). Chao's (1988; 1999; 2001) textbooks and TSL online dictionary (Tsay et al. 2008) are used as two data sources. We adopted four steps to compare and analyze lexical variants noted in these two sources. First, all variants in Chao's textbooks are analyzed with respect to five phonological parameters (handshape, movement, location, orientation, and handedness) to see whether the variants are phonologically related or not. Second, the variants noted in the two data sources are compared to identify the changes with respect to five phonological parameters. Third, the changes among most frequent 1000 signs are analyzed to obtain heuristics for future variation study. Finally, the formation mechanisms of new lexical signs which contribute to variation are also identified.

### **1. Introduction**

Languages vary in patterned ways through time and space. Language variation and language change are closely related in that change results in variation and in turn variation causes further change. Language variation and change in spoken languages have been the focus of historical linguistics and sociolinguistics. However, there has been only little research in variation and change in sign languages. This is partly because sign language started to be treated as a natural language only in early 1960's by Stokoe and his associates (Stokoe et al. 1965) and partly because sign language researchers in earlier decades have focused on the demonstration of sign language as natural language. Frishberg (1976) first examined some historical changes in American Sign Language

(ASL) by comparing two ASL dictionaries, Long (1918) and Stokoe et al. (1965). The study has shown that there is a general tendency for signs to change in the direction of arbitrariness. Lexical formation has become limited to hands alone instead of using body movement or facial expressions as part of the lexicon formation. Individual parameters of signs have the tendency toward symmetry, locational displacement, and assimilation. Understanding of lexical change is not only desirable but also necessary for variation study since the processes resulting in historical change are still operative today (Lucas, Bayley, and Valli 2001). Lexical change study helps variation analysis determine what kind of variation to be investigated.

Systematic study of variation and change in Taiwan Sign language (TSL) has been so far lacking. As a starting point, this paper observes how TSL lexical change has led to lexical variation. TSL historical changes are identified by comparing the drawings and descriptions of signs given by Chao (1988; 1999; 2001) with videos and descriptions demonstrated on TSL online dictionary (Tsay et al. 2008). In this paper, we try to determine whether the variation involves separate variants or phonologically related variants. As language users of different dialects are constantly in contact with each other, through the span of time some dialectal variants might be used cross different areas and no longer be regarded as dialectal variants. Thus, dialectal variants and lexical variants are compared between two data sources to detect the change processes. We use most frequent 1000 sign items for the comparison to identify changing processes. By doing so, we establish some heuristic guidelines for the future study of variation in TSL. Furthermore, the changing processes identified are compared with those identified by Frishberg (1976) in ASL. We also briefly touch upon the formation of new lexical signs.

This paper is organized as follows: section 2 describes the historical background of TSL, section 3 reviews the previous studies on lexical variation and change in signed languages, section 4 describes the method of comparison, section 5 presents the results, and section 6 concludes the paper.

## **2. Taiwan Sign Language**

TSL is used in daily conversation among deaf population in Taiwan. The history of TSL dates back to the establishment of deaf schools during Japanese occupation of Taiwan from 1895 to 1945. School setting is important to the development of signed

languages because most deaf children are born to hearing parents who do not have the knowledge of signed languages. The only sign language community for those children to acquire sign language is when they enter deaf schools where sign language is used for communication. In deaf schools, the students are either those who happen to be born to deaf parents and thus are exposed to native signing at home or those who have already learned to use sign language. Before the Japanese occupation, deaf people were isolated by their families and not formally educated. Thus, there was no chance for a sign language to develop (Ann 1998).

Two schools for the deaf were established in Tainan and Taipei in 1915 and 1917 respectively during the occupation. (Smith 2005). Most teachers who taught at Tainan school for Deaf came from Osaka, whereas many teachers at Taipei school for Deaf came from Tokyo. Those teachers used their own dialects of Japanese Sign Language (JSL) when they were teaching. There was much communication between these two schools. The signs used in Taiwan during the Japanese occupation were basically no different from those used in Japan with dialectal differences in Tainan and Taipei areas. In 1956, Taichung school for the deaf was established as a branch of Tainan school. The instructional language used in Taichung school was the same as that in Tainan school (Smith and Ting 1979).

In 1945, Taiwan was ceded to China, and Japanese instructors returned back to Japan. But the Taiwanese teachers at the deaf schools continued under the new administration. In 1949, when the Chinese communists took over China, more than two millions of refugees from the mainland arrived in Taiwan. Chinese Sign Language (CSL) was then introduced to Taiwan. Some CSL vocabularies were used in Taipei school for the deaf by a China deaf teacher. Besides, Nantong dialect of CSL was the language used in Private Chiyung Elementary School for the Deaf and Mute, which was established by a deaf Mainlander, in Kaohsiung in the 1950s ( Smith 2005). Although there are three different sources for TSL vocabularies and four schools for deaf in four different areas in Taiwan, only two dialectal varieties have been documented, that is, Tainan variety and Taipei variety (Smith and Ting 1979; Chao 1988; Smith 2005).

### **3. Lexical variation and change in signed languages**

Signed languages are produced with two identical articulators, two hands. Some

lexical signs are one-handed and some are two-handed. Since there are two articulators, signed languages make deletion, addition, or substitution of one of the two articulators possible (Lucas 2007). Two-handed signs could be produced with one hand with a table, chair arm, or the signer's thigh substituted for the non-dominant hand. One-handed sign could also be produced with two hands in symmetry in handshape and movement.

In addition to handedness, each lexical sign is composed of constituent parameters: handshape, the location at which the sign is produced, the palm orientation, movement, and facial expressions. These parameters are meaningless linguistically contrastive units analogous to phonemes or distinctive features in spoken languages. Spoken phonemes are produced linearly, but sign parameters are produced simultaneously. Like spoken phonemes, each sign parameter is subject to variation.

### 3.1. Lexical variation

There are two kinds of lexical variation: separate lexical variants and phonologically related variants (Lucas, Bayley, and Valli 2001). Separate lexical variants refer to signs which denote the same referent or concept but which share no formal characteristics in constituent parameters in handshape, location, palm orientation, or movement. For instance, there exist two variants for PINAPPLE<sup>1</sup> in TSL. One of them is produced with one hand on the head while the other hand under the chin. The fingers of the upper hand open upward and the fingers of the lower hand open downward. The other variant is produced with one open hand, palm facing downward, serving as the pineapple. The other hand slices back and forth on top of it, acting as if slicing. These two variants do not share any parameter and should be treated as separate lexical variants. In contrast, phonologically related variants have to do with signs that denote the same referent or concept but are related phonologically. They usually differ in only one parameter, usually the handshape (ibid. 180). Take TSL sign AIRPLANE for example, AIRPLANE could be either produced by extending thumb, middle finger, and pinky or by extending thumb, index, and pinky. There is also an example regarding location variation: TSL sign I could be produced with 1 handshape either at the location of nose or the chest. Other TSL

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<sup>1</sup> Following the convention, lexical items in sign languages are spelled out in capital letters throughout the paper.

examples of phonological related variants are movement variation (e.g. SNAKE) and palm orientation variation (e.g. LOTTERY).

Lexical variation in sign languages also involves fingerspelling based on alphabet and character signs based on logographs. For instance, in ASL, pizza is commonly signed with fingerspelling, sometimes with every letter of English represented, and sometimes with the *i* deleted or simply as ZZA (Lucas, Bayley, and Valli 2001:179) Fingerspelling has been regarded as a kind of lexical borrowing from spoken languages to signed languages (Battison 1978). However, Lucas and Valli (1992) treat fingerspelling as an outcome of language contact. They suggest that fingerspelling is the outcome of contact between a sign language and the orthographic system rather than between a sign language and a spoken language. Fingerspelling is a manual system that represents the orthographic system. Fingerspelling takes two different forms: full fingerspelling and in combination with lexical signs. Full fingerspelling produces orthographic letter in sequence and occurs when names and terms are introduced for the first time. Fingerspelling may also co-occur with lexical signs where one element is a lexical sign and the other is fingerspelling.

Parallel to fingerspelling in orthographic systems based on alphabet, TSL, CSL, JSL and Hong Kong Sign Language (HKSL) make use of character signs based on Chinese logographic writing system (Ann 1998; 2001). However, the same character can be signed differently in different sign languages and even in different dialects in one sign language. TSL character signs are constructed in different manners. First, the fingers of both hands are used to imitate the shape of a Chinese character, e.g., 中 and 王. Second, the character is traced in the air with fingers, e.g., 人 and 千. Third, tracing and handshape are both used, e.g. 丁 and 于. Fourth, both the mouth and the handshape are used to represent the whole or part of a character, e.g. 品 and 回. Character signs are commonly used for the names of persons and places in TSL. They therefore contribute to lexical variants in TSL

### **3.2. Lexical change**

It is a daunting task to conduct a systematic and conclusive study on lexical change in signed languages. The history of signed languages is not long and there are seldom records or videotapes of earlier signs available. Frishberg (1975) compares the

descriptions and formation of ASL signs recorded in sign language manual edited by Long (1918) with that reported in Stokoe et al. (1965). The comparison was made based on the assumption that these sources are the standard language for their respective times because they were used in instruction or reference texts. The results show several changes: first, ASL signs change away from imitative origins to more arbitrary shapes. Second, individual parameters show the tendency toward symmetry, locational displacement, and assimilation. These changes are motivated by the principles as ease of articulation and ease of perception. Third, lexicon content has changed to be articulated by hands alone rather than being articulated along with facial expression or body movement. Facial expressions and body movement can be treated on a par with intonation in spoken languages with the function of marking sentential information such as affirmation<sup>2</sup>. Finally, signs are made of simpler forms.

Four forces behind lexical changes in sign languages are identified and discussed briefly below. They are symmetry, displacement, assimilation, and deletion.

Symmetry refers to the situation in which both hands are signed with the same handshape if both hands are acting in unison or one hand acts on the other hand. Symmetry thus involves both handshape and movement. The ASL sign *DEPEND* is cited by Long as resting the right index finger on the edge of the left open hand with palm facing inside. But in nowadays ASL, both hands extend index fingers. Symmetry also includes two-handed signs which previously were one-handed, such as *ANGRY*. The handshape and movement of the adding hand are identical to those in the original one-handed form.

Displacement pertains to location parameter of a sign which undergoes change in location. : Head displacement and body displacement are the two major types. They refer to signs made in contact with the face and below the neck respectively. Head displacement changes the specific location on the face from the center to the perimeter while body displacement centralizes the location along the line of bilateral symmetry and moves up toward the hollow of the throat. ASL sign *PICKLE* is an example of head displacement, it used to be signed at a corner of the mouth but now is signed lower on the chin. The example of body displacement is *FEEL*, it has moved from a location over the

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<sup>2</sup> For more information on facial expression, please see Liddel (1980).

heart to the center of the chest.

Displacement also correlates with a change in the number of hands. Some two-handed signs made in contact with the face have become one-handed such as PHOTOGRAPH. However, some one-handed signs made below the neck have become two-handed, such as ANGRY. The adding hand is symmetrical to the first hand in both movement and handshape, following the symmetry condition. Frishberg (ibid.) proposes a prediction that signs on the face become one-handed and signs off the face become two-handed. Displacement to the perimeter and reduction of hands from two to one on the face enable the signer to open the face for paralinguistic information. By doing so, addressees can easily read these kind of information.

The tendency of assimilation is toward smoothing of movement or transitions between parts of signs by assimilating handshape or movement. For instance, previously ASL compound HOME was made of two signs: EAT (O-hand at the mouth) and SLEEP (flat hand on the cheek). In ASL today, the handshape of SLEEP has assimilated to that of EAT. Furthermore, the location of EAT has partly assimilated toward the location of SLEEP. Therefore, the citation form of HOME today is an O-handshape touching two distinct places on the cheek (Klima and Bellugi 1979:29).

During the course of historical development, a part of compound signs can be deleted for simplification. BIRD in ASL is a good example. The sign BIRD originally is originally a compound sign with first part signing for 'beak' and the second part signing for 'wings'. The contemporary sign BIRD in ASL only has the 'beat' part. (Frishberg 1975: 709).

#### **4. Data sources and method for comparison**

So far there is no study on lexical variation in TSL. Lexical variants in TSL are only noted in two textbooks and one online dictionary. The two textbooks are Shou Neng Sheng Qiao [Your Hands Can Become a Bridge] (Smith and Ting 1979; Smith and Ting 1984) and Zi Ran Shou Yu Jiao Xue [Taiwan Natural Sign Language ] (Chao 1988; 1999; 2001). Smith and Ting's textbook gives A or B variants for some signs without noting which dialectal area they are used, that is, either Taian area in the south or Taipei area in the north. Chao's textbook distinguishes dialectal variants from variants which cannot be associated with dialectal areas... For the purpose of this study, we want to make a

distinction between dialectal variation and non-dialectal variation. We therefore chose Chao's data for this study. Among the 3342 TSL lexical entries in Chao's textbook, 107 entries are noted with dialectal variation and another 52 entries with non-dialectal variation. The online dictionary of TSL constructed at National Chung Cheng University (Tsay et al. 2008) contains the most frequent 1000 lexical items noting southern variants with S and northern variants with N as well as A and B variants which are not associated with dialectal differences.<sup>3</sup> We therefore use Chao's textbook and the online dictionary by Tsay et al. as two data bases for the comparison. The signs in these two data bases are more or less representing standard forms which textbook and dictionary compilers would like to include. Therefore, by comparing the drawings and descriptions of signs given by Chao with videos and descriptions demonstrated on TSL online dictionary, we hope to get a few glimpses of language change in TSL.

We take four steps for the comparison. First, both variants of dialectal variation and non-dialectal variation in Chao's work are analyzed with respect to the five parameters in sign language phonology in order to see whether or not their variations are phonologically related. The five parameters: handshape, location, movement, orientation, and handedness.

Second, with the advancement in technology and communication, deaf people no longer are so isolated as in the past. Dialects change with language users constantly in contact with each other through TV and other means of telecommunication. Some dialectal variants might have been adopted across different areas and thus no longer regarded as dialectal variants. Some variants may be chosen over their respective other variants and appear to be the only form. Thus, both dialectal variants and non-dialectal variants in the two sources are compared to observe the changes.

Third, the changes among most frequent 1000 signs are analyzed with respect to the five parameters to obtain the heuristic guidelines for variation study in the future.

Finally, the formation mechanism of new lexical signs is described. The data are collected by pictures naming.

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<sup>3</sup> The actual lexicon entries are 1008, including 176 sign synonyms, for instance GIRL and FEMALE.



## 5. Variation and change in Taiwan Sign Language

### 5.1. Separate variants versus phonologically related variants

Among Chao's 3342 TSL lexical entries, there are 107 signs noted with dialectal variation and 52 signs with non-dialectal variation. The question is whether the variation involves separate variants or phonologically related variants.

As mentioned in section 3.1, following (Lucas, Bayley, and Valli 2001), we can make a distinction between separate lexical variants and phonologically related variants. Separate lexical variants refer to signs which denote the same referent or concept but which share no formal characteristics in constituent parameters in handshape, location, palm orientation, or movement. In contrast, phonological related variants refer to signs that denote the same referent or concept but differ only in one phonological parameter.<sup>4</sup> By this criterion, among 107 dialectal variation documented by Chao, only 22 signs are phonologically related but 85 signs are separate variants. Table 1 presents the results. It can be noticed that phonologically related variants tend to vary in handshape first and then movement.

Table 1. Dialectal variation in TSL

Dialectal variation	107
Phonologically related variants	22
Difference in handshape	10
Difference in location	2
Difference in movement	6
Difference in orientation	2
Difference in handedness	2

With respect to 52 non-dialectal variants, there are only 12 variants are phonologically related but 40 variants are separate variants. Most phonologically related variants of non-dialectal variation differ in handshape and location. The results are summarized in table 2 below.

<sup>4</sup> In reality, there are variants which differ more than one parameter. Yet for the present purpose, we follow Lucas, Bayley, and Valli (2001) in treating them as separate variants.

Table 2 Non-dialectal variation in TSL

Non-dialectal variation		52
Phonologically related variants		12
Difference in handshape	5	
Difference in location	5	
Difference in movement	1	
Difference in orientation	0	
Difference in handedness	1	

Table 1 and table 2 above have shown that most variation is manifested in separate variants. Since all the parameters are different in separate variants, it is possible that separate variants were formed with totally different motivations to begin with. Notice that handshape plays the most important role in both dialectal variation and non-dialectal variation. As a matter of fact, Lucas, Bayley, and Valli (2001) have also observed that handshape is the most prominent parameter for the variation in ASL.

## 5.2. Change in TSL

TSL lexical change is observed by comparing the drawings and descriptions of signs given by Chao with videos and descriptions documented on TSL online dictionary by Tsay et. al..

### 5.2.1. Dialectal variation versus non-dialectal variation

As mentioned earlier, there are 107 signs with dialectal variation and 52 signs with non-dialectal variation in Chao's textbook. Dialectal variation is compared first between Chao's textbook and TSL online dictionary. The purpose of this comparison is to understand whether dialectal variation change through time.

Table 3. Comparison between Chao's textbook and TSL online dictionary

Chao		TSL online dictionary	
Signs with dialectal variation	107	Signs with dialectal variation	51
		Signs with non-dialectal variation	22
		Signs with only one variant left	34
		Northern variant	28
		Southern variant	6

Out of 107 signs with dialectal variation in Chao's data, near half of them, namely 51 signs, remain dialectal variation in the TSL online dictionary. . 22 signs appear to be non-dialectal variation and the rest 34 signs have only one variant left, which means either northern dialect variation or southern dialect variation is no longer in use. There are 28 northern variants are kept but only 6 southern variants are kept. The result shows that northern variants tend to be chosen over southern variants: This result is not surprising in that the north has been dominant politically as well as economically since 1949 when the government of Republic of China moved to Taipei from mainland China.

### 5.2.2. The most frequent 1000 lexical items

TSL signs which are collected in the online dictionary are the most frequent 1000 lexical items. There are totally 1008 lexical entries in the dictionary. After excluding the double counted 176 sign synonyms and 189 signs not collected in Chao's textbook, only 643 lexical items are compared. Out of 643 lexical items, 537 signs show no difference between Chao's textbook and TSL online dictionary. Among the 106 items which show differences, five of them involve adding one more sign due to the influence of Chinese. We therefore compare the rest of 101 items in five parameters as shown below in table 4.

Table 4. Change in 1000 lexical items

Difference in handshape	19
Difference in location	34
Difference in movement	36
Difference in orientation	6
Difference in handedness	6
total	101

Table 4 shows that movement and location are more prominent than other three parameters. Changes in movement exhibit three subtypes: movement repeated, movement reduced, and different movement. Of the 36 signs with movement change, 16 are one-handed signs and 20 two-handed signs. In two-handed signs, movement change occurs in the dominant hand except for two signs in the non-dominant hand. Of 16 one-handed signs, 9 involve repeated movement, 4 reduced movement, and 3 totally different movement. Of 20 two-handed signs, 10 signs involve repeated movement, 8 signs reduced movement, and 2 signs different movement. Thus, we can see that in both one-handed and two-handed signs, repeated movement is more frequent than other two types of changes. However, we have yet to have more data to understand the choice between repeated and reduced movement. We hasten to point out here that movement in sign languages is often obscured in two-dimensional illustrations in paper textbooks. As our comparison is made between Chao's paper textbook and TSL online dictionary, from which we can better observe movement in signs, our analysis here can only be very crude and tentative. We need to collect data from native signers from different generations to further check our present analysis.

With respect to the 34 signs which change location, change can be made either in face area or body area. For signs made in face area, the location tends to change toward a lower place. For example, in Chao's textbook the sign SEE is made in front of the signer's eye in, but in TSL online dictionary it is made lower than the signer's eye. Similarly, the sign YOUNG is signed in front of forehead in Chao's textbook but is signed in front of the face in TSL online dictionary. There are totally five signs which have lowered the location in face area. For signs made in body area, the location has a tendency to become more centralized. For instance, ONE is signed on the side of the body in Chao's data but is signed in front of the body in TSL online dictionary. There are totally 23 signs the location of which has become centralized.

The change in location we have observed here is slight different from that reported in Frishberg's study. Location change in body area in TSL, with centralization toward the line of bilateral symmetry, is similar to the change in ASL. But location change in face area in TSL is different from the change in ASL. ASL signs tend to change from the center to the perimeter, whereas TSL signs tend to lower the location, regardless their earlier location in the center of the face or in the perimeter of the face.

Lowering the location is not only found in TSL. Other variation studies also demonstrate this variation, for example ASL location variation (Lucas, Bayley, and Valli 2001) and Australian Sign Language (Auslan) location variation (Schembri, Johnston, and Goswell 2006). In these two studies, signs which are produced at forehead or temple may have the variants that are produced at locations below the forehead or temple. The variation in location in face area definitely could be characterized as change in progress. TSL also undergoes this kind of changing.

We now turn to 19 signs which change the parameter of handshape. 7 signs are made by single hand and 12 signs are made by two hands. Those 12 two-handed signs are not symmetrical signs, that is, the handshape of two hands are not the same. Most handshape change is found in dominant hand, except one sign PHOTOGRAPH. Non-dominant hands still remain the same handshape as earlier forms. TSL doesn't seem to have undergone the change toward symmetry as in ASL.

As to the parameter of handedness, 6 signs are observed to have changed the handedness. All these signs are made by one hand in Chao's textbook but are signed by two hands in TSL online dictionary. Although there is a hand adding in the formation of the sign, it is not necessary for both hands to be made in the same handshape to conform to the symmetry condition as in ASL.

### **5.3. Innovation in TSL**

With the rapid change of technology and living environment, language users have to form new lexicons to denote new objects and concepts. In both spoken and signed languages, before the new lexicons have become conventionalized, it is not unusual to observe that there are more than one way to express new objects and concepts. This also holds true for TSL. TSL signs can be constructed based on different iconic devices, including virtual depiction, substitutive depiction, presentable actions, and presentable actions (Wu 2007).

In addition, as mentioned in section 3.1, character signs and figurespelling are also used to form new lexical signs in TSL. Character signs are based on the Chinese writing system and fingerspelling is derived from the alphabet. Fingerspelling systems vary from language to language, and so do character signs. Both character signs and fingerspelling are used in TSL. The fingerspelling used in TSL is the same as that in ASL. Examples are

M for ‘MacDonald’s’, W for ‘Watsons’, and USB for ‘USB’.

Loan translation is another mechanism for TSL signers to form new lexicons. Loan translation refers to the cases in which signers directly translate Chinese expressions into TSL character by character. For example, high speed rail in Chinese is termed as Gao Tie, written as 高鐵. One way to denote high speed rail is to translate Gao and Tie into HIGH and IRON respectively. Loan translation could be combined with a TSL sign such as kiwi. Kiwi in Chinese is termed as Qi Yi Guo, written as 奇異果. One way to denote kiwi in TSL is to translate Qi (奇) into STRANGE and then sign FRUIT. It has been observed that when translating Chinese characters into TSL, variation occurs in choosing TSL signs. For instance, the character Sui of Sui Shen Die ‘flash’, written as 隨身碟, could be translated either as WHATEVER, written as 隨便, or FOLLOW, written as 跟隨. Another example is Ji Hui ‘opportunity’, written as 機會. Hui (會) is observed to be translated either MEETING, written as 開會, or CAN, written as 會. The variants of some new lexical signs in TSL are presented in the following table.

Table 5. Variants of new lexical signs in TSL

sign	Variants
CREDIT CARD	1. imitating the movement of using a credit card 2. BELIEVE + USE + KA (卡)
HIGH SPEED RAIL	1. imitating the shape of the front part of the car 2. HIGH + IRON
LOTTERY	1. imitating the balls rolling (the handshape of both hands are ZERO) 2. imitating the balls rolling (the handshape of right and left hands are SIX and ZERO) 3. COLOR + imitating the balls rolling
MRT	1. moving hands with handshape TWENTY forward repeatedly 2. imitating the mark of MRT
MOUSE (for computer)	1. imitating the gesture of using a mouse 2. imitating the gesture of using a mouse + MOUSE

## 6. Conclusion

This paper aims to give a preliminary description of lexical variation and change in TSL. We have noted that patterns of variation in TSL are similar to those in ASL, yet

patterns of change in TSL are quite different from those in ASL. We have made a distinction between dialectal and non-dialectal variation. In both kinds of variation, we found that in TSL separate variants are more productive than phonologically related variants as in ASL. This may be due to the fact that lexical items in sign language can be formed with totally different iconic motivations. Furthermore, handshape is the most prominent parameter for the variation in both ASL and TSL. As to lexical change, movement and location are more prominent than other parameters. TSL tend to develop repeated movement of signs through the course of time. Location change occurs in face or body area. Unlike ASL, change in movement symmetry is not observed in TSL. The location tends to change toward a lower place for signs made in face area while more centralized for signs made in body area. In this respect, TSL is similar to ASL in centralization in body area. However, it is different from ASL in lowering down the face location rather than shifting to the perimeter.

Language change takes a long period of time and not all linguistic features including phonological parameters change at the same time. It is observed in this study that movement and location are more subject to change than other three parameters. This observation provides us with a good start to further investigate under what kinds of condition, contextual or social, movement and location changes.

The method employed in this study is real time approach. However, the time span between Chao's textbook and TSL online dictionary is not long enough for a relatively complete and productive change. To remedy this defect, observing variation across different age groups, that is, the apparent-time approach as adopted in Labov's works, would be another way to understand variation and change in sign languages.

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## 台灣手語的詞彙變異與變遷

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### 摘要

本文利用《自然手語教學》(趙建民 1988; 1999; 2001)與《台灣手語線上辭典》(蔡素娟等 2008)所標記的詞彙變異，探測台灣手語詞彙的變異與變遷。本文首先分析《自然手語教學》中，標記變異的詞彙，分析這些詞彙在手語音韻參數的差異。這些參數為手形、動作、位置、掌心或指尖之方向、與單手或雙手，目的在於觀察詞彙變異是否具有音韻上的關連性。本文接著利用手語音韻參數比對手語詞彙在《自然手語教學》與《台灣手語線上辭典》的差異，藉此瞭解詞彙演變的過程。同時也比對 1000 個手語高頻詞在這兩種手語文獻中的差異，以作為後續變異研究的基礎。最後，本文也初步探討台灣手語新詞彙的構詞策略與變異形成的關係。

