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台灣手語狀態改變的表達

Expressing Change of States in Taiwan Sign Language

指導老師：張榮興 教授

Adviser: Dr. Jung-hsing Chang

研究生：賴薇心

Graduate: Wei-Hsin Lai

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‘Alas, we're now left with few chances to share, To learn and to taste of His grief,
Still yet for His sake, man's reproaches to bear, Such time we may never retrieve.
These sorrows and pain, shall we still here bemoan, When they will soon no longer be.
I treasure now Lord, all the pain I have known, For through it I'm made one with Thee,
For through it I'm made one with Thee.’
(*Hymn: His countenance angels can often behold*)

Praise the Lord for He leads me to go through all these days. Days that ought to be filled with tears and sorrows turn out to be joys and laughters all because of God. I praise the Lord for He bestowed me lots of companions to walk with me, going through all these days with trials. I praise the Lord also for my adviser Jung-hsing Chang—giving him a very thought-provoking perspective for life and research. I treasure all the moments of being immersed in his inspirations—like sparkles in the dark night, any ripples on the lake— that attract me again and again more and more to my love of linguistics and sign languages and what’s more, my love to the Lord Jesus.

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With all these thanks, I fly one mile nearer to the goal. May Jesus' love constrain me all the time. Always be, always will.

*Forgetting the things which are behind and stretching forward to the things which are before, I pursue toward the **goal** for the prize to which God in Christ Jesus has **called me upward**.* *-- Philippians 3:13*

ABSTRACT

This thesis investigates how change of states is expressed in Taiwan Sign Language (TSL). Two main issues will be discussed in this thesis. First, we attempt to find out the various classifier constructions for expressing change of states in TSL. Second, from a cognitive perspective, we try to find out the construings behind the different expressing forms.

The first issue is concerned with the constructions for expressing change of states. In TSL, the information carried by the lexical item BREAK could be as vague as that in spoken languages. However, expressed through the classifier constructions, TSL could give us more information about how the object is changed from one state to another. Our data of TSL show a tendency to express change of states through classifier construction. They also show how lexical items and classifiers collaborate together to express change of states and the expression. The collaboration is achieved through (a) classifier predicates, (b) both a lexical item and a classifier predicate, and (c) merging a lexical item and a classifier predicate. When objects are expressed through whole entity classifiers, bodypart classifiers could also be used together for the ease of perception. Tentative explanations are then given for these observations.

The second issue concerned is the cognition behind the different expressions. Three cognitive concepts are proposed to help us generalize our data: *whole to parts, disappearance,* and *deformation.* Concepts of *whole to parts* are further categorized into two: *individual to parts* and *collection to pieces.* Two reasons for the application of different methods can be offered: One is the application of one hand or two hands. The other is the perspective difference—taking the whole changing process or only the resultant state. A direct modulation on the hand configuration is adopted for depicting the whole changing process. In contrast, when the depictive method is applied, the resultant state is depicted without changing process.

Through the *deformation* concepts, we observe that physical constraints could also result in the application of different methods. These methods accords with those identified by Sutton-Spence and Woll (1999).

From the *disappearance* concepts, we learn that manners in sign language could be expressed through the resultant classifier construction. The speed of the changing process could be perceived through the resultant classifier construction to indicate durational, instantaneous and other states of change.

Key words: Taiwan Sign Language (TSL), change of states (COS), classifier, classifier construction

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Convention Table

Symbols = Explanations; (Examples)
/ / = handshape; (as /Bent C/)
CL = classifiers; (as $HOUSE_{CL}$)
HDCL = handling classifiers; (as $DOOR_{HDCL}$)
+ = the simutaneous construction; (as $ICEBERG_{CL}$+ICE)
_ = the action combined together with the classifiers; (as PIECES OF ICE_{CL}_FALL DOWN)
_A、_B = variations of the sign; (as LACK_A, LACK_B)
→ = the direction of the movement; (as WOOD $BLOCKS_{CLj}$+$BALL_{CL}$_$HIT_{→j}$)
i or j = the interaction between i and j; (as $BOOK_{CLi}$+$KNIFE_{CLj}$_j ON i)
^ = compound; (as FLAT^LAND)
→ with bold line in the picture = the path of the movement; (as)
→ with dotted line in the picture = the path after the movement; (as)

CHAPTER 1

INTRODUCTION

1.1 Preface

Sign languages are natural languages to native signers as spoken languages to speakers because they all convey infinite concepts through the limited symbols (Stokoe et al. 1965; Klima & Bellugi 1979). Lots of commons are found between them, including the complex grammatical structures to encode the relationship between form and meaning (Fisher & Siple 1990; Emmorey 1996; Liddell 2003; Sandler & Lillo-martin 2006). Independent as a language, sign languages also have their own structures in phonology, morphology, syntax, semantics, and pragmatics. Research on neurolinguistics even found that sign languages are just like spoken languages, both of them are governed by the left brain and belong to the same language area (Hickok, Bellugi and Klima 2002; Meirer, Cormier & Quinto-Pozos 2002).

Sign languages and spoken languages share a lot of similarities. On the other hands, they also differ greatly in terms of their mechanisms to produce and perceive information: While spoken languages are conveyed through the oral-auditory language system, sign languages are through manual-visual language system (Stokoe 1960; Stokoe, Casterline & Croneberg 1965; McBurney 2002; Meier 2002). In other words, they belong to the different modalities in terms of the ways how they are produced and perceived. Meier (2002) has referred to structural differences between spoken and sign languages as due to ‘modality effects’ of iconicity and indexicality of sign languages.

According to the Ministry of Interior, Taiwan Sign Language (TSL), which is also known as *ziran shouyu* 'natural sign language', is the primary language of 120,988 deaf and hearing-impaired citizens in 2012. However, the census for the people truly uses TSL is yet unknown.

Research on Taiwan Sign Language (TSL) has been a long while. Journals, essays and websites on TSL have provided a good chance for people interested in learning and studying sign languages: The setting up of the online TSL dictionary browser[1] has provided a platform for people interested in learning vocabulary; Taiwan Sign Language Database for Place Names and Family Names[2] are set up for helping people to know more about the different signings for the same place and family names. The website even provides analyses and descriptions for explaining how these signs are formed. Journals about TSL include Special Issue on Taiwan Sign Language (Tai & James 2005) and Taiwan Sign Language and Beyond (Tai & Tsay 2009). For books talking about the lexical formation, there are Cognitive and Lexical Formation of Family Names in Taiwan Sign Language (Chang 2011a) and Lexical Formation of Place Names in Taiwan Sign Language (Chang 2011b). Theses about TSL researches in different fields could be listed as follows: Researches in TSL morphology include Smith (1989), Lee (2006), Wu (2007); researches in TSL cognition include Zou (2003), Su (2004), Liu (2005), Lai (2005), Ke (2006), Lin (2007), Lin (2007), Wu (2009), Liu (2011) and Chen (2011). Lee (2003) also conducted the research in TSL phonetic and

[1] The website of the TSL online dictionary browser is http://tsl.ccu.edu.tw/web/browser.htm.
[2] The website of the TSL Database for Place Names and Family Names is http://signlanguage.ccu.edu.tw/index.php.

phonology. Chen (2003) did a pioneering sociolinguistic research in TSL.

1.2 Classifiers

In sign languages, classifiers play an important role in the visual-manual expressions. First, they have anaphoric function in that a classifier could be brought up in the context for referring back to the noun phrase previously mentioned in discourse (Miller 1991: 177-178). In Baker and Cokely (1980) and Kegl and Wilbur (1976), classifiers are given with another name as proforms, functioning pronouns referring to the noun phrase previously mentioned in discourse. For example, when the sign CAT is again brought up in the context, the classifier in /OPEN K/ handshape is used:

(a) (b)

Figure 1.1 (a) CAT; (b) classifier in /OPEN K/ handshape

Another important function of classifiers is to indicate their relative position of the objects in the space. Zou (2003) has shown classifiers in TSL are exerted for showing static objects in space. For example, in the expression for *A knife is on a book*, classifiers are applied to directly show us the relative position of the objects throughout the space (Figure 1.2) while in English we use the preposition *on* to

express the relationship between the object and the space,.

(1) KNIFE BOOK $BOOK_{CLi}$+$KNIFE_{CLj}$_j ON i .

'A knife is on a book.'

a. KNIFE b. BOOK c. $BOOK_{CLi}$+$KNIFE_{CLj}$_j ON i

Figure 1. 2

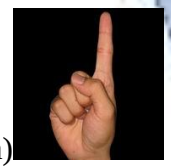
(a)  (b)

Figure 1.3 (a) classifier in /1/ handshape; (b) classifier in /Open B/ handshape

In this example, the signer first shows us the two objects KNIFE and BOOK. Later, he uses the classifiers to show us their relative positions: One hand in /1/ handshape representing the KNIFE is placed on the back of the other hand in /Open B/ handshape representing the BOOK. The handshape of the classifiers could be selected based on the object's size and shape and classifiers could also show us the relative position of the objects in a simultaneous way (Vermeerbergen 2007).

Grinevald (1996) has recognized four main classes of classifier morpheme in the

spoken languages of the world: (a) noun classifiers, (b) numeral classifiers, (c) genitive classifiers, and (d) verbal classifiers. In example (2), Diegueno has the classifiers taking the form of verbal affixes:

(2) Verbal classifiers from Diegueno:

tu-kat

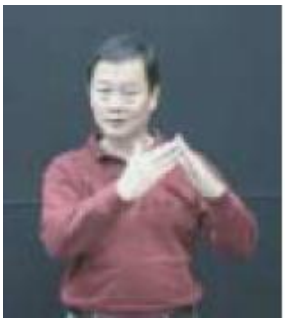
CL: ROUDN-OBJECT-cut

"to cut with a scissors or adze"

Classifiers in sign languages also belong to the verbal classifiers. Grinevald explains that verbal classifiers are morphemes which appear inside the verb and refer to nominal outside of the verb form. In other words, verbs and classifiers are expressed at the same time. Take the TSL expression '*The child ran into the house,'* for example. After the signer signs CHILD and HOUSE, the signer then uses the handshape /Y/ to represent CHILD and the /Open B/ handshape to represent HOUSE (Figure 1.4c). Later, the /Y/ handshape moves into /Open B/ in a fast way for expressing *The child ran into the house*. This is an example showing that verbal classifier for the movement morpheme is incorporated inside and together with the /OPEN K/ handshape as the cat classifier. This phenomenon also shows the simultaneity in sign languages (Sandler 1989).

(3) HOUSE CHILD HOUSE$_{CLj}$+HUMAN$_{CL_}$RUN INTO$_{\rightarrow j}$.

'The child ran into the house.'



a. HOUSE b. CHILD c. HOUSE$_{CLj}$+HUMAN$_{CL_}$RUN INTO$_{\rightarrow j}$

Figure 1.4

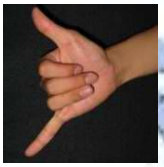


Figure 1.5 Classifier in /Y/ handshape

1.3 Main issues

In addition to the two functions of classifiers briefly discussed in 1.2, classifiers also play an important role in change of states. There are two main issues in this thesis and each issue involves several sub-issues. The first issue is mainly concerned with the construction of change of states in TSL. In this part, we aim to find out how lexical items and classifiers are collaborated together to present different constructions of change of states. We also try to explore the variations of the signings when the lexical items are given in the different context. For example, in TSL *break* is signed by having two fists met and then turned upward as if breaking what people are holding (Figure

1.6). In English, the word ‘to break’ could convey the concept that one object changes from one to another; however, it’s very ‘vague’ in the resultant state. Yet, in sign languages, a presentation through classifier construction could tell us more clearly about the actions and manners how the agent manipulated the objects, and the resultant state of the object.

Figure 1.6 BREAK in TSL

Take ‘to open’ in English for another example. Figure 1.7 shows us the citation form for OPEN A DOOR: Both hands of the signer are holding together and having palm facing outward. Then they open and move upwards and sideways as they open. However, in actual signing, the manner of opening the door can be depicted as in (3). As Figure 1.8 shows: Father twisted the doorknob and pulled open the door.

Figure 1.7 OPEN A DOOR

(3) FATHER DOOR $DOOR_{CL+}DOOR_{HDCL_}$TWIST $DOOR_{HDCL}+DOOR_{CL}$_PULL OPEN .

'Father twisted the doorknob and pulled open the door.'

a. FATHER

b. DOOR

c. $DOOR_{CL+}DOOR_{HDCL_}$TWIST

d. $DOOR_{CL}+DOOR_{HDCL}$_PULL OPEN

Figure 1.8

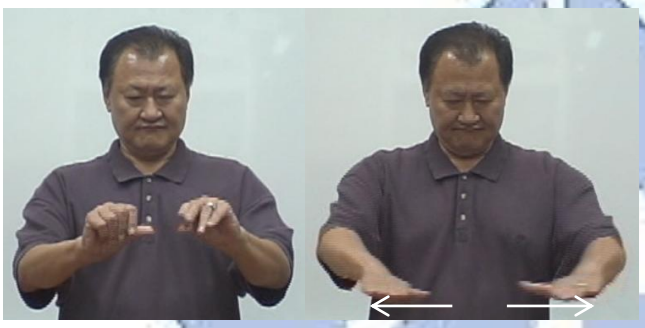
In this example, the citation form OPEN A DOOR is not even given but we can tell clearly from the signer's signing that the door is opened. I divided the signing into two subevents: Father twisted the doorknob (Figure 1.8c) and then Father pulled open the door (Figure 1.8d). The signer first signs FATHER and DOOR and then immediately shows us the opening of the door through the pulling action: While one of his hand remains there in /Open B/ handshape as the classifier for DOOR, the other hand in /S/ handshape holds and moves in a way as if someone is twisting the doorknob (Figure 1.8c) and then pulling it open (Figure 1.8d). Even though the sign OPEN A DOOR is not presented, we are clearly informed by the action exerted by the agent FATHER that the door is opened and also the manner how it is opened, not just simply told with the result. Through this example, we know change of states expressed through classifier construction could tell us more about how the change came about.

The second issue we attempt to address is to see the cognition lying behind the different change of states expressions. Different methods may be applied to show the same change of states concept. Two methods proposed by Mandel (1977) and Chang (2009) for forming a sign are even greatly applied: One is visual depiction while another is substitutive depiction. These two methods correspond to the categorization proposed by Sutton-Spence and Woll (1999). In the following example, both methods are applied for showing the flat land is changed into a hole. In Chinese expression

Dishang wa le yi ge dong 'A hole was dug on the ground[3]*,'* the signer interprets the concept as: *The flat land was dug and a hole resulted.* As we can see from Figure 1.9, the signer changes the handshape of the classifier from representing the flat land into representing the hole. Let's take a look at the following example:

(4) LAND FLAT $LAND_{CLi}$+$DIG_{\rightarrow i}$ LAND^$FLAT_{CL}$+$HOLE_{CL}$.

'The flat land was dug and a hole resulted.'



a. LAND^FLAT

b. LAND^$FLAT_{CLi}$+$DIG_{\rightarrow i}$ c. $HOLE_{CL}$

Figure 1.9

In this example, the signer tries to inform us the different states of the land

[3] It would be better if an explicit external argument such as *father* could be added into the elicited data and the expression would become *Father dug a hole in the land.*

through classifiers, that is, the former state and later state of the land. The signer first uses the signs LAND and FLAT (in Figure 1.9a) to refer to the flat land. Later in Figure 1.9b, the signer uses the /Open B/ handshape as the classifier to represent the flat land while the other hand signing DIG at the same time. Through the interaction presented in Figure 1.9b, we learn that upon the flat land, a digging event happens. Then in Figure 1.9c, the signer changes the classifier represented through the /Open B/ handshape into a /L/-like handshape. While one hand is in /L/-like handshape with palm facing sideward, the other hand is in /1/ handshape, depicting along the /L/-like handshape as if a fictive circle is formed along the /L/-like handshape, to form the shape of the hole. The method adopted by the signer for showing the existence of the hole could be shown through the Figure 1.10: The complete line represents /L/-like handshape while the dotted line represents the fictive part of the circle depicted by the /1/ handshape:

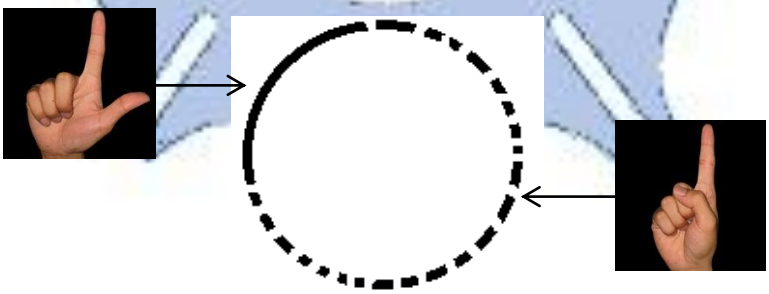


Figure 1.10 Classifier /L/ is represented by the bold line while another hand in /1/ draws and completes the circle as the dotted line shows

How these methods are applied for showing change of states will also be one of

our sub-issues. These different methods indicates that cognition lies behind it could also be different.

1.4 Methods in eliciting data from informants

The data used in the thesis mainly come from Dr. Jung-hsing Chang's research in Taiwan Sign Language. (The Cognitive Research of Lexicon, Syntax, Semantics, and Discourse in Taiwan Sign Language, NSC98-2410-H-194-093-MY3). We use two kinds of elicitation. For some examples, we first show the informants the pictures or videos of certain situations, and then the informants express the situations in TSL. These examples are Figure 3.2, 3.4, 3.10, 3.18, 4.5, 4.6, 4.7, and Figure 4.8. For some examples, we show them Chinese sentences, and discussed how they are expressed in TSL in natural way. These examples are Figures 1.8, 1.9, 2.2, 2.3, 2.4, 2.7, 3.3, 3.5, 3.6, 3.8, 3.9, 3.12, 3.15, 4.11, 4.12, 4.14, 4.15, 4.16, 4.18, 4.19, 4.20, 4.23, and Figure 4.24.

Signers could give us different interpretations because of the different methods we applied. With pictures and videos, the signers could show us the actions/ manners of the agents and change of states of the object according to what they see. The interpretation of the pictures or videos is very evident. Yet elicitations through Chinese sentences reveal signers' different interpretations. In this sense, different concepts about how the objects are manipulated and how the objects changed from one state to another could be detected.

Other situations could also result in signers' various expressions for change of states. First, when our elicited data did not specify the action or manner for resulting in

the change of states, the signers usually come up with different signing interpretations according to the context or their own construings. Through the expression of this visual-gestural language, the action and manner about how the agent undergoes the action becomes transparent. Another reason for the various expressions is due to the informing of the resultant state: whether the result after the change of states is told or not. For example, the signer may give us different interpretation of the concepts in Chinese *Wo jian-le toufa 'I had a hair cut', Wo ba toufa jian-le 'I had a hair cut'* and *Wo ba toufa jian-duan le 'I cut my hair short.'* The resultant states are implied in the first two Chinese sentences. Through this elicited method, we could know more about how change of states are expressed in a natural way in TSL.

1.5 Organization

Following the brief introduction to the background of change of states and the major issues concerned, the organization of this thesis is as follows:

Chapter 2 examines the expression of changes of states in spoken and signed languages, with the goal of finding out how classifiers play an important role in expressing change of states in TSL.

Chapter 3 aims to present the several constructions in terms of expressing change of states. Expressions with lexical items and classifier constructions will be discussed to see how the constructions are formed. Finding out the generalizations about expressing change of states in different constructions is our aim in this chapter.

Chapter 4 attempts to investigate the cognition behind the different expressions of

the change of states, to see how these change of states are specified through different classifier constructions. Different methods adopted for expressing change of states will also be discussed.

The final chapter, Chapter 5, concludes this thesis.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Change of states is often used to refer to the transition occurring between two different states. It is also often mentioned as the transition brought up between two independent but interrelated events. Such a construction is also called causation (Jackendoff 1990; Grimshaw 1990; Levin & Rappaport 1995; Pustejovsky 1995; Wunderlich 1997; Talmy 2000[4], among many others). When a change of state occurs, it means the state of the object is changed from one to another. This idea could be simply schematized with Figure 2.1

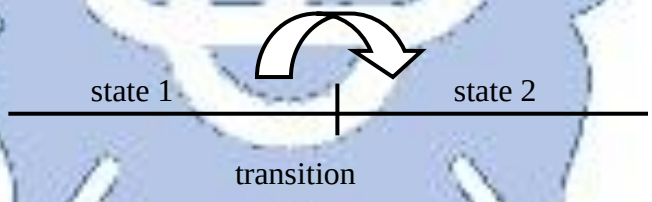


Figure 2.1 The schema for change of states

There are two kinds of change of states: those internally caused and those externally caused (Levin & Rappaport Hovav 1995; Smith 1970). Denoting two subevents, here the external causation change-of-state verbs will be mainly focused. Such kind of verbs usually involves a change of state due to the force of some external

[4] Talmy (2000:409) especially talks about the causation through Force Dynamics.

force (Wright 2001). In this paper, the word 'state' will be used to refer to the former and later states of an object which has undergone change.

2.2 Change of states in Chinese

In Chinese, the change of state could be indicated by an aspect marker such as *le* with the stage-level adjective into *Ta e le* 'He got hungry' (Chang 2003). Also, the Chinese resultative verb construction (RVC) involves the change of state idea[5]. For example, in the expression *Wo chi bao le* 'I ate and I am full,' the second element signals the result of the action conveyed by the first element (Li and Thompton 1981). The diversity between RVC in English and Chinese is also greatly discussed in Chang (2001). While the first verb usually serves as the activity event, the second one shows us the endpoint for informing us a change of state has occurred. Tai (1984) also brought about a discussion in Chinese RVC through Vendler's four classes of verbs. Chang (2003) even classified RVCs into five types according to whether the arguments from two different verbs denote the same entity. Third, in Chinese the *Ba*-construction, the NP in '*ba*+NP' could also be applied to refer how an object is changed from one to another[6]. For example, in the expression *Wo ba diban wa le yi ge dong* 'I dug the floor into a hole,' the NP *diban* 'floor' is no longer an intact one as before.

[5] In Li & Thompson (1981), it's called resultative verb compound.
[6] Lue (1955) provides more usages of *BA*.

2.3 Change of states in English

Levin (1993: 240) has classified change of state verbs into five groupings of verbs: "*Break* Verbs," "*Bend* Verbs," "Cooking Verbs," "Verbs of Entity-Specific Change of State," and "Verbs of Calibratable Changes of State." Here, only some of them will be specifically mentioned for supporting our analysis. The first type is the *Break* verbs, which include verbs such as *break, crack,* and *shatter* and involve a change in the "material integrity" of some entity (Hale & Keyser 1987). The second type is the *Bend* Verbs, including members like *bend, crease,* and *fold.* These are verbs involving a change in the shape of an entity, but not its material integrity. Thus, these verbs are reversible so that it is possible to "unbend" something but not to "unbreak" it (Levin 1993: 245). The third type is the Cooking Verbs, which include verbs such as *cook, bake,* and *boil,* for these verbs generally describe different ways of cooking food. The fourth one, the Entity-Specific Change of State Verbs, includes verbs such as *bloom, corrode,* and *rot.* These verbs describe change of states that are "specific to particular entities" and "impose very narrow selectional restrictions on their arguments" (Levin 1993: 245). The fifth type of verb brought up by Levin is the Verbs of Calibratable Changes of State, which includes members such as *balloon, climb,* and *soar.* They describe changes along a scale and involve entities that are measurable (Levin 1993: 248). Finally, there's a subselection on Other Alternating Verbs of Change of State. Verbs in this category generally involve externally caused changes in a physical state, including *–ify* verbs (*acidify, purify), -ize* verbs (*caramelizes, oxidize*), *-ate* verbs (*accelerate, deteriorate*), and verbs that are derived from adjectives (*clean,*

sour).

2.4 Change of states in sign languages

In sign languages, one of the main characteristics lies in the application of classifiers and classifier predicates. Classifiers are applied for classifying a set of objects which share certain features. They are often brought up in the context because of its anaphoric function (Baker & Cokely 1980; Kegl & Wilbur 1976). In this sense, it could be used to refer to and stand in the place of something previously identified or to co-refer to a noun phrase previously mentioned in discourse (Miller 1991:177-178).

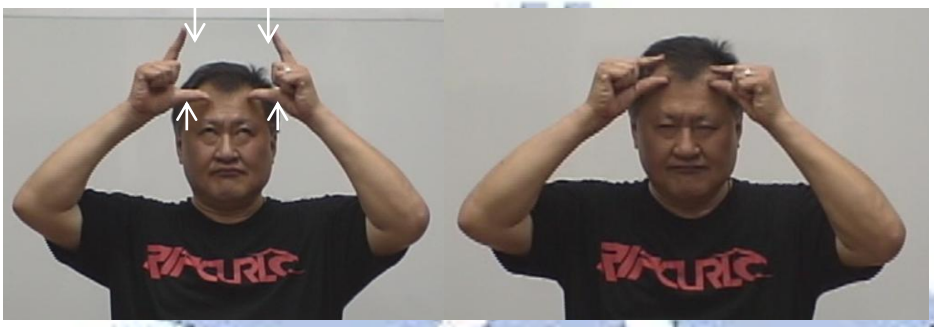
Just as many other sign languages, TSL also has a category of polymorphemic predicates containing verbs of motion or location and handshapes referring to a class of more specific objects (Chang, Su & Tai 2005). Classifiers are even analyzed as the multimorphemic verbs of motion and location (Zou 2003). These characteristics could be especially discovered when classifier predicates are greatly applied in change of state constructions. For expressing how an object is changed from one state to another, the morphemes composing the classifier predicates are modulated.

In the following example *I cut my hair and as a result my hair became short*, the signer changes the handshape of the classifiers for describing how the length of the hair is changed from a long state to a short state:

(1) CUT THE HAIR HAIR_{CL}_SHORTEN .

'I cut my hair and as a result my hair became short.'

a. CUT THE HAIR



b. $HAIR_{CL}$_BECOME SHORT

Figure 2.2

In this example, I've shown the signer the Chinese sentence *Wo ba toufa jian duan* 'I cut my hair short'. The expression given by the signer could be divided into two subevents: Someone cut the hair (Figure 2.2a) and as a result the hair became short (Figure 2.2b). In the first subevent, the signer first signs CUT THE HAIR. Later in the second subevent, the signer tries to show us how the length is changed from a long state to a short one: The signer first has both of his hands placed on the head in /L/ handshape and then changes them into the /G/ handshape by shortening the distance between the index finger and the thumb. Here, the lengthening and shortening of both hands are done by both hands as tracing size and shape specifiers (SASSes). It

is through the distance shortening that we know the length of the hair is shortened after the cutting.

2.5 Classifier system in spoken languages

The difference between classifiers and measure words are discussed over the years (Li & Thompson 1981; Tai & Wang 1990; Her & Hsieh 2010). Tai and Wang (1990), Tai & Chao (1994) and Tai (1994) have attempted to tell us the difference through the prototype theory and redefine them as follows:

> "A classifier categorizes a class of nouns by picking out some salient perceptual properties, either physically or functionally based, which are permanently associated with the entities named by the class of nouns, a measure word does not categorize but denotes the quantity of the entity named by a noun." (Tai &Wang 1990:38)

Following the above definition, Tai and Wang (1990) adopt the distinction between 'permanent' and 'temporary' properties of entities as the fundamental cognitive basis for the distinction between classifiers and measure words.

Her and Hsieh (2010) also tell us the differences between classifiers and measure words in Chinese from the distinction suggested by Aristotle: 'essential feature' and 'accidental feature'. They proposed the difference between these two lies in classifiers which points out the essential features of the noun it modifies while measure words

could only give the nouns a temporary distinction. For example, the classifier *wei* 'tail' in (2) could profile out the essential feature of a fish. Yet, the measure word *tong* 'bucket' in (3) gives additional information to the fish: a bucket with fish and filled with fish:

(2) 一 尾 魚

yi wei yu

one tail fish

'a fish'

(3) 一 桶 魚

yi tong yu

one bucket fish

'a bucket of fish'

Hsieh (2009) even adopted the profiling concept from Langacker (1987), proving how classifiers are applied in Chinese to characterize certain semantic distinctions of the nouns. In the following two examples, classifiers *zhu/ke* and *duo* are applied for profiling different perspectives *hua* 'flower':

(4) 一 株/棵 花

yi zhu/ ke hua

One (C-shape-whole) flower

'a flower'

(5) 一 朵 花

yi duo hua

One (C-shape-part) flower

'a flower'

In the above example, the noun *hua* could be profiled from different perspectives by applying different classifiers: While the classifier *zhu/ke* profiles from the *whole* perspective, the classifier *duo* only profiles the *part* perspective.

2.6 Classifier system in sign languages

Four main types of classifiers are identified by previous studies: size and shape specifiers, whole entity classifier, handling classifier, and bodypart classifier (Supalla 1982; Engberg-Pedersen 1993; Liddell & Johnson 1987; Meir 2008). Here, these classifiers will be specifically introduced for helping us more understand its role in expressing and embodying the changes.

2.6.1 Size and Shape Specifiers (SASSes)

One type of classifier is what has been called the size and shape specifiers (SASSes) (Newport and Bellugi 1978). It denotes the physical properties of objects

like length, width, extension, and dimension. According to Supalla (1982, 1986), SASSes could be specifically classified into two types: static SASSes and tracing SASSes. Static SASSes are directly applied for representing the size and shape of the object itself while tracing SASSes are classifiers moving along the way for describing the size and shape of the object. The static SASSes are mainly composed of fingers or the forearm, and the size and shape of the object is represented by the handshape.

In the following example, we give the signer the Chinese expression *Zhuo shang you henduo panzi* 'Lots of plates are on the table. Here, the signing expression could be interpreted as *Plates stacked up in a row on the table*. After the signer signs PLATE and TABLE (which have been taken as default information by the signer), their relative position could be expressed through both hands in /Bent 5/ handshape stacking one after another. The idea about lots of plates stacked up one after another on the table is presented through the plate classifier in /Bent 5/ handshape, acting as a tracing SASS, which moves in an upward manner on the other hand as the desk classifier:

(6) $TABLE_{CL}$+$PLATE_{CL}$_MOVE UP.

'Plates stacked up in a row on the table.'

$TABLE_{CL}$+$PLATE_{CL}$_MOVE UP

Figure 2.3

2.6.2 Whole entity classifiers

Whole entity classifier is also called sematic classifiers, which are similar to sortal classifiers in spoken language where the handshape refers to typical noun categories like humans, animals, or vehicles (Tang & Yang 2007). For example, the classifier for animals could be expressed through the classifier in /OPEN K/ handshape. In the following expression *The cat bumped into the car and as a result its leg broke,* the signer shows us the broken leg of the cat by directly manipulating the /OPEN K/ classifier:

(7) CAT CAT_{CL} DRIVE CAR_{CLj}+CAT_{CL}_RUN $INTO_{\rightarrow j}$

CAR_{CLj}+CAT_{CL}_BREAK LEG .

'The cat bumped into the car and as a result its leg broke.'

a. CAT b. CAT_{CL} c. DRIVE

d. CAR_{CLj}+CAT_{CL}_RUN INTO$_{\rightarrow j}$

e. CAR_{CLj}+CAT_{CL}_BREAK LEG

Figure 2.4

In this example, the signer shows us the case that a cat bumped into a car and the cat broke its leg. The whole signing event can be divided into two subevents: The first event shows us the activity that the cat bumped into a car. This can be seen from Figures 2.4a to 2.4d: The semantic classifier in the /OPEN K/ handshape moves toward another classifier in /C/ handshape for CAR. Later, the second event shows us the resulting state that the cat became the handicapped: The signer changes his /OPEN K/ handshape into a /L/ handshape (Figure 2.4e) to indicate the cat is handicapped by breaking its leg.

2.6.3 Handling classifiers

Taub (2001) points out that sometimes it is easier to produce and recognize body movements associated with an object than an analogue of the object itself. The handling classifiers could be strongly motivated by the distinctiveness of hand movement or the gesture of an activity. Generally, the handling classifier handshape is expressed by incorporating the patient of a verb. This could be inferred from the

different handshapes for handling a piece of paper, a book, or a cup in TSL (Figures 2.5 and 2.6). In this sense, handling classifiers are said to serve as a *referent-tracking function*: Both the actor and the patient of a verb are incorporated and marked simultaneously (Engberg-Pedersen 1993).

Figure 2.5 Classifier /Flat O/ for handling a piece of paper

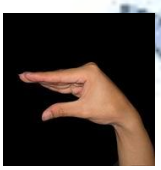


Figure 2.6 Classifier /Bent C/ for handling a book

Recent analyses have shown us that the handling classifier is associated with a causative predicate denoting a causing event (Supalla 1982; Schick 1990; Kegl 1990; Lau & Tang 2001; Lau 2002; Benedicto & Brentari 2004). The handshape configuration denotes how the agent holds the patient and acts on it and also the internal argument—the size and shape of the object. In this sense, a typical causative predicate articulated by a handling classifier could refer to a volitional agent holding and making a change on the object. Thus, a lexical causative is resulted. In the example below, the handling classifier with a strong oscillation shows that a change of

state occurs to the object.

(8) FATHER ROD ROD_{CL}_BREAK (with both hands twist in a strong oscillation).

'Father broke the rod.'

a. FATHER b. ROD

c. ROD_{HDCL}_BREAK (with both hands twist in a strong oscillation)

Figure 2.7

In Figure 2.7, we asked the signer to sign us the Chinese concept *baba zheduan le gunzi* 'Father broke the rod' in sign language. In his signing, there is only one event shown by the signer: Father broke the rod. The signer first showed us the sign FATHER. Later in Figure 2.7b, the size and shape of the rod is depicted through both hands in handling classifier, as if something cylindrical is handling in his hands. Later, both hands draw apart in an opposite way by moving from the center to depict its size

and shape. In Figure 2.7c, the signer then makes a twist of his both hands in front of his body with a strong oscillation, implying that the rod in his hand is broken due to his great exertion on the rod.

In this example, the expression of the handling classifier along with a strong movement has already provided an endpoint to the causative event. In other words, the rod has undergone a change of state. A change of state has already been lexicalized into the causative predicate through the strong twist exerted by the handling classifier. Thus, an additional construction for the resultant expressions becomes unnecessary.

2.7 Summary

As we can see from the above examples, classifiers in sign languages could explicitly show us how the affected object is changed from one state to another. In addition, they could somehow show us its changing process; that is, the manner *how* it is changed from one state to another. By having the changing process embodied on classifiers, sometimes, more information such as the manner or the speediness of the changing process could also be shown. In spoken languages such as English, for example, a verb like *break* could be 'vague' (Van Voorst 1995). For example, in *John broke the vase,* it isn't clear how John brought about the actual event. All we know is that he caused the change of state. The breaking event has a clear result, but the role of the subject isn't fully specified. In other words, a variety of things can cause a break-event to occur but with 'vague' verbs like *break*. However, sign languages take

a prominence in informing us the changing process through classifiers. In our research, we will also try to show the situation how these different types of classifiers participating in presenting change of states.

CHAPTER 3

THE CONSTRUCTION OF CHANGE OF STATES IN TSL

3.1 Introduction

In the chapter, we are going to see how an object changed from one state to another could be embodied through different constructions. The easiest method is to use a lexical item to indicate that a transition has occurred. This method only expresses the result of the change through the meaning of the lexical item. The second method is through a direct substitution or a mild modulation on the handshape of the classifiers: While the former method substitutes a totally different handshape for the original, the later only exerts a little modulation on the same handshape. Through the modulation of a classifier, the affected object's changing process could be obviously perceived. The third method is through the application of both the lexical item and the classifier construction. Sometimes they could be applied together while other times they don't. We will discuss how the lexical and classifier expressions are collaborated together in terms of expressing the states before and after the change.

Different constructions for expressing change of states could be achieved through: (a) lexical items, (b) classifier predicates, (c) both a lexical item and a classifier predicate, (d) merging a lexical item and a classifier predicate. As for the second type, they are further categorized according to the application of different classifiers. Details about why one is preferable choice to the other will also be discussed.

3.2 Change of states expressed through lexical items

The simplest way to show the change of states is to use lexical items. However, through this method, changing process could not be perceived. As the polymorphemic predicates, TSL show a tendency to express the change of states by classifiers.

Applying a lexical item is an easy way to express the change of states when the change couldn't be expressed through classifier predicates. In the following example, applying a lexical item BREAK (Figure 3.1) is a more convenient and economic way than making any modulation on the PAINTING classifier for expressing the change:

Figure 3.1 BREAK in TSL

(1) PAINTING LITTLE GIRL FALL SCRATCH

PAINTING$_{CL}$+ SCRATCH PAINTING BREAK

'The little girl fell and scratched the painting. As a result, the painting broke.'

a. PAINTING b. LITTLE GIRL c. FALL d. SCRATCH

e. PAINTING$_{CL}$+ SCRATCH f. PAINTING g. BREAK

Figure 3.2

In this example, the whole event is divided into three subevents: The little girl fell (Figure 3.2c), scratched the painting (Figures 3.2d and 3.2e) and as a result the painting broke (Figure 3.2g). The first and second subevents of the example are both causing events and can be seen from Figures 3.2a to 3.2e. In Figure e, we saw how the signer moves her hand on another hand in a scratching manner for showing us the interaction between the girl and the painting: While the hand erected in front of the body represents the painting, the other hand with curved fingers moves in a top-down manner on it as if the little girl scratches the surface of the painting with her fingers. Yet, we can't know how the painting is damaged.

In the third subevent (Figures 3.2f and 3.2g), the signer shows that the painting has undergone a change and became different from its former state. As we can see, the intact PAINTING is represented through the erected arm in /5/ handshape in Figure 3.2e. Later, for showing the painting is no longer intact because of someone's scratching, the sign BREAK is then applied as the third subevent for informing us that the painting broke.

Here, the lexical item BREAK is applied for expressing the idea that the painting undergoes a change of state. It seems that it's hard to express the resultant state of the torn painting through the physical modulation on the classifier representing the painting, that is, the erected arm in /Open B/ handshape. Thus, the lexical item BREAK is preferred to be applied here.

3.3 Change of states expressed through classifier predicates

In visual-gestural language, classifiers play an important role in expressing change of states. The application of different classifiers may result in the different strategies for expressing change of states in TSL.

3.3.1 Change of states expressed through SASSes

However, there are cases with breaking idea which can't be expressed through the lexical item BREAK. In the following example, *The chicken egg fell onto the floor*

and then the chicken egg broke[7], the signer loosens the /O/ handshape classifier into the /5/ handshape by opening up his hand with spreaded fingers. We could see how the break is expressed through the classifiers:

(9) CHICKEN EGG $FLOOR_{CLj}$+EGG_{CL}_$FALL_{\rightarrow j}$ $FLOOR_{CL}$+EGG_{CL}_BREAK .

'The chicken egg fell onto the floor and then broke.'

a. CHICKEN EGG

b. $FLOOR_{CLj}$+EGG_{CL}_$FALL_{\rightarrow j}$

c. $FLOOR_{CL}$+EGG_{CL}_BREAK

Figure 3.3

In this example, the signer tries to show us the idea that a chicken egg fell onto the floor (Figure 3.3b) and then the egg broke (Figure 3.3c). The whole event given by

[7] It would be more consistent to elicit the data in *Father dropped the egg and as a result the egg broke*.

the signer can be divided into two subevents: The chicken egg fell onto the floor (Figures 3.3a-b) and the egg broke (Figure 3.3c). In the first subevent, the signer shows us the simultaneous interactions of the two participants, the chicken egg and the floor. Later in the second subevent (Figure 3.3c), the signer shows us how the egg is changed from an intact one to a broken one after it fell onto the floor.

To begin with, the signer showed us the first subevent that the chicken egg fell onto the floor. He first gave us the sign CHICKEN EGG in Figure 3.3a. Later in Figure 3.3b, he showed us the interaction between the egg and the floor through classifiers: While the hand in the /Open B/ handshape having the palm facing upwards as the classifier for the floor, the other hand in /O/ handshape as the classifier for the intact egg moves upon it.

It is in the second subevent that the egg going from an intact one to a broken one is expressed: The chicken egg broke. In Figure 3.3c, the signer changed the handshape from /O/ into /5/, opening up his hand and changing its orientation from facing down to facing up at the same time. The intact egg is represented through the /O/ handshape classifier, in which the fingertips are gathered to a point and its change of state is expressed through separating the gathered point where the fingertips meet by opening up the hand. Expressed through this way, it seems that the egg has broken.

In this example, the egg broke from one state to another could not be replaced by the lexical item BREAK. The classifier construction for expressing the breaking up of the egg is a preferable choice since the former state and later state of the egg could be directly and more convenient embodied through the classifier in /O/ handshape for egg.

Change of states could also be expressed without giving the lexical item as the information. Just as the above egg example shows, the breaking idea could better be embodied through classifiers without through the lexical item BREAK.

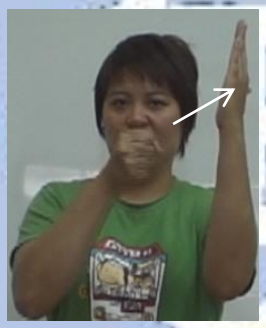
The following example shows us another method for showing the object changed from one state to another: The signer uses another totally different handshape for expressing how a surface object is changed from one state to another:

(2) HAMMER $GLASS_{CLj}$+$HAMMER_{CL}$_$HIT_{\rightarrow j}$ GLASS+$GLASS_{CLj}$

BREAK INTO PIECES.

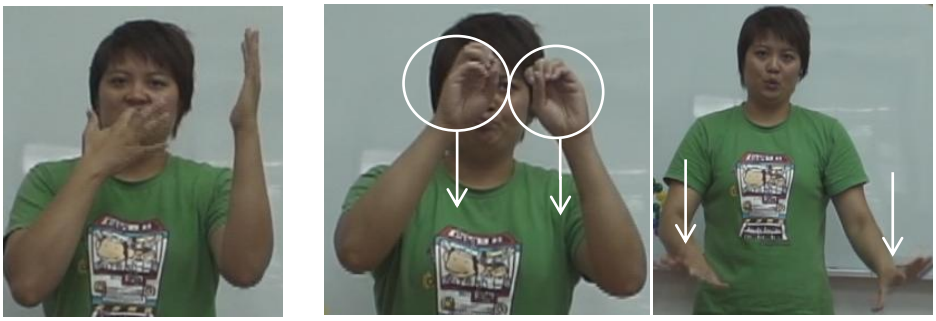
'A hammer hit towards the glass, and as a result the glass broke into pieces.[8]'

a. HAMMER



b. $GLASS_{CLj}$+$HAMMER_{CL}$_$HIT_{\rightarrow j}$

[8] It would be better to elicit our data by adding agent as the external argument and getting the following expression *Father took the hammer and hit towards the glass as a result the glass became pieces.*



c. GLASS+GLASS$_{CLj}$ d. BREAK INTO PIECES

Figure 3.4

In this example, the whole event can be divided into two subevents: A hammer hit toward the glass (Figure 3.4a and Figure 3.4b) and as a result the glass broke into pieces (Figure 3.4c and Figure 3.4d).

In the first subevent, the signer signs HAMMER. The sign HAMMER can be treated as either a noun or a verb here since the hitting action could be incorporated along with the noun. Later in Figure 3.4b, the signer shows us the interaction between the hammer and the glass surface (even though the sign GLASS is later expressed): The arm with /Open B/ handshape erected in front of the body is the classifier for representing the glass surface and at the same time the other hand in /S/ handshape moves toward it.

However so far, we still can't tell if any change of state occurs to the intactness of the glass. In other words, the glass may be hit by the hammer but without undergoing any change of state. Thus, Figure 3.4d would be necessary information for telling us whether the glass undergoes any change. To inform us a change of state has occurred, the signer changes erected hand in /Open B/ handshape into a totally different

classifier handshape: In Figure 3.4d we see both hands are in /O/ handshape with five fingertips drawn close to a point. This tells us that the intact surface of the glass is perceived as a whole. The handshape changing from /O/ to /5/ and at the same time moving downward informs us that the glass has changed from an intact one to scattered pieces. Here, the different classifiers for the glass have informed us different perspectives of the glass are emphasized. Different from the glass classifier in Figure 3.4c, in Figure 3.4d the classifiers applied for expressing the glass changed from intactness to broken pieces is by drawing the fingertips of both hands to a point and then drawing apart these fingers for showing that whole-to-pieces idea. Here, the modulation in terms of the closeness of fingers is also applied.

Below we are going to check another classifier construction for showing the breaking of a wider surface. In the following example, the classifier of a wide surface of the roof is formed through connecting fingertips of both hands, which is also considered to be the sign HOUSE. Thus, the breaking idea is expressed through separating the connected boundary of both hands. However, it doesn't necessarily mean that the house or roof falls into *two* parts. Let's take a look at the example:

(3) YOUNGER BROTHER AT HOUSE $HOUSE_{CL}$+INSIDE FIRE CRACKERS THAT (IN THE HOUSE) FIRE CRACKERS

$HOUSE_{CLj}$+$FIRE\ CRACKERS_{CL}$_MOVE $UP_{\rightarrow j}$ $HOUSE_{CL}$

$HOUSE_{CL}$_BREAK (IN AN UPWARD MANNER)

$HOUSE_{CL}$_BREAK+$FIRE\ CRACKERS_{CL}$_ MOVE UP .

'The younger brother set off the firecrackers inside the house and the house broke (in an upward manner.) Then, the fire crackers broke through.'

a. YOUNGER BROTHER

b. AT

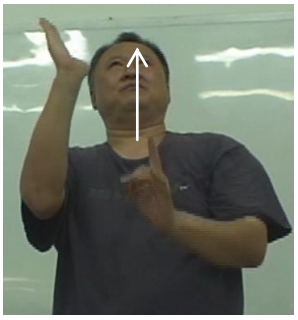
c. HOUSE

d. $HOUSE_{CL}$+INSIDE

e. FIRE CRACKERS f. THAT (IN THE HOUSE) g. FIRE CRACKERS

h. $\text{HOUSE}_{\text{CL}_j}$+$\text{FIRE CRACKERS}_{\text{CL}}$_$\text{MOVE UP}_{\rightarrow j}$

i. HOUSE_{CL} j. HOUSE_{CL}_BREAK (IN AN UPWARD MANNER)



k. $HOUSE_{CL}$_BREAK+FIRE $CRACKERS_{CL}$_MOVE UP

Figure 3.5

In this example, I've shown the signer the concept that a younger brother set off the fire crackers in the house. Later, the fire crackers are set off and rushed upward toward the house and as a result the house broke.

The whole event can be divided into four subevents: The younger brother in a house set afire the fire crackers (Figures 3.5a-3.5g), the fire crackers rushed upward (Figures 3.5e-3.5h), the house broke (Figures 3.5i-3.5j) and finally the fire crackers broke through the house (Figure 3.5k). In the first subevent, after the signer shows us all the participants (YOUNGER BROTHER, HOUSE, and FIRE CRACKERS), the signer then shows us the interaction of the fire crackers and the house in Figure 3.5h. Later in the next subevent (Figures 3.5i-3.5j), the change of state of the house is expressed. Finally, the signer informed us that the fire cracker broke through the house (Figure 3.5k).

At the beginning, the signer showed us the first subevent that the younger brother in the house set off the fire crackers (Figures 3.5a-3.5e). He first gave us the sign YOUNDER BROTHER and then AT HOUSE. Later, the signer told us inside the

house there are fire crackers (Figures 3.5d-3.5e). Then, the signer shows us the second subevent how the fire crackers interact with the house: The fire crackers inside the house rushed upward toward the house (Figures 3.5e-3.5g). He showed us the relative position and also the interaction between the house and the fire crackers: The hand with the classifier representing the fire crackers moves up within the domain of the other hand in /Open B/ handshape, which slantly erects in front of the body.

Later, in the third subevent, the signer showed us the manner how the house is changed from one state to another: The house broke. In Figure 3.5i, the signer again showed us the intact sign HOUSE. In Figure 3.5j, the signer then separates the connected part of the touched fingertips by moving his both hands in an upward manner. For expressing the idea that the house is no longer as intact as before, that is, the house broke, the signer has to show us the difference by changing the orientation of his both hands. The 180 degrees' turning of the palm orientation tells us that the house broke into pieces—not even a little size and shape of the house could be discerned after it breaks.

Finally, in Figure 3.5k, the signer then again shows us the interaction between the HOUSE and the FIRE CRACKERS. This time, the signer further shows us that the fire crackers broke through the house. Here, part of the classifier for representing the broken house still remains while in the other hand the signer showed us the classifier for fire crackers moving up and over the level of the broken house classifier. It is through the presentation of their relative positions that we know the fire crackers broke through the house.

Below, the signer also shows us how breaking idea happening to the small surface like eardrum could be expressed. In this example, the signer applies the classifier construction to show us how the eardrum is changed from one state to another:

(10) HE LISTEN MUSIC (loud) MUSIC NOISY

THE SURFACE OF THE EARDRUM$_{CL}$ THE HOLE OF THE EAR$_{CL}$

THE HOLE OF THE EAR$_{CL}$+THE SURFACE OF THE EARDRUM$_{CL}$_BREAK .

'He listened to the music and the (loud) music was so noisy. As a result, the surface of the eardrum broke.'

a. HE

b. LISTEN

c. MUSIC

d. (loud) MUSIC

e. NOISY

f. THE SURFACE OF THE EARDRUM$_{CL}$

g. THE HOLE OF THE EAR$_{CL}$

h. THE HOLE OF THE EAR$_{CL}$+ THE SURFACE OF THE EARDRUM$_{CL}$_BREAK

Figure 3.6

In this example, I have shown the signer a Chinese sentence: He listened to the loud music and as a result the surface of the eardrum broke. The signer here interprets the Chinese into the following meaning, which could be divided into three subevents:

He listened to the (loud) music (Figures 3.6a to 3.6d), the music is noisy (Figure 3.6e) and as a result the surface of the eardrum broke (Figures 3.6f to3.6h). Here, the causing event starts from the second subevent (The music is noisy) and then follows up the third as the resultant event (The surface of the eardrum broke). The analysis below will discuss how these two related subevents are expressed.

From Figures 3.6a to 3.6e, the signer shows us the first two subevents that someone is listening to (loud) music and the noisy music keeps coming in. The signer first shows us signs HE, LISTEN, and also MUSIC. Later in Figure 3.6d, the signer gives us the sign MUSIC once again but in an intense way and with a contorted facial expression. It is from the intensity of the sign and also the facial expression we learn that the music is so loud. In Figure 3.6e, the signer then placed both of his hands in /Bent 5/ handshape around the ear and moved in a vibrated and intense manner as if the loud music goes into the ear and makes the referent to be unbearable. Here, we prefer to temporally interpret this sign as NOISY.

From Figures 3.6f to 3.6h, the signer then shows us how the surface of the eardrum changed from one state to anther is interpreted: The surface of the eardrum broke. In Figures f and g, the signer gave us more information about the body part affected by the loud music. In Figure 3.6f, the signer first placed the hand in /Open B/ handshape on the ear, a sign indicating that it is the surface of the ear that he would like to mention. Later in Figure 3.6g, the signer then has one of his hand in /QIAN/ handshape and another hand in /1/ handshape moving around the /QIAN/ handshape's fingers-connected circle. It is through the depiction of the /1/ handshape we know the

shape of the eardrum.

In Figure 3.6h, the signer then moves the hand in /Open B/ handshape onto the domain of the circle formed by the connected fingertips of the index and the thumb. Here, for expressing a change has occurred to the surface of the eardrum, the signer changes his hand from /1/ handshape into /Open B/ handshape, placing the handshape /Open B/ onto the surface of the circle formed by the /QIAN/ handshape. Later, the hand in /Open B/ handshape moves in a sideway manner away from the circle. Here, the flipping over and moving away of the /Open B/ handshape informed us that the surface of the eardrum is no longer in its original place. Through the presentation of this classifier construction, we learn that the surface of the eardrum no longer remains intact as before. Here, the breaking surface of the eardrum could also be expressed through the lexical item BREAK as follows:

Figure 3.7 BREAK

3.3.2 Change of states expressed through whole entity classifiers

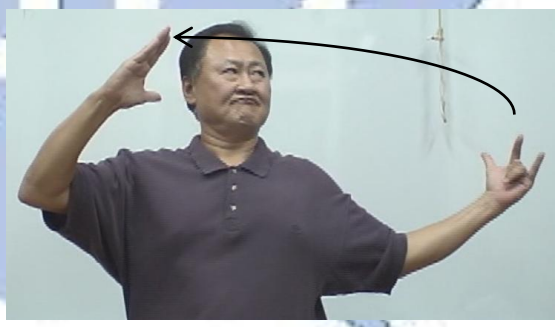
In this section, we are going to see how an object represented through whole entity classifiers expresses change of states when just a specific part of the object

undergoes changes. We discovered that the change could be directly expressed through the modulation on the semantic classifiers. Here, we also try to prove that the application of the bodypart classifiers is also used. In the following example *The airplane flied toward the house, bumped into the house and as a result the wing of the airplane broke*, the signer expresses the break on the wing of the airplane through the modulation on its /L-I/ handshape, the semantic classifier for airplane. Let's take a look at the following example:

(11) HOUSE HOUSE$_{CLi}$+AIRPLAINE_FLY$_{\rightarrow i}$ HOUSE$_{CLi}$+AIRPLAINE_BUMP INTO$_{\rightarrow i}$ HOUSE$_{CLi}$+THE WING OF THE AIRPLAINE$_{CL}$_BREAK.

'The airplane flied toward the house, bumped into the house and as a result the wing of the airplane broke.'

a. HOUSE



b. HOUSE$_{CLi}$+AIRPLAINE_FLY$_{\rightarrow i}$

c. $HOUSE_{CLi}$+AIRPLAINE_BUMP $INTO_{\rightarrow i}$

d. $HOUSE_{CLi}$+THE WING OF THE $AIRPLAINE_{CL}$_BREAK

Figure 3.8

In this example, the expression given by the signer could be divided into three subevents: The airplane flied toward the house (Figures 3.8a and 3.8b), the airplane bumed into the house (Figure 3.8c), and the wing of the airplane broke (Figure 3.8d). In the first subevent, the signer signs HOUSE and AIRPLANE and also their interaction by having the /L-I/ handshape moved toward the classifier for HOUSE in Figure 3.8b. The signer moves the semantic classifier of airplane toward the roof of the house. Later in the second subevent, the interaction between the /L-I/ classifier and the house classifier has come into a contact. Here, the signer tries to show us a bump has occurred to the airplane by showing us their interaction. However, the expression

so far could not show us if any change of state occurs to either the house or the airplane. In this sense, the expression of the third subevent becomes a necessity to show us a change has occurred to the wing of the airplane.

In the third subevent, the idea that the wing of the airplane broke is expressed. For expressing the idea that the wing of the airplane broke, the signer draws back the little finger of the /L-I/ as if one of the airplane wings broke (Figure 3.8d).

The following alternative expression shows us that the airplane changed from an intact one to another state with a wing broken could also be expressed through the application of the bodypart classifier. In Figure 3.9d, the alternative way for expressing the broken wing through bodypart classifier is added:

(12) $HOUSE_{CLj}$+$AIRPLANE_{\rightarrow j}$ THE WING OF THE $AIRPLANE_{CL}$+CUT $AIRPLANE_{CL}$_BREAK .

'The airplane crashed into the house and as a result the wing of the airplane broke.'

a. $HOUSE_{CLj}$+$AIRPLANE_{\rightarrow j}$

b. THE WING OF THE AIRPLANE$_{CL}$+CUT

c. AIRPLANE$_{CL}$_BREAK

Figure 3.9

The difference between Figures 3.8 and 3.9 lies in the application of the bodypart classifier to show the wing of the airplane broke. As we can see from Figure 3.9b, the signer first shows us his arm as if his arm is the wing of the airplane, later the other hand of the signer is shown is a way of cutting the arm down: The hand moves in a downward manner on the other hand. From the moving of the hand, we can tell that the signer project himself as the plane. The moving down manner of his hand is actually the indication of the crashed wing case. Later, the signer likewise shows us how the plane goes from one state to another.

The following example shows us another case when the break idea also occurs to

an object represented through semantic classifiers.

(13) GIRL ICE SKATE ICE FALL $LEGS_{CL}$_BREAK .

'The girl ice skates and falls down. As a result, her leg broke.'

a. GIRL

b. ICE SKATE

c. ICE

d. FALL

e. $LEGS_{CL}$_BREAK

Figure 3.10

In this example, the signer shows us the resultant state that the girl breaks her leg by changing the semantic classifier representing the legs of girls from the /V/ handshape to /Middle/, for showing us that the legs changes from two to one.

a. LEG b. SNAP

Figure 3.11 the presentable object method

This is another way for showing that the leg of the girl breaks. After informing us that the girl falls down in Figure 3.10d, the signer then immediately points to his own leg (Figure 3.11a). Then, he immediately shows us the lexical item SNAP (Figure 3.11b). From the context, we learn that the leg that the signer refers is that of the ice skating girl. Here, the signer applies the *presentable objects* method proposed by Sutton-Spence and Woll (1999).

3.3.3 Summary

As the above examples have shown, classifiers did better to inform us that what kind of change the object has undergone. The classifier constructions in sign languages could directly embody the expression in terms of the size and shape of the object's

change. Both the size and shape changing and also the manner could be seen through classifiers. In this sense, the classifier construction takes a prominence in terms of interpreting the breaking idea than through a lexical item expression.

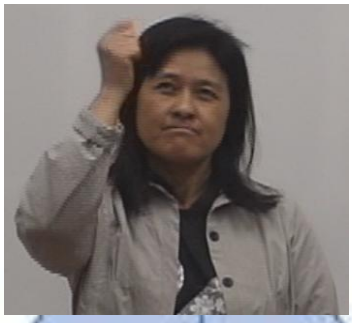
3.4 COS expressed through both a lexical item and a classifier

As we can see from the above examples, lots of expressions for showing object changed from one state to another would prefer expressing through a classifier construction to expressing through a lexical item. In Hong Kong Sign Language, the destructive verbs like BREAK in causative predicates are already encoded with a result. Thus, an additional classifier predicate for showing the change of states expression would be redundant (Tang and Yang 2007). However, different from HKSL, the change of states in TSL could be measured more than once for depicting the size and shape of the classifiers' changing state.

In this part, we are going to discuss another changing situation through applying another method: Not only the lexical item BREAK is applied but also the changes on classifiers have to be embodied and expressed. In cases below, neither one of them can be omitted for expressing the change of the objects. While the lexical item BREAK explicitly told us that the object no longer remains in the same state, the following up classifier expression told us the state after the change and the motion at the same time. In expression like this, we observe that the changing point is expressed separately from the resultant depiction of the object. Let's take a look at the following example:

(14) YOUNGER BROTHER HAMMER$_{HDCL}$_KNOCK$_{\rightarrow j}$ ICEBRICK$_j$ BREAK PIECES OF ICE$_{CL}$_FALL DOWN.

'My younger brother took the hammer and knocked the ice brick. As a result, the ice brick broke and fell down.'



a. YOUNGER BROTHER b. HAMMER$_{HDCL}$_KNOCK$_{\rightarrow j}$

c. ICEBRICK$_j$

d. BREAK

e. PIECES OF ICE_{CL}_FALL DOWN

Figure 3.12

In this example, I've shown the signer the concept that a younger brother takes a hammer, knocks toward the ice brick and as a result the ice brick crashes down. Analyzed through the given sign expression, the whole event can be divided into three subevents: The younger brother knocked the ice brick (Figure 3.12b), the ice brick broke (Figure 3.12d) and then the ice bricks crashes down (Figure 3.12e).

From Figures 3.12a to 3.12c, the signer first signs YOUNGER BROTHER, $HAMMER_{HDCL}$_$KNOCK_{\rightarrow j}$, and then ICEBRICK. The interaction of the agent YOUNGER BROTHER and the patient ICEBRICK could be known through the knocking action in Figure 3. 12b. In Figure 3.12b, the handling classifier and knocking action also entail that something is held within the referent's hand. Later in Figure 3.12c, the signer signs ICEBRICK by giving us the sign ICE first and then depicting the size and shape of the ICEBRICK through pulling the /Bent-L/ handshape of both hands in a top-down way.

Then we come to the second and third subevent, for both are applied for showing the breaking ice. For expressing the ice brick goes from an intact one to broken pieces,

the signer first applies the citation form of the sign BREAK and then follows up a classifier construction for specifically describing the pieces of icebricks: Both hands of the signer are in /5/ handshape and move simultaneously in a downward manner as if pieces of ice fall.

In this example, the sign ICEBRICK is expressed through tracing the size and shape of the ice. Later, the sign BREAK immediately follows up. Even though the meaning that 'the icebrick breaks' is told, the expression so far is still far from satisfaction to describe pieces of ice as a complete resultant expression. Thus, a classifier construction for specifically expressing the breaking icebrick is presented: The broken pieces of ice are represented through both hands in the /5/ handshape with spread fingers. It is necessary to apply both a lexical item BREAK and a classifier construction PIECES OF ICE$_{CL}$_FALL DOWN to express that the ice brick broke and also the state and movement after it broke: Pieces of icebrick fell down. In expression like this we are clearly told with the manner how the pieces of ice are expressed and also how it falls.

3.5 COS expressed through merging the lexical item and the classifier

The example below shows us another method for expressing the change of state: merging the lexical item and the classifier together. In this method, the lexical item is applied on the classifier at the same time. The lexical item could drop part of its composition when it is applied along with the classifier. In the following example, we can see from Figure 3.13g that only part of the sign MEND is taken for applying on

the /Open B/ handshape, the classifier for ROAD. Later, another classifier for specifying the result is presented:

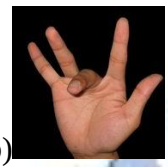
(a) (b) 

Figure 3.13 (a) LACK_B[9]; (b) Handshape /Open 8/ for LACK

Figure 3.14 MEND

(15) THAT SURFACE THE SURACE OF THE ROAD$_{CL}$+ LACK

THE SURACE OF THE ROAD$_{CL}$+THE CONCAVEC ROAD$_{CL}$

THE SURACE OF THE ROAD$_{CL}$+THAT

THE SURACE OF THE ROAD$_{CL}$+MEND

THE SURACE OF THE ROAD$_{CL}$+THE FLATTENED ROAD$_{CL}$.

'The surface with a concave is mended into a flat one[10].'

[9] The 'A' or 'B' after the underscore stands for the word's free variations.

a. THAT

b. SURFACE

c. THE SURACE OF THE ROAD$_{CL}$+LACK

d. THE SURACE OF THE ROAD$_{CL}$+THE CONCAVEC ROAD$_{CL}$

[10] This data is excerpted from UDN's sign language news (http://video.udn.com/video/Main/MainPage.do?cls=43)

e. THE SURACE OF THE ROAD$_{CL}$+THAT

f. THE SURACE OF THE ROAD$_{CL}$+MEND

g. THE SURACE OF THE ROAD$_{CL}$+THE FLATTENED ROAD$_{CL}$

Figure 3.15

In the above example, the context is under a stormy and rainy day, workers go out to mend the concave road into a flat one. Here, we would start to analyze our data from the expression of the concave road. The whole event could be divided into the

following two subevents: The concave surface of the road was mended (Figures 3.15a to 3.15f) and as a result the surface of the road became a flat one (Figure 3.15g). In the whole event, it seems that the agent doing the mending work is only expressed through the sign THAT. Without the explicit presentation, here we would just give our attention on the expression of the concave road's different states.

From Figure 3.15a to Figure 3.15d, the signer shows us how the road with a concave is expressed. The signer first indicates the location with THAT and then the sign SURFACE: Both hands in /Open B/ handshape stacking up draw and move apart from the center in a parallel way (Figure 3.15b). Later in Figure 3.15c, one of the hand in /Open B/ handshape with palm facing down remains for representing the road classifier while at the same time another hand signs LACK in /Open 8/ handshape on the upper space of it. The sign LACK is given by having the index of one hand pushing the middle finger of the other hand down. Later, the signer combines the road classifier and the lexical item LACK represented together to inform us the existence of the concave road. Later in Figure 3.15d, the hand with the sign LACK immediately changes to the /Open B/ handshape, depicting in a concave size and shape down below another hand's /Open B/ handshape. Telling from the Figure 3.15d, we learn that the size and shape of the concave is down below the surface of the road.

Later from Figures 3.15e to 3.15g, the signer then shows us how the concave road is mended into a flat one. While one of the hands represents the road classifier remains all the way, another hand shows other information when interacting with it. In Figure 3.15e, the signer signs THAT, which I will interpret as the indication of an external

agent (even though it is not clearly told). Later in Figure 3.15f, one of the signer's hand in /Open B/ handshape moves in a covering way onto the place where she just depicted the hole. The covering manner is actually from the sign MEND (Figure 3.13). Here, for expressing the concave road is mended into a flat one, the sign MEND is partially taken off for together expressing with the road classifier.

In Figure 3.15g, the signer then completes whole the expression by adding up the description about the resultant state of the road: While one hand still remains there as the road classifier, another hand draws in a parallel way for showing that the road became a flat one. Here, the hand is applied as a tracing SASS for depicting the flat surface of the road.

In the above example, the change of states expressions are greatly carried out through merging the lexical item with the classifiers. After these merging expressions, the signer also shows us the size and shape depiction of the object after undergoing the change of state. This again proves that the information expressed through lexical items is limited. The classifier construction with depiction could tell us more about the size and shape of the object after it undergoes changes.

By applying a lexical item to the classifier, we could also tell there is a change occurring to the specific place of the classifier. In the following examples, two lexical items could be used to express the lit candle: DISAPPEAR (Figure 3.15) and SNUFF OUT (Figure 3.16). However, only the expression DISAPPEAR could be merged with the candle classifier. Let's take a look at the following example in Figure 3.18:

Figure 3.16 DISAPPEAR

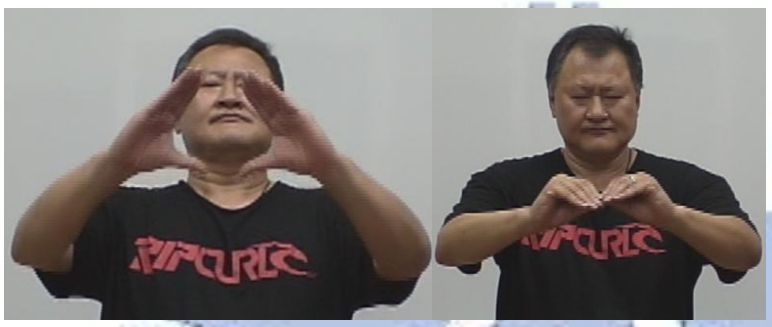


Figure 3.17 SNUFF OUT

(16) GIRL CAKE FIRE CANDLE FIRE CANDLE $FIRE_{j}$+$BLOW_{\rightarrow j}$

CANDLE $FIRE_{CLj}$+$WIND_{CL}$_$BLOW_{\rightarrow j}$ CANDLE $FIRE_{CL}$+DISAPPEAR .

'The girl blew the lit candle on the cake, and the wind flowed out of the mouth toward the candle. As a result, the fire of the candle disappeared.'

a. GIRL

b. CAKE

c. FIRE

d. LIT CANDLE

e. LIT CANDLE$_{j}$+BLOW$_{\rightarrow j}$

f. CANDLE FIRE$_{CLj}$+WIND$_{CL}$_BLOW$_{\rightarrow j}$

g. CANDLE FIRE$_{CL}$+DISAPPEAR

Figure 3.18

In this example, I've presented a picture that a little girl blew the only candle on her birthday cake. Here, the signer adds the information that the candle is blown off.

The whole event can be divided into three subevents: A girl blew the candle on

the cake (Figure 3.18a to Figure 3.18e), the wind was blew out of her mouth (Figure 3.18f), and then the fire on the candle disappear (Figure 3.18g). In the first subevent, the signer shows us that the girl blew the fire of the candle on the cake. Later in the second subevent, the signer shows us how the wind flow goes out of the mouth and then toward the candle. Finally, the signer shows us the fire of the candle disappears.

To begin with, the signer showed us the first subevent that a girl is trying to blow off the candle on the cake (Figures 3.18a to 3.18e). He first gave us the sign GIRL and CAKE. Then, he showed us specifically that it is a lit candle through the /W/ handshape (Figures 3.18c to 3.18d): The index, middle, and ring fingers of one hand extend and wiggle with the palm facing inside while the other hand holds this hand. Later in Figure 3.18e, the signer immediately acts as the referent, blowing toward the /W/ handshape as if someone is blowing toward the lit candle.

Later in Figure 3.18f, the signer specifically shows us the second subevent about the direction of the wind flow: The wind flows out of the mouth toward the fire of the candle. The signer kept his hand in the /W/ handshape in front of the body as the classifier for the lit candle. At the same time, the other hand shows the direction of the wind: The hand in /S/ handshape placed in front of the mouth shows us a force is prepared to be released out of the mouth. Later, the signer opened up his hand from /S/ to /5/ handshape, having the palm orientation and fingertips faced and pointed toward another hand in /W/ handshape. The opening up of the hand from /S/ to /5/ shows us the wind releases out of the mouth and flows toward the candle.

Now we are going to see the third subevent in this example: The fire of the candle

disappears. In Figure 3.18g, the dying out of the fire is expressed: While the classifier representing the lit candle changes from /W/ to /S/, the other hand moves from the side cross the /W/ handshape and closes to form a fist. Here, the handshape change from /W/ to /S/ indicates the dying out of the fire and at the same time the other hand shows us part of the sign DISAPPEAR, interacting with the candle classifier for specifically showing us the fire of the candle disappear. It's very interesting that the signer merges the sign DISAPPEAR along with the classifier standing for the lit candle at the same time. The sign CANDLE has been applied and expanded with a meaning, under this context referring to a lit candle, not just a candle. In Figure 3.15, we can see the sign DISAPPEAR is expressed through two open hands moving from the sides and cross over each other to a closing state and forming fists:

In this example, the third classifier construction for showing the resultant concept could be an optional expression in TSL. Here, Figure 3.18e and 3.18f together could already incorporate the meaning that the fire of the candle is blown off. However, the resultative expression could still be very important information in terms of from the person's perspective and how the fire of the candle goes, especially when the fire of the candle is not put out successfully.

3.6 Summary

The idea of change of states could be expressed through many ways. The most frequent way is through applying the lexical item. However, applying lexical items only tells us the result but without specifying the changing process. It doesn't provide

any information about how the change of states came about. For example, in the expression *John broke the vase,* it isn't clear about the action and manner how John brought about the actual event. The spoken expressions didn't specify the resultant state of the broken cup, either. Yet, through TSL's classifier constructions, the same expression could be presented in a more transparent way to show us how the object changes from one state to another. In this chapter, we've tried to present and to see how the expression through lexical item and classifier construction could be applied together to show us more information about the action/ manner and the changing process.

As we can see from the examples and categorizations, the constructions in terms of expressing change of states could be classified into as follows: (a) through lexical items, (b) through classifier predicates, (c) through both a lexical item and a classifier predicate, and (d) through merging a lexical item and a classifier predicate. However, our data show that even though the lexical item is an easier expression, the change of states is preferred to be expressed through classifier constructions. In the example *He listened to the music and the (loud) music was so noisy. As a result, the surface of the eardrum broke* (Figure 3.6), the signer preferred to show us how the eardrum changing from one state to another through the classifier construction to the application of the lexical item BREAK. There are also some cases that the changing state of the object could only be expressed through the classifier, as in the example *A chicken egg fell onto the floor and then broke* (Figure 3.3). Through these two examples, we observe that classifier predicates play a better role in terms of specifying how an object is

changed from one state to another.

There are also situations that the lexical item has to be expressed along with classifier constructions. Sometimes they are individually expressed while other times they may be merged together. In example *Someone took the hammer and hits towards the glass, and as a result the glass broke into pieces* (Figure 3.12), the signer has to show the lexical item BREAK first and then follows up the classifier construction for showing us the manner how the ice broke. On the other hand, in example *The surface with a concave is mended into a flat one* (Figure 3.15), the signer merges the lexical item MEND with the classifier for the surface of the road. After the merged expression of the lexical item and classifier, the signer then immediately shows us another classifier construction in depicting the size and shape of the changed objects, that is, the flattened road.

We also discovered that when change of state of the objects is expressed through whole entity classifiers, the application of the bodypart classifier could also be added for ease of perception. The change on a certain part of the object could not be easily perceived through the whole entity classifier. In example *The airplane crashed into the house and as a result the wing of the airplane broke* (Figure 3.8), the broken wing of the airplane could be expressed by changing the size and shape of /L-I/ semantic classifier and also the cutting action on the bodypart classifier.

CHAPTER 4

THE CONSTRUL OF CHANGE OF STATES IN TSL

4.1 Introduction

In the chapter, we are going to talk about how change of states expressed through classifiers is specified cognitively. Tang and Yang (2007: 1246) has proposed that verbs involving the manner of transforming objects into a certain size and shape seem to require that the change of state to be specified explicitly. In our elected data, we ask our signers to give us the resultant states of the objects whether they are informed or not. By analyzing these resultant states, we've classified change of states based on the following different construls they have: *Whole to part, disappearance,* and *deformation*.

As for the idea *whole to part*s, we've further classified it into two categories: One is *individual to parts*, and the other is *collection to pieces*, for the later is also a concept taken from Radden and Dirven (2007). The only difference between these two mainly lies in the state before undergoing any change of state: While the former is originally an individual whole, the later is an collection composed of lots of individuals. In this part, examples applying different methods will be further discussed and compared to see how they reflect our thoughts differently.

The second idea we are going to discuss is *disappearance.* In this part, we are going to see how this idea could be embodied through the classifiers: While in some kinds of situations the changing process is presented, some don't. As for those

presented with changing process, we will also apply *manner* along with the changes onto the classifiers.

The last idea we are going to discuss is about *deformation.* In this part, we will see how the *deformation* concept is expressed through classifiers by applying different methods.

4.2 Whole to parts

The idea of *whole* could be considered either as an individual one or as a collective one. While the former refers to a single object, the later presents a set of objects gathered together as a whole one. Based on this difference, I've classified them into the two categories: One is *individual to parts*, and the other is *collection to pieces.* Both categories present the whole-to-parts concept and can be simply embodied through the following two figures:

Figure 4.1 individual to parts

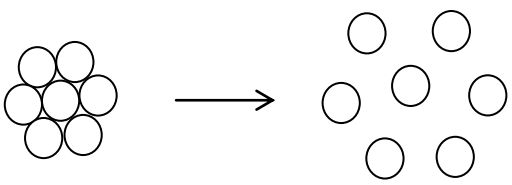


Figure 4.2 collection to pieces

4.2.1 Individual to parts

Objects belong to this category means something which is intact by itself undergoes a change and as a result becomes lots of parts. In TSL, two methods are applied for describing objects changed from an individual whole one to parts. One method is through making some changes on the original classifiers. Such a change on classifiers is usually through manipulating the four parameters composed of a sign: handshape, orientation, movement, and location. Since this is a method by directly modulating the substitutive classifier, the process that objects undergo changes could also be explicitly perceived. Thus, our perspective could be on the whole changing process, which is represented through the simplified figure below, in which the square means our viewpoint:

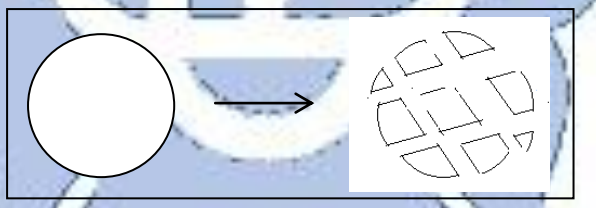


Figure 4.3 the whole changing process

Another way to show that an intact object becomes lots of parts is through the visual depiction; that is, depicting the resultant size and shape of the objects. The method applied here has a much clearer focus on the result of the objects. Expressions adopting visual depictive method show a perspective without explicitly including the changing process but showing a perspective to have a focus on the result, that is, the

resultant state of the object after the change:

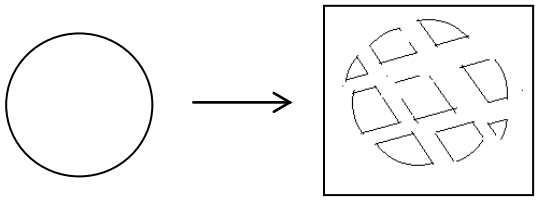


Figure 4.4 resultant descriptive

From the examples below, we are going to see how the idea of change of state is expressed by the substitutive method or the visual depiction method. Changes on objects with flat surface will be especially discussed: While one example shows the change on a piece of paper (from an intact piece to pieces), another shows the change on a chunk of beef.

(1) WHITE PAPER SHREDDER$_{CLj}$+PAPER$_{CL}$_PUT IN$_{\rightarrow j}$ SHREDDER SHREDDER$_{CLj}$+PAPER$_{CL}$_PUT IN$_{\rightarrow j}$ SHREDDER$_{CLj}$+PAPER$_{CL}$_BECOME PIECES SHREDDER$_{CLj}$+PAPER$_{CL}$_ BECOME PIECES .

'The white paper was put into the shredder, as a result the paper became pieces.'

a. WHITE PAPER

b. SHREDDER$_{CLj}$+PAPER$_{CL}$_PUT IN$_{\rightarrow j}$

c. SHREDDER

d. SHREDDER$_{CLj}$+PAPER$_{CL}$_PUT IN$_{\rightarrow j}$

e. SHREDDER$_{CLj+}$PAPER$_{CL}$_BECOME PIECES

f. SHREDDER$_{CLj+}$PAPER$_{CL}$_BECOME PIECES

Figure 4.5

In this example, both the substitutive method and visual depiction are applied for showing the paper has changed from an intact one to broken pieces. As we can see

from Figures 4.5e and 4.5f, the resultant expressions of the torn paper are presented twice from two different perspectives. The first method shows us the whole changing process through the direct modification on the paper classifier, which shows a correspondence to Figure 4.3. In Figure 4.5d, the signer moves the /Open B/ handshape standing for the paper classifier into the shredder classifier for showing us their interaction. At the same time, for showing the paper undergoes a change of state, the fingers of the /Open B/ handshape go from unspread to spread and into a /5/ handshape (Figure 4.5e). It is through the handshape change from /Open B/ to /5/ we learn that the paper changes from a whole one to parts (pieces).

The second method adopted for showing the broken paper is through the visual depiction on the paper classifiers. In my analysis, the method shows a perspective only on the resultant state. In Figure 4.5f, the signer shows us the resultative predicate in a stative-descriptive manner. This time, the change of state of the paper is presented through a visual depiction manner: While the hand representing the paper remains flat and is placed in front of the body, the other hand in /G/ handshape moves in a manner along with the fingers of the hand. This time, the signer describes in a depictive manner directly on the resultant state of the paper.

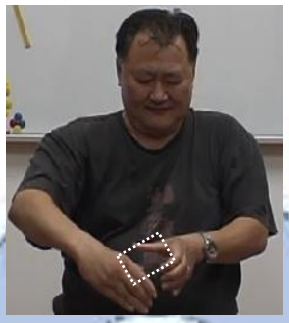
Below shows another example with a change on flat surface objects. Different from the above example, the action exerted through the instrument KNIFE below serves with a specific endpoint when it falls on the object. In other words, each cutting action falling on the flat surface is ended with a contact. It’s important to know that the contact serves as an endpoint for the action and thus the cutting action could be

repeatedly performed. In this sense, we learn that the action with an endpoint could be exerted repeatedly.

(2) COW BEEF$_{CL}$ BEEF$_{CLj}$+KNIFE$_{CL}$_CUT$_{\rightarrow j}$ BEEF$_{CLj}$+PIECES$_{CL}$.

'I cut a chunk of beef repeatedly and the beef became pieces.[11]'

a. COW



b. BEEF$_{CLj}$

c. BEEF$_{CLj}$+KNIFE$_{CL}$_CUT$_{\rightarrow j}$

d. BEEF$_{CL}$+PIECES$_{CL}$

Figure 4.6

In this example, I've shown the signer the picture that a man cut a chunk of beef and the beef became pieces. The whole event can is mainly divided into two subevents:

[11] It would be better if an explicit external argument such as *my father* could be added into the elicited data and the expression would become *My father cut the chunk of beef and as a result the beef became pieces.*

A person cut a chunk of beef (Figure 4.6c) and the chunk of beef became pieces (Figure 4.6d). In the first subevent, the signer shows us the interaction of the two participants, the knife and the beef. In the second subevent, as it is shown in Figure d, pieces of beef are depicted.

At the beginning, for expressing the interaction between the knife and the beef, the signer first signs COW. Here, even though the sign BEEF is not clearly expressed, the signer's depiction of the size and shape of the beef has informed us the existence of the beef: The signer had his both hands first in the /C/-like handshape and then palms facing each other to form a 3D rectangle in front of the body. Later in Figure 4.6c, the classifier for BEEF is changed into the /Open B/ handshape. Two reasons are proposed for such a change: One is for the convenience to express the interaction between the knife and the beef, another is for making a contrast of the two states of the beef: the former state and the later state of the object.

The first subevent of this example shows us that a person cuts a chunk of beef (Figure 4.6c). Both of the signer's hands are in /Open B/ handshape but represent the two different participants: While the hand facing downwards represents the chunk of beef, the other hand with the palm facing aside is the classifier for knife, which moves in parallel and in an up and down manner on the back of the other hand and move. Telling from the manner how the KNIFE classifier moves on BEEF classifier, we know the cutting action is performed repetitively from one side to another. It is through the repetitions of the cutting action we learn that each single movement is itself a completion when the classifier for knife falls on the other hand. In this sense,

we learn that only action with endpoint (or telic) could be repetitively presented.

Here comes the second subevent for specifically depicting the resultant state of the beef (Figure 4.6d): the slices of beef. In this subevent, the signer depicts the slices of beef. While the hand with /Open B/ handshape facing down represents the chunk of beef, the other hand with /G/ handshape moves on the other hand in a parallel way, depicting the size and shape of the slices of beef. The /G/ handshape has informed us the width of each beef slice, indicated by the distance between the thumb and index finger. At the same time, with this /G/ handshape the signer visually depicts the length of the beef slices. Since the cutting action in Figure 4.6c is not falling along the way how the fingers are juxtaposed, the signer could not show us the slices of beef by spreading the fingers into /5/ handshape. Thus, in Figure 4.6d the signer applies another hand in /G/ handshape to depict the resultant state of the sliced beef following the way that beef is cut.

In the example, the depiction about the slices of beef (Figure 4.6d) is optional information. This is mainly due to the cutting action in Figure 4.6c: The action CUT is a telic verb and alone encodes the change of states information. The beef is cut and no longer in the same size and shape as before. In this sense, a separate classifier construction for describing slices of beef could be optional information. However, a telic verb does not preclude a classifier construction about the result as it does in DSL and HKSL (Tang &Yang 2007). Thus, it is optional for the classifier construction in Figure d to be shown and without disruption in meaning. As for the example presented in shredder, *into* could also serve as an endpoint.

The following example shows us how the idea *individual to parts* could be embodied through the changes on the iceberg. Different from the above examples, the signer applies another classifier for expressing the change of state of the iceberg:

(3) ICEBERG ICEBERG$_{CL}$ ICEBERG$_{CL}$+ICE BREAK ICE PIECES OF THE ICE$_{CL}$_FALL DOWN .

'There is an iceberg. The ice of the iceberg broke and the pieces of ice fell down from the iceberg.'

a. ICEBERG b. ICEBERG$_{CL}$

c. ICEBERG$_{CL}$+ICE d. BREAK

e. ICE f. PIECES OF THE ICE$_{CL}$_ FALL DOWN

Figure 4.7

In this example, I've shown the video about a phenomenon brought by the global warming effect. While a line of people are watching the magnificent iceberg, the ice on the surface of the iceberg breaks into pieces and falls down from the iceberg into the river beneath. The causer bringing into the change onto the iceberg is not clearly told. The change of state of the ice from the iceberg is a result of the natural force. In this sense, we would like to focus our discussion on how the ice breaking from the iceberg is expressed in TSL.

The whole event can be divided into two subevents: The ice of the iceberg breaks (Figure 4.7d) and the pieces of ice fall down from the iceberg (Figures 4.7e to 4.7f). To begin with, the signer first shows us there is an ICEBERG (Figure 4.7a) and later its classifier (Figure 4.7b): He shapes his hand into the /Open B/ handshape with extended thumb, having palm facing downwards in front of his body. Then in Figure 4.7c, the signer tells us more specifically that it is the iceberg's ice he would like to mention, not the iceberg itself. Here, the repetition of the sign ICE in Figure 4.7c is important information since the size and shape classifiers for 'the ice on the iceberg'

and ‘iceberg’ are the same here. Without the additional expression in Figure 4.7c before BREAK, we may mistake the meaning as ‘The iceberg broke,’ but not ‘The ice of the iceberg broke (from the iceberg).’ Thus, it is important to give the sign ICE along with the classifier standing for the iceberg in Figure 4.7c.

Now comes to the second subevent shown in Figure 4.7f. For expressing the changing of the ice from the iceberg, the classifiers standing for the ice on the iceberg in the first subevent are changed: The classifier changes from a hand with four unspread fingers with extended thumb to /5/ handshape in both hands, with palms facing outward and moving down at the same time. Here, both hands in /5/ handshape are placed in parallel as the surface for pieces of ice. Immediately, both hands in /5/ handshape move downwards as if pieces of ice on the iceberg fall down.

For objects with wide surface, the signer shows us the same individual to parts idea by greatly applying the change on the palm orientation of the substitutive classifier. The wide surface is oftentimes shown through two hands connected side by side or fingers by fingers. For expressing the idea that the wide surface undergoes change of state, the signer usually expresses the changes by separating the connected boundary of both hands. However, it doesn’t necessarily mean that the object falls into *two* parts. Let’s take a look of the example: The surface of the ice within ice rink breaks. The resultant state of the changed surface is expressed through two ways: One is changing the classifier to represent the size and shape of the hole (Figure 4.7f) while another is separating the connected part of both hands along with the movement. Let’s check the following example for detailed information.

(4) GIRL ICE SKATING ICE THE SURFACE OF THE ICE_{CL}+$GIRL_{CL}$_JUMP UP THE SURFACE OF THE ICE_{CL} $HOLE_{CL}$+$GIRL_{CL}$_FALL DOWN THE SURFACE OF THE ICE_{CL}_CRASH DOWN .

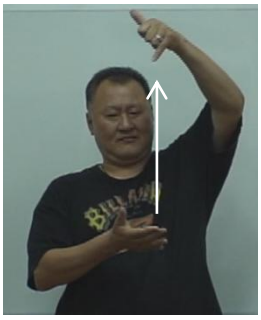
'The girl iceskated and jumped up on the ice rink. When she fell down, the surface of the ice broke into a hole and the surface crashed down.'

a. GIRL

b. ICE SKATING

c. ICE

d. THE SURFACE OF THE ICE



e. THE SURFACE OF THE ICE_{CL}+$GIRL_{CL}$_JUMP UP

f. $HOLE_{CL}$+$GIRL_{CL}$_FALL DOWN

g. THE SURFACE OF THE ICE_{CL}_CRASH DOWN

Figure 4.8

In this example, I've presented a sentence that a girl was ice skating and jumped high on the ice rink. When she fell down on the surface of the ice, the surface of the ice broke into a hole from the place where she fell. The whole event expressed by the

signer is divided into four subevents.

The four subevents are listed as follows: A girl was ice skating (Figures 4.8a-4.8b). She then jumped high on the surface of the ice (Figure 4.8e). While she fell down, the surface of the ice broke into a hole (Figure 4.8f). The surface of the ice rink broke (Figure 4.8g). From the beginning to the second subevent (Figures 4.8a to 4.8e), the signer shows us the different interactions of the two participants: The girl iceskated and jumped high on the surface of the ice rink. In the third subevent (Figure 4.8f), the signer shows us that while the girl fell down onto the surface of the ice, the surface broke into a hole. Later in the fourth subevent (Figure 4.8g), the change in terms of the ice surface is again expressed through separating the connected parts of both hands and moving the palms from facing down to sideward.

In the first and second subevents, the signer shows us that the girl ice skates and jumps high above the ice rink surface. In this example, the signer didn't show us the sign ICE RINK. After the sign ICE follows up, the signer in Figure 4.8d then immediately depicted the surface domain of the ice rink in a circular manner through applying the handshape /Open B/. It is through the depiction we know the /Open B/ handshape in the second subevent (Figure 4.8e) interacting with the /Y/ classifier represents the classifier for the surface of the ice rink.

Here comes the third subevent. In Figure 4.8f, the signer shows us that while the girl fell down, the ice surface broke into a hole. The interaction between the girl and the surface of the ice is by showing one hand in /Y/ handshape as the classifier representing the girl moving down right into another hand, which is in /C/ handshape

representing the hole on the surface of the ice. As we can see from Figures 4.8e to 4.8f, the classifier for the surface of the ice changes from /Open B/ handshape to /C/. Through the handshape change, we know the surface where the girl fell is changed into a hole as she fell down.

Later in the fourth subevent (Figure 4.8g), the signer shows us the change in terms of the surface of the ice after the girl fell down: The surface of the ice broke. Here, the wide surface of the ice is represented by both hands in /Open B/ handshape, touching each other on their fingertips and having palms facing downwards. Later, for expressing the ice surface tore apart and crashed down, the signer then separates the two connected /Open B/ handshapes by moving downward and then palms facing toward the two sides. However, such a moving apart manner doesn't necessarily take the meaning that the surface of the ice breaks into *two* parts.

4.2.2 Summary

In this part, we've tried to express how the *individual to parts* idea is expressed through classifiers: When the idea is expressed through one hand, the signer could direct modulate the handshape. In example *The white paper was put into the shredder, as a result the paper became pieces* (Figure 4.5), the classifier for expressing the piece of white paper becoming pieces is by separating the fingers apart. When classifiers are represented through two hands, the change could be expressed through separating the connected part of both hands. In this section we also know that different methods applied for specifying change of states show us different perspectives are taken: either

the whole changing process or the resultant state only.

4.2.3 Collection to pieces

Objects belong to this category means a set of objects change from a gathered state to a scattered one. Figures 4.9 and 4.10 present the two perspectives describing how objects changed into scattered states are shown: Both perspectives change the relative positions of the classifiers. Yet, there are still some differences. While Figure 4.9 may only show the change on the relative positions of *some* classifiers to represent the whole picture, Figure 4.10 also applies the handshape change to show us how the object changed from one state to another. Such a position change of the classifiers has informed us that the set of objects have undergone a change from a gathered state to a scattered one.

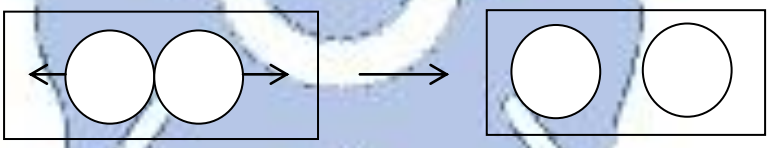


Figure 4.9 Modulating the relative positions of the two representative objects

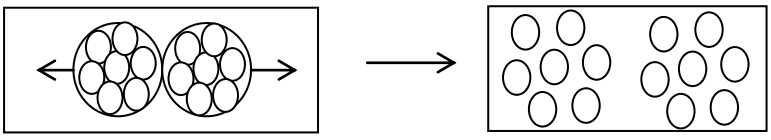


Figure 4.10 Making a handshape change to represent the whole objects

4.2.4 Changing the relative position of the substitutive classifiers

Objects changed from a collective form to pieces could be perceived through a change on both hands' relative position. In the following example, it is through the location change on the substitutive objects (classifiers) we learn that the lego blocks no longer remains in the same collective form:

(5) CHILD PLAY USE WOOD WOOD BLOCKS$_{CLj}$_PILE UP

WOOD BLOCK$_{CLj}$+BALL$_{CL}$_HIT$_{\rightarrow j}$ WOOD BLOCK$_{CLj}$_CRASH DOWN .

'A child played wood blocks. A ball hit the wood blocks and as a result the wood blocks crashed down.'

a. CHILD

b. PLAY

c. USE

d. WOOD

e. WOOD BLOCKS$_{CLj}$_PILE UP

f. WOOD BLOCKS$_{CLj}$+ BALL$_{CL}$_HIT$_{\rightarrow j}$

g. WOOD BLOCKS$_{CLj}$_CRASH DOWN

Figure 4.11

In this example, I've shown the signer with the sentence that a ball was thrown and hit the constructed wood blocks. As a result, the built-up wood blocks crash down. At the beginning of this sentence, the signer shows us that it is the child who played the wood blocks. Thus, the whole event could be divided into three subevents: A child played the wood blocks (Figures 4.11a to 4.11e), a ball hit the wood blocks (Figure 4.11f), and the piled-up wood blocks fell down (Figure 4.11g).

After showing us the participants (CHILD and WOOD) involving in this example, the signer begins to show us the interaction between the ball and the wood blocks: The ball hit on the wood blocks (Figure 4.11f). While the hand in /Flat O/

handshape represents the wood block, the other hand in /O/ handshape standing for the ball moved toward it as if the ball hits on the wood blocks.

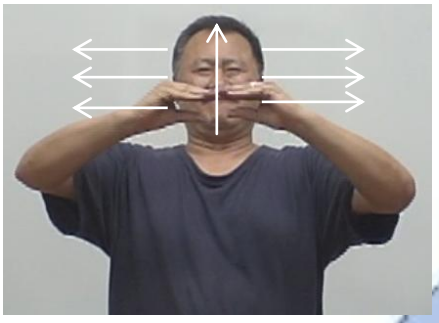
Later in the next subevent, the signer then shows us how the piled-up wood blocks crash down (Figure 4.11g): The piled-up wood blocks fell. In Figure 4.11g, the signer has both of his hands in /Flat O/-like handshape, stacking both hands one after another for representing the constructed wood blocks. Later, for expressing the crashing down of the wood blocks, the signer then moves the relative position of his both hands: The position of his both hands moves downward, changing from an overlapped one to a separated one for showing that the piled-up wood blocks crash down and scatter over the space. Here, the picture of the overlapped /Flat O/ handshape portrays the overall shape and height of the piled-up building. Later, the signer shows us the destructive idea by moving the stacked-up /Flat O/ handshape in a downward manner and changing his palm orientation from facing downward to facing sideward. Here, the signer shows us the crashing down of the wood blocks without applying the handshape change. Instead, the change of the whole picture of the constructed building is portrayed through changing their relative position downwards and also the palm orientation of the building blocks.

Following the example shown above, here, the changing state that objects going from a collection to pieces could also be expressed through another method. Through the following expression, we could also know that the collected building fell into pieces:

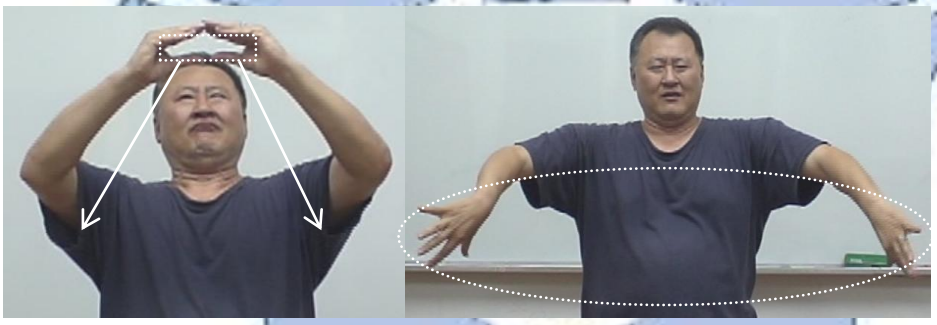
(6) WOOD BLOCKS$_{CL}$ WOOD BLOCK$_{CL}$_CRASH DOWN .

(handshape changed from /Bent C/ to /5/)

‘(A child played wood blocks. A ball hit the wood blocks and as a result) the wood blocks crashed down’



a. WOOD BLOCKS$_{CL}$



b. WOOD BLOCKS$_{CL}$_CRASH DOWN

Figure 4.12

Here, another cognitive idea for expressing the crashing down of the constructed wood blocks is shown. In Figure 4.12a, the signer first depicts stacks of blocks by drawing them from bottom to top. Both of the signer’s hands are in /C/ handshape, drawing from the center to the two sides and at the same time moving in an upward manner. The constructed wood blocks are shown through signers’ both hands in /Bent

C/ handshape and placed in a parallel position: Fingertips of one hand touch those of another hand to form a rectangular shape (Figure 4.12b). The expression tells us that every wood block is closely and firmly placed one to another and thus forms a rectangular building. Later, both hands move in a downward manner and at the same time the handshape changes from /Bent C/ to /5/ (Figure 4.12b). This handshape change and movement have told us that the constructed wood blocks crash down from a collected and solid building to pieces of wood blocks. Also, the fingers changed from /Bent C/ to /5/ informed us that the wood blocks are first formed at one place and then later shatter and scatter down onto a certain broad surface. The expression of the crashing down building is shown differently from that in Figure 4.12g: While Figure 4.12g portrayed the crashing down of the constructed blocks by changing the relative position of the two representative building blocks, Figure 4.12b takes the constructed building blocks as a collected one and then scatter in pieces.

4.3 Disappearance

In this part, we are going to see how the idea of *disappearance* is presented in TSL. One of the very important points is to see how the changing process is exhibited and embodied on the classifiers. In TSL, the differences in terms of showing the changing process could be explicitly observed through the handshape presentation.

First, objects showing *disappearance* with changing process are embodied through a handshape change for showing the whole changing process, as you can see from the schema shown in Figure 4.13. Handshape taking steps to change from one

state to another informs us that the event takes a certain duration to complete into a telic bounded event. It usually consists of a series of cumulative phases leading to a conclusive end-point. In Figure 4.14, the changing manner such as *fast* and *slow* could also be embodied through the handshape change on the classifier representing the water level:

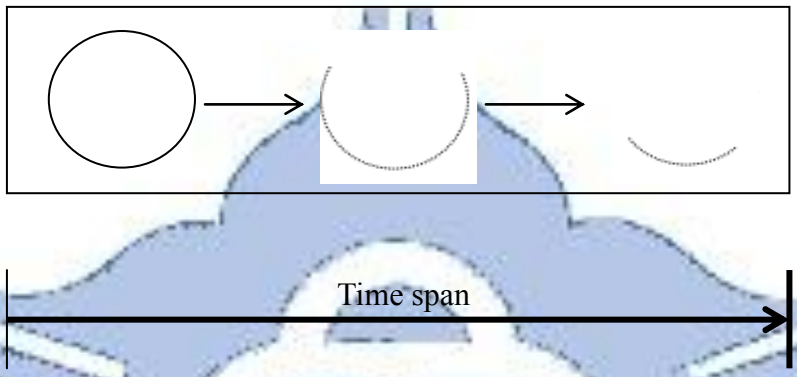


Figure 4.13 Disappearance (with process)

(7) TEA DRINK CUP_{CL}+WATER $LEVEL_{CL}$_ LOWER DOWN (FAST)/

CUP_{CL}+WATER $LEVEL_{CL}$_ LOWER DOWN (SLOW).

'Someone drank the tea and the water level of the tea dropped slowly/ fast.[12]'

a. TEA

b. DRINK

[12] In this signing example, the person drinking the water is considered default information.

c. CUP_{CL}+WATER $LEVEL_{CL}$_LOWER DOWN (FAST)

d. CUP_{CL}+WATER $LEVEL_{CL}$_LOWER DOWN (SLOW)

Figure 4.14

The examples above were elicited by showing the signer the two concepts: One is *Ta da kou da kou de he cha* (He big mouth big mouth drink tea) 'He guzzled the tea' while another one is *Ta xiau kou ciau kou de he cha* (He small mouth small mouth drink tea) 'He sipped the water.' The difference of the Chinese expressions lies in the drinking manner, which in TSL is presented through the depiction of the decreasing tea level in different speed and handshapes. The whole event will be analyzed based on its sign expression, which is divided into the following two subevents: Someone drank the tea (Figures 4.14a to 4.14b) and as a result the water level of the tea dropped fast/ slowly (Figures 4.14c and 4.14d).

In the first subevent, as we can see from Figures 4.14a and 4.14b, the signer first gives us the sign TEA and DRINK. The sign DRINK has already informed us the causing event that someone is drinking the tea. Later, the second subevent immediately follows up, showing us the changing state of the water: The water level of the tea drops in a fast/ slow way. Later we are going to see how the decrease of the water level is reflected through the resultant classifier constructions, which are presented in Figure 4.14c and Figure 4.14d.

In Figure 4.14c, the signer tries to show us that the water level of the tea dropped in a fast way. While one hand of the signer in /C/ handshape represents the classifier for CUP, the other hand of the signer changes from /Open B/ to /Flat O/ handshape by shortening the length between the thumb and four unspread fingers and at the same time moving on the side of the CUP classifier. In Figure 4.14d, in the signer's expression *The water level dropped slowly*, the signer changes his hand from /Bent-L/ into /G/ handshape in a slow way, also drawing close the length of the thumb and index finger and at the same time moving downwards on the side of the cup classifier.

Both resultant expressions show how the water level of the tea is lowered in a different speed and also through different classifier representations. Here, in TSL, the referent's drinking speed is reflected through the lowering speed of the water level. In Figure 4.14c, the surface of the water level, which is represented by the four unspread fingers, stands out as the marker for informing us the focus is on the water level. This could be obviously perceived through the surface of the water level. In Figure 4.14d, the signer changes his flat surface handshape into single finger, especially focusing on

the degree of the lowering water level of the tea— little by little and in a slow way. It seems that the slow lowering of the water level is easier perceived from a degree perspective. In this sense, the single finger seems to move in a slow way along the degree marker of the cup.

The above example has proved us two things: One is in Chinese the drinking manner could be expressed through the classifier change on its resultant construction. In Chinese *da kou da kou* 'guzzle' or *xiao kou xiao kou* 'sip' could be expressed through the classifier change for depicting the water level. The second is that the disappearance of the water could be evidently represented through the decreasing water level. Telling from these two examples, we can tell how decreasing manner of the water could be expressed through classifiers.

The examples below are going to show you how the changing balloons are expressed on classifiers. In Figure 4.18, the changing process of the deflating balloon could be clearly observed through the handshape change in Figure 4.18e:

(8) FATHER BLOW $BALLOON_{CLj}$+$BLOW_{\rightarrow j}$ BALLOON (AIR^BALL) $BALLOON_{CL}$_DEFLATE .

'Father blew a balloon. The balloon deflated.'

a. FATHER

b. BLOW

c. $BALLOON_{CLj}$+$BLOW_{\rightarrow j}$

d. BALLOON (AIR^BALL)

e. BALLOON$_{CL}$_DEFLATE (with one hand)

Figure 4.15

In this example, I've shown the signer with the sentence that father blew a balloon. Later, the balloon deflates. The whole event can be divided into two subevents: Father blew a balloon (Figures 4.15a to 4.15d) and the balloon deflates (Figure 4.15e).

To begin with, the signer shows us the first subevent: Father blew a balloon. First, he signs FATHER and BLOW. Later in Figure 4.15c, the signer curls his both hands into /Bent 5/ like handshape: All fingers curl and place in front of the mouth to represent the balloon and at the same time the signer blows it as if the air goes from the mouth and then into it. Later in Figure 4.15d, the signer shows us more

specifically the aforementioned classifier through the sign BALLOON.

In Figure 4.15e, we come to the resultant subevent: The balloon deflates. There are two expressions for showing the deflating balloon. The first one is shown in Figure 4.15e. Here, the signer first has one of his hands in /Bent 5/ handshape with the palm facing upwards for representing the balloon. Later, the balloon classifier changes into /Flat O/ handshape by holding up his four fingers with the thumb and at the same time the whole handshape moves downwards. The deflation of the balloon is shown through drawing the fingertips closely together and into a flat handshape. The handshape change from /Bent 5/ to /Flat O/ indirectly tells us that the air within the balloon goes out and is shown through the change of size and shape of the balloon.

The deflating balloon could also be expressed through both hands as the following figure shows. Here, the signer changes the handshape of his *both* hands from /Bent 5/ to /Flat O/ at the same time. The expressions for describing the deflating balloon could be various; however, the cognitive concept changing from a well-rounded shape to a flat one could be similarly embodied through the following handshape change.

(9) $BALLOON_{CL}$_DEFLATE (with both hands).

'(Father blew a balloon.) The balloon deflated.'

$BALLOON_{CL}$_DEFLATE (with both hands)

Figure 4.16

The second way to show objects' *disappearance* is through directly presenting the result. In this sense, it would be preferable to present the changing idea through applying a lexical item, instead of embodying through the handshape change—little by little. This kind of changing usually shows the focus on the punctual moment of the event's termination. Thus, no explicit changing process could be discovered here, as you can see from Figure 4.17. Only the ending point is presented. The temporal changing process is all neglected to be expressed. Oftentimes, the resultant part is expressed through a lexical item and the example can be seen from the Figure 4.17:

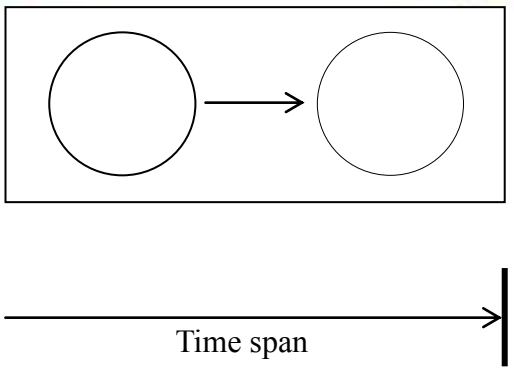


Figure 4.17 Disappearance (without process)

Here's another example with the balloon as the affected object: *Somebody blew the balloon, and the balloon became bigger and bigger, and as a result the balloon broke/ popped.* The changing process that the balloon goes from a small one to a big one could be perceived through the handshape change. Without the changing process to be expressed, the popping moment could still be expressed through the handshape chagne. The resultant event is expressed through drawing apart the distance of the fingertips: The drawing-to-one-point fingertips are open, showing us in a way as if the air is no longer gathered in one place but released out in a strong way, following the direction of the fingertips and the face of the palm. Let's take a look at the example.

(10) HE BALLOON BALLOON$_{CL}$+BLOW

BLOW+BALLOON$_{CL}$_BECOME BIGGER BALLOON$_{CL}$+POP .

'Somebody blew the balloon, and the balloon became bigger and bigger, and as a result the balloon popped.'

a. HE b. AIR c. BALLOON$_{CL}$+BLOW

d. BLOW+BALLOON$_{CL}$_BECOME BIGGER

e. BALLOON$_{CL}$+POP

Figure 4.18

In this example, the comic strip that a man blew a balloon is shown. The balloon is getting bigger and finally the balloon broke. The whole event is divided into three subevents: A man blows the balloon (Figures 4.18a to 4.18c), the balloon is getting bigger (Figure 4.18d), and the balloon pops (Figure 4.18e). The analysis about the changing state of the balloon starts from Figure 4.18d.

After the signer shows us the first subevent that a man blows the balloon (Figures 4.18a to 4.18c), the signer then shows us the second subevent: The balloon gets bigger and bigger (Figure 4.18d). The signer has the /GUO/ handshape on both of her hands changed into a /Bent 5/ handshape. This handshape changes as if the

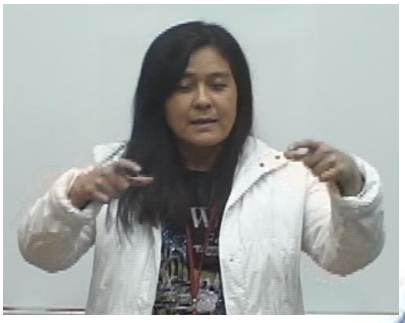
handshape itself is a container and something slowly fills into it and as a result the length in between the fingertips is getting wider. We can clearly tell from the handhshape change that the balloon represented by the hands is getting bigger.

In Figure 4.18e, we then come to the changing subevent as the third part of the whole event: The balloon popped. Here, for showing that the balloon changes from an intact one to a broken one, the signer again changes her handshape. However, this time the handshape changes occured here is different from that in Figure 4.18d: While in Figure 4.18d the handshapes show us the changing size and shape of the balloon, in Figure 4.18e the signer shows us the instant change of the balloon: At first the air is gathered in one place. Later, due to the overloading of the air in the balloon, the balloon popped and the air released out as the direction of the fingers and palm goes. The direction of the palm and fingertips also informs us how the air goes.

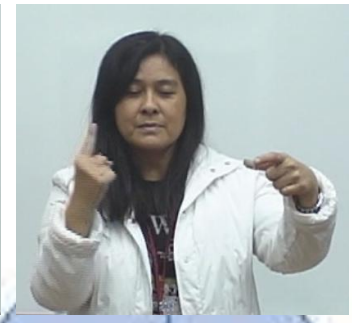
In Chapter 3, we've all seen how the disappearance of the candlelight could be presented through an independent lexical item SNUFF OUT (Figure 3.15) or the merging expression of the lexical item and classifier construction (Figure 3.15). Below shows the other pairs of example that we would like to test: To see how the changing process of the fire on the lit candle could be expressed. Thus, we ask the signer to give us the signing on the following expression: *The fire on the candle flickers*.

(11) CAKE CAKE$_{CL}$+A CIRCLE OF CANDLES$_{CL}$ CANDLE CAKE$_{j}$+BLOW$_{\rightarrow j}$ CANDLE LITTLE BROTHER FLICKERING FIRE .

'There were a circle of candles on the cake. A little brother blew on it and as a result candlelight flickered.'



a. CAKE



b. CAKE$_{CL}$+A CIRCLE OF CANDLES

c. CANDLE

d. CAKE$_{j}$+BLOW$_{\rightarrow j}$

e. CANDLE

f. LITTLE BROTHER

g. FLICKERING FIRE

Figure 4.19

In this example, the signer's expression of the whole event could be divided into the two subevents: The little brother blew the fire of the candles (which are arranged in a circular way along the cake) (Figures 4.19a to 4.19d) and how the fire on the candlesticks flickers (Figures 4.19e 4.19g). From Figures 4.19a to Figure 4.19c, the signer first shows us the existence of the cake and also the circle of candles on it. Later in Figure 4.19d, the signer presents the event that she is the participant interacting with the cake: blowing on the cake. The signer shows us that it is the candle that she is blowing and it is the little brother doing the blowing action.

Later in the second subevent, the signer shows us how the fire of the candles flickers due to the wind blow (Figure 4.19g). As we can see from Figure 3.15 the sign SNUFF OUT, in Figure 4.19g the signer makes a modulation on the sign SNUFF OUT for showing the fire of the candles flicker: The signer changes the length in between the four fingers and the thumb from a longer one to a shorter one, back and forth for several times. It's interesting that the repetition on the modulation of the sign SNUFF OUT could be taken as the flickering fire. In this sense, it seems that the changing

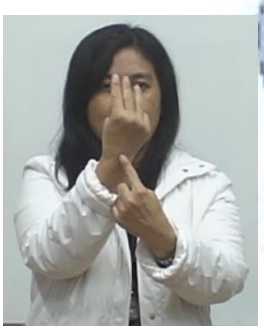
process that the fire on the verge of being snuffed out could also be expressed. The following example also shows us another way to present the flickering fire:

(12) CAKE CAKE$_{CL}$+A CIRCLE OF CANDLES$_{CL}$ CANDLE LITTLE BROTHER CAKE$_{j}$+BLOW$_{\rightarrow j}$ CANDLE CANDLE$_{CL}$+FIRE FLICKERS .

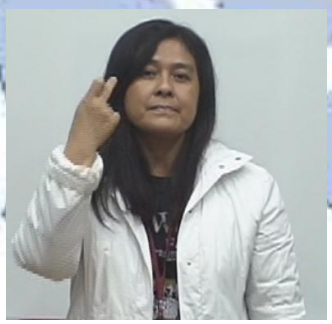
'There were a circle of candles on the cake. A little brother blew on it and as a result candlelight flickered.'

a. CAKE

b. CAKE$_{CL}$+A CIRCLE OF CANDLES$_{CL}$



c. CANDLE



d. LITTLE BROTHER

e. CAKE$_{j}$+BLOW$_{\rightarrow j}$

f. CANDLE g. $CANDLE_{CL}$+FIRE FLICKERS

Figure 4.20

In this example, the signer shows us another way for referring to the flicking candlelight. In Figure 4.20g, while one of the signer's hand is in /1/ handshape representing the classifier for the candle, the other hand with extended index finger and thumb facing each other draws together and apart upon the fingertip of the /1/ classifier— back and forth for several times. In this way, the signer depicts the manner how the candlelight flickers.

4.4 Deformation

The idea of deformation means that objects undergoing the change have an explicit change on their presented form. This may result in a change on its size and shape. In TSL, several methods are applied for expressing the deformation change. First, the signer may slightly modulate the handshape of the classifiers. The handshape doesn't change to another totally different handshapes; instead, only a slight modulation occurs to the original handshape. Such a method is oftentimes applied to the whole entity classifier, for the entity itself is iconic to the object and

also, the whole process could be discerned through the handshape change. This can be seen from Figure 4.21, in which we can see that only part of the classifier is changed.

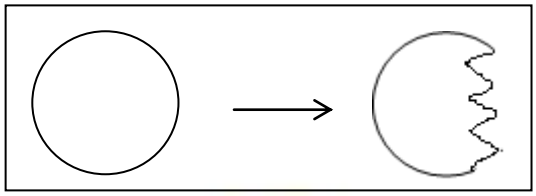


Figure 4.21 Deformation of the car (a)

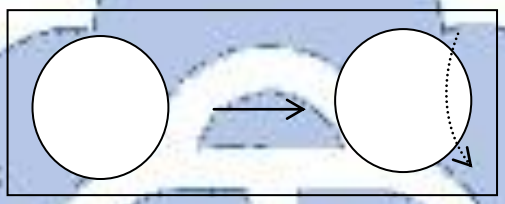


Figure 4.22 Deformation of the tree (b)

Second, deformation could also be expressed through a depictive manner. Due to the physical constraints, the deformation of objects could not be expressed through the adoption of a direct modulation on handshape. Instead, a depictive method is applied. Thus, under this case, it is through the visual depiction manner that the resultant part of the whole event is expressed.

(13) DRIVE CAR $TREE_{CLj+}CAR_{CL}$_RUN INTO$_{\rightarrow j}$

$TREE_{CLj}$+CAR_{CL}_BECOME DENTED$_{\rightarrow j}$ $TREE_{CL}$_BECOME DENTED .

'The car ran into the tree. As a result, the car became dented and also the tree became dented.'

a. DRIVE

b. CAR

c. $TREE_{CLj+}CAR_{CL}$_RUN INTO$_{\rightarrow j}$

d. $TREE_{CLj}$+CAR_{CL}_BECOME DENTED$_{\rightarrow j}$

e. $TREE_{CL}$_BECOME DENTED

Figure 4.23

In this example, I've shown the signer the concept that a car ran into the trunk and as a result the trunk became dented. The whole event can be divided into three subevents: The car ran into the tree (Figures 4.23a to 4.23c), the car became dented (Figure 4.23d) and the trunk became dented. (Figure 4.23e).

To begin with, the signer shows us that someone driving a car ran into the tree (Figures 4.23a to 4.23c) and as a result the car became dented (Figure 4.23d). The signer first signs DRIVE and CAR and the interaction between them, which can be seen from Figure c: While the hand with erected arm represents the tree classifier, the other hand with /C/ handshape representing the car classifier moves toward it, as if a car runs toward the tree. Then in Figure 4.23d, the signer shows us the dented car by changing the front part of the /C/ handshape, which is taken as the car classifier: The signer curls his fingers as if the front part of the car became dented because the car ran into the tree.

Later in Figure 4.23e, the signer shows us the second subevent: The tree became dented and the tree changed from a straight one to a dented one. Different from the method applied to a dented car, the signer shows the form change of the trunk through the visual depiction method on the arm. The method applied here is mainly due to the physical constraint in terms of the expression. For depicting the trunk becomes dented, the signer moves the hand in /B/ handhshape downwards and in a curved manner, across the inner part of the erected arm, the place where the car classifier meets. The /B/ handshape moves as if there is a dent on the part of the tree, which results from the running-into car. It is through the classifier presented in Figure 4.23e we learn that the

tree became dented.

In the next example, I've shown the signer the concept that someone took a wood rod and rolled the dough. As a result, the dough became flat. The whole event can be divided into three subevents: Someone with the wood rod rolled on the dough (Figures 4.24a to 4.24d), the dough became flat (Figure 4.24e) and the flattened dough became thin and wide in surface (Figure 4.24f).

(14) DOUGH WOOD ROD ROLL $DOUGH_{CLj}$+WOOD ROD_{CLi}_ROLL→i ON j $DOUGH_{CLj}$_BECOME FLAT $DOUGH_{CLj}$_ BECOME WIDE .

'There was dough. Someone took a wood rod and rolled the dough. As a result, the dough became flat.'

a. DOUGH

b. WOOD ROD

c. ROLL

d. DOUGH$_{CLj}$+WOOD ROD$_{CLi}$_ROLL$_{\rightarrow}$i ON j

e. DOUGH$_{CLj}$_BECOME FLAT

f. DOUGH$_{CLj}$_ BECOME WIDE

Figure 4.24

In the first subevent, the signer shows us the specific manner that a person is rolling the dough. In Figures 4.24a and 4.24b, the signer first shows us there are dough and a wood rod. Immediately in Figure 4.24c, the signer shows us the manner how he rolled on the dough: He has his both hands in /O/ handshape as if the rod is in his hand. At the same time, through his movement, he also shows us that he is manipulating and twisting the rod. Later in Figure 4.24d, the signer shows us his interaction between the dough and the wood rod: The wood rod rolled over on the dough. While the hand with /Bent B/ handshape in front of the signer's body is taken as the dough classifier, the other hand with /S/ handshape representing the wood rod

moves back and forth on the other hand representing the dough.

Now comes to the resultant events, which is classified into two parts: The dough became flat (Figure 4.24e) and then the dough became thin and wide (Figure 4.24f). In Figure e, the signer shows us how the dough changes from the rounded shape into a flat one. The signer has his both hands in /Open B/ handshape, having palms facing each other and extending the thumbs out so the whole handshape could slightly form the rounded shape of dough (as the dotted line formed). For expressing the dough changed from a rounded one to a flat one, the signer changes his both hands to /Bent C/ handshape as the flattened dough.

Later in Figure 4.24f, the signer shows the third subevent: The flattened dough became a thin one. The signer then moves his both hands in /Bent C/ handshape, pulling in a parallel way but in an opposite direction. It is through the opposite drawing direction we learn that the flattened dough became a wide surface.

4.5 Summary

Examples presented above all show us the conditions that the change of state has to be specified explicitly, especially when under the conditions about informing the size and shape change of the objects. In this chapter, I've classified these changes into different types according to the different construl they belong to: *whole to parts, disappearance,* and *deformation.*

Change of states could be specified through applying different methods. The most frequent applied method is through modulating the four parameters forming a

sign on a substitutive classifier: handshape, orientation, location, and movement. Sometimes a visual depiction method will also be applied on a substitutive classifier. This method is especially applied when the *deformation* concept occurs to the affected theme and is hardly expressed through modulating any of the parameters forming a sign.

As for the change of state from *whole to parts*, we further divide it into two parts: *individual to parts* and *collection to pieces*. When in terms of the state before undergoing any changes, the former shows us the affected object as an individual whole one while the later is a collective mass. As for *individual to parts*, the signer greatly modulates the length between finger and finger for showing that the object goes from one state to another. For the object with wider surface, the signer would prefer to separate the wide surface into a smaller one by separating the connected parts of two hands. In this section, we will also know that different methods for specifying change of states show us different perspectives are taken: While a direct modulation on the hand configuration is adopted for depicting the whole changing process, the depictive method only shows us the resultant state.

As for the idea *collection to pieces*, the signer also applied the method shown above by lengthening the distance of the fingers. Furthermore, the signer applies the method by changing the relative positions of the two hands. In this sense, we are informed that they are no longer in a collective whole.

The second idea we talked about is *disappearance.* In this part, we especially talk about the presentation of the changing process: While some could be expressed

through the classifiers, others may not. Here, we've tested on some of the ambiguous phenomena through applying the parameter— *manner*— into the expressions. For examples, we give out our tests on liquid within water and lit candle. In example *Ta dakou dakou de he chia* 'He guzzled the tea,' the drinking manner is instead expressed through the classifier change for depicting the water level as the resultant construction. Through gathering all these expressions sharing the same *disappearance* idea, we observe that for examples with durational changing process, the speed of the changing process could be perceived through the resultant classifier construction. For those happened in an instant and without the expression of the changing process, the change of states of the object could still be perceived through the handshape change.

The last one we talked about is *deformation*. While some may directly modulate the size and shape of the object, others apply the visual depiction method. In this section, we learn that physical constraints could also result in the application of different strategies.

Chapter 5

CONCLUSION

Classifiers play a good role in terms of presenting the change of states in TSL. In sign languages, the information given by lexical items could be presented as 'vague' as those in spoken languages (Van Voorst 1995). However, expressions with classifiers could show the different stages of the affected objects. In this paper, we have talked about how lexical items and classifiers are collaborated together to show the change of states. Also, we check to see how the changing process could be expressed through different methods, which shows a correspondence to the categorization reorganized by Sutton-Spence and Woll (1999) into four categories: *substitutive depiction, visual depiction, presentable action,* and *presentable objects.*

In Chapter 2, we give out our definition on change of states and also the difference between sign and spoken languages. In Chinese, several ways are adopted for denoting the occurrence of the change of states. For example, an aspect marker *le,* Chinese resultative verb constructions (RVCs) and also *Ba*-construction all involve the COS concept. In English, Levin (1993) even classified change of state verbs into five groups.

When change of states are expressed in TSL, classifiers' anaphoric function is greatly applied for showing us how objects are changed from one state to another in the context or discourse. In Chapter 3, several constructions are introduced to express change of states. The easiest way is through the application of the lexical items.

However, applying lexical items only tells us the result but without specifying the action/ manner, the changing process, and the object's resultant state. Thus, expressions through the classifier constructions could specify more information about how object changes from one state to another. In this chapter, we've tried to present and to see how the expression through lexical item and classifier construction could be applied together to show the action/ manner and the changing process.

Aside from the application of the lexical items, the constructions in terms of the change of state expressions could be achieved through: (a) classifier predicates, (b) both a lexical item and a classifier predicate, (c) merging a lexical item and a classifier predicate. The generalization we got from our data shows that even though the lexical item is an easier expression, the change of states is preferred to be expressed through classifier constructions, as in the example *He listened to the music and the (loud) music was so noisy. As a result, the surface of the eardrum broke* (Figure 3.6). There are also cases that the changing state could only be embodied through the classifier, as in the example *A chicken egg fell onto the floor and then broke* (Figure 3.3). Through these two examples, we observe that the classifier predicate plays a better role in terms of specifying the manner and even the changing process how an object is changed from one to another.

We also discovered that when the affected object is expressed through whole entity classifiers, the application of the bodypart classifier could also be added for the ease of perception. The change on a certain part of the object could not be easily perceived through the change on the whole entity classifier. In example *The airplane*

crashed into the house and as a result the wing of the airplane broke (Figure 3.8), the broken wing of the airplane could be expressed by changing the size and shape of /L-I/ whole entity classifier and also drawing the cutting action on the bodypart classifier.

There are also situations that the lexical item has to be expressed along with classifier constructions. Sometimes they are separately expressed while other times they may be merged together with the classifiers. In example *Someone took the hammer and hit towards the glass, and as a result the glass broke into pieces* (Figure 3.4), the signer has to show us the lexical item BREAK first and then follows up the classifier construction for showing us the manner how the ice broke. On the other hand, in example *The surface with a concave is mended into a flat one* (Figure 3.15), the signer merges the lexical item LACK and MEND with the road classifier. After the merged expression of the lexical item and classifier, the signer then immediately shows us another classifier construction in depicting the size and shape of the changed objects, that is, the concaved road and mending-flat road. Summing up from the above two situations, we observe that even though the lexical item has already informed us a change has occurred to the object, the stative description of the result is still important to carry the rest information.

In Chapter 4, we try to present how the change of states is specified cognitively. Here, I've classified these changes into different types according to the different cognitive ideas they belong to: *whole to parts, disappearance,* and *deformation.*

Two methods are especially discussed for expressing change of states. One is through the direct modulation on the four parameters forming a sign. Another is the

application of the visual depiction method, which is sometimes applied along with a substitutive classifier. The later method is especially applied when a *deformation* occurs to the affected theme and is hardly expressed through direct modulation of the classifiers. These two methods also fit to Mandel's research about the four methods for a sign to be formed: one if visual depiction and another is substitutive depiction (1977).

The first cognitive changing idea is *whole to parts*, which could further be divided into two parts: *individual to parts* and *collection to pieces.* When in terms of the state before undergoing any changes, the former shows us the affected object as an individual whole one while the later is a collective mass. Both changes could be expressed through modulating the length between finger and finger for showing that the object goes from one state to another. The idea *collection to pieces* could even apply the method by changing the relative positions of the two hands to show us their change.

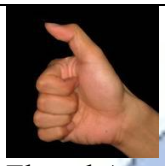
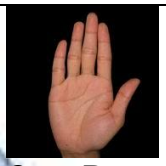
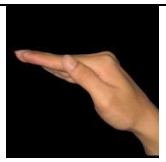
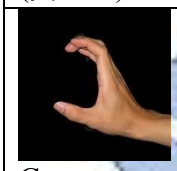
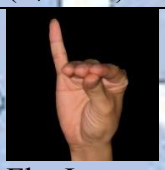
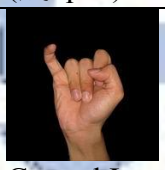
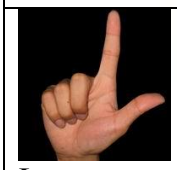
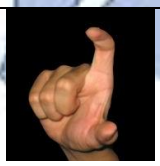
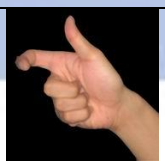
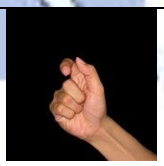
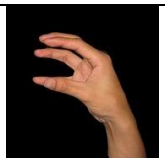
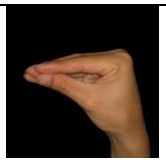
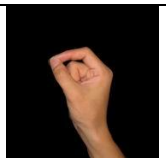
The second cognitive change we talked about is *disappearance.* Through examples presented with the *disappearance* concept, we learn that manners could be expressed through the resultant classifier constructions. For examples, we give out our tests on liquid within water and lit candle. In the example *Ta dakou dakou de he cha* 'He guzzled the tea,' the drinking manner is expressed through the change on the water level classifier. Thus, we infer that for those examples with durational changing process, the speed of the changing process could be perceived through the resultant classifier construction.

In this part, we also try to find out the change of states expression with objects happening in an instant way without the changing process to be expressed. For these examples, the change of state of the object could still be perceived through the handshape change, as the example *The balloon popped* (Figure 4.18) shows. The last one we talked about is *deformation*. While some may directly modulate the size and shape of the object, others apply the visual depiction method. From this section, we observe that physical constraints could also result in the application of the different strategies.

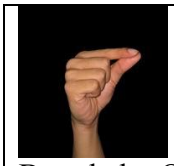
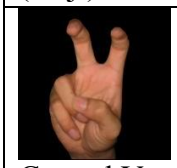
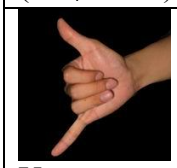
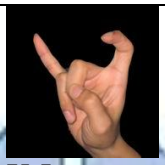
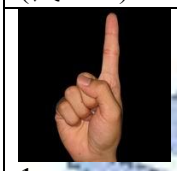
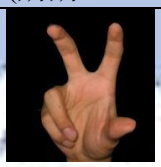
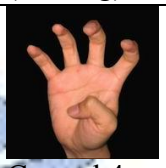
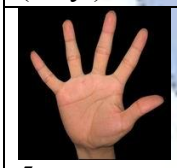
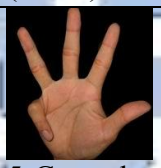
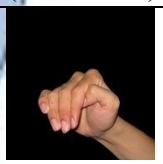
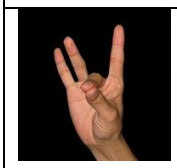
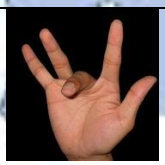
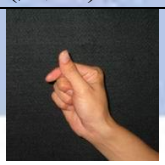
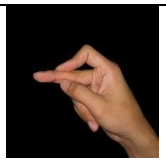
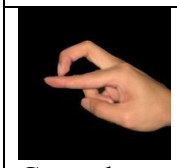
Appendix[13]

Handshapes in Taiwan Sign Language (Tai & Tsay, to appear)

Handshape names adopt the American Sign Language handshape names in English alphabet and numeral digits with necessary variations. In paratheses are the handshapes names in Chinese characters used in previous studies on TSL. Romanization in Pinyin is provided along with the character names.

Open A (男 nan)	 Flexed A (副 fu)	B (胡 hu)	 Open B (手 shou)	 Bent B (九 jiu)
 C (方 fang)	Bent C (紳 shen)	F (錢 qian)	Open F (WC)	G (像 xiang)
I (女 nyu)	 Flat I (千 qian)	 Curved I (蟲 chong)	K (欠 qian)	Open K (布袋戲 budaixi)
 L (六 liu)	 Bent L (句 ju)	 Curved L (爺 ye)	 Curved-baby L (難 nan)	Flexed L (很 hen)
Extended N (鴨 ya)	O (零 ling)	 Open O (果 guo)	 Flat O (萬 wan)	 Baby O (呂 lyu)

[13] Thanks especially to Prof. Tai and Prof. Tsay for providing this table from their publication to appear.

 Bent-baby O (雞 ji)	R (筆 bi)	S (拳 quan)	U (棕 zong)	V (二 er)
 Curved V (二十 ershi)	W (三 san)	Curved W (三十 sanshi)	Unspread W (童 tong)	X (十 shi)
 Y (民 min)	L-I (守 shou)	 X-I (奶奶 nainai)	1-I (語 yu)	Flat 1-I (龍 long)
 1 (一 yi)	3 (七 qi)	 Curved 3 (虎 hu)	4 (四 si)	 Curved 4 (四十 sishi)
 5 (五 wu)	Bent 5 (同 tong)	 5-Curved Pinky (八 ba)	Curved 5-Pinky (八十 bashi)	 Piled 5 (薑 jiang)
 8 (借 jie)	 Open 8 (菜 cai)	 Crossed Thumb-Index (隻 zhi)	Thumb-Middle-Pinky (飛機 feiji)	 Curved-Index (鵝 e)
 Curved middle (博 bo)	Middle (兄 xiong)	Curved-Index-Middle (高 gao)	Ring (姐 jie)	Ring-Pinky (百 bai)

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