Chapter 1

Introduction

1.1 The Background

Knowledge representation of verbal semantics has drawn substantial attention and becomes a central research area in linguistics. Traditionally, a verb is taken to be the structural head of a sentence since it subcategorizes the arguments that determine the structure of a sentence (Jackendoff 1983, Levin 1993). Therefore, many studies have examined and classified verbs in a systematic way via the study of verbal semantics. Fillmore and Atkins (1992) claimed that the meaning of a verb can be acquired "only with reference to a structured background knowledge of the real world"; Goldberg (1995) indicated that the meaning of a verb is related to the constructional meaning; Levin (1992) contributed towards the classification of English verbs with the alternation-based approach; Liu (2002) made efforts on Chinese verbal semantics, and Pan and Chang (2005) focused on the differences between the Mandarin Chinese and English caused-motion constructions. By virtue of examining the interaction of verbal meanings and syntactical realizations, the structural information of a language can be systematically analyzed. Accordingly, the significance of the study of lexical semantics is the core concern of most linguistic frameworks (cf. Fillmore and Atkins 1992, Goldberg 1995, Pustejovsky 1995, Liu 2002, 2005, Lien 2006).

1.2 The Issue: Multiple Meanings of *TÓ U*

In Mandarin, the verb *TÓU* 投 'to throw' describes a transitive caused-motion event, but it may be used in different ways. As observed from Sinica Corpus, *TÓU* is a polysemous word which appears to bear multiple meaning imports. One of the problems is how to interpret the different uses of *TÓU*. Consider the following examples:

(1) **拋；擲 *pāo; zhí* 'to throw':**

Ex. 曹錦輝在金龍旗**投**滑球，

cáo jǐn huī zài jīn lóng qí ***tóu*** *huá qiú*

Tsau Jin-Hui in Jin Long Chi **THROW**-PF slider

"Jin-Hui Tsau **threw** slider in Jin Long Chi."

(2) **投票 *tóu piào* 'to vote':**

Ex. 他想**投**黃大洲或是陳水扁。

tā xiǎng tóu huáng dà zhōu huò shì chén shuǐ biǎn

3SG want **VOTE** Huang Da Zhou or Chen Shui Bian

"He wants to **vote** Da-zhou Huang or Shui-bian Chen."

(3) **跳入 *tiào rù* 'to jump into':**

Ex. 屈原為了促使醉生夢死的君臣覺醒，在五月五日**投**江自殺。

qū yuán wèi le cù shǐ zuì shēng mèng sǐ de jūn chén jué xǐng, zài wǔ yuè wǔ rì ***tóu*** *jiāng zì shā.*

Chu Yuan in order to contribute to leading a befuddled life the the monarch and his subjects awake, on May 5 **JUMP INTO**-PF a river suicide-PF

"Chu Yuan suicided by **jumping into** a river on May 5 in order to contribute to awaking the monarch and his subjects leading a befuddled life."

(4) **寄；遞 *jì; dì* 'to mail':**

Ex. 昨一位高雄市民**投**書本報，抱怨台北市銀行坑人，

*zuó yí wèi gāo xióng shì mín **tóu** shū běn bào, bào yuàn tái běi shì yín háng kēng rén.*

Yesterday a Kaohsiung citizen **MAIL**-PF book self-newspaper, complain Taipei bank entrap-PF people

"Yesterday, a Kaohsiung citizen **mail**ed a letter to our publisher for complaining the bank in Taipei entrapped people."

(5) **投奔；投靠 *tóu bēn; tóu kào* 'to seek shelter':**

Ex. **投**親靠友

tóu qīn kào yǒu

Seek Shelter relatives depend friends

"**Seek shelter** and board from relatives and friends."

The above are some different uses of *TÓU*. In addition, Chinese WordNet, established by Academia Sinica with the goal to make a complete list of senses based on sense distinctions and ontology (Huang *et al.* 2008), indicates that *TÓU*, as a transitive verb, is distinguished into 29 meanings as listed below:

Meaning	Definition	Synonym	Hyponym
1	向特定目標丟擲物體。		
2	從空中或飛行器上釋放特定物體使其落向特定目標		
3	投手將球丟向捕手，讓打者揮擊。		
4	以得分為目的，以手將球向籃框丟出。		
5	使特定對象到達特定地點進行特定事件。		
6	將物體經由特定開口放入特定容器中。		
7	將錢幣放入特定機器中以換取特定商品或服務。		
8	選舉時將記載個人選擇的選票放入票箱中。	投票	
9	表決時表達個人選擇。	投票	
10	光照射特定對象。	打	
11	光照射到不透光的物體，使其影子出現在特定平面上。		
12	利用強光裝置把圖片或影片上的形象照射在幕上或牆上。	放映	
13	比喻送出特定文件給特定單位。		送出
14	比喻將作品寄送到特定單位，希望被錄用或刊登。	投稿	
15	比喻付出金錢。	開、花、費、花費、用、使、使用、	

		投入	
16	比喻為了獲利而將金錢放入特定的商業經營中。「投資」的簡省。	投資、投入	
17	比喻參加或購買保險。	投保、保	
18	到他人家中或旅館住宿。	投宿	
19	比喻離開原屬的團體，轉而依靠對立的團體。		
20	比喻尋求後述對象的醫治。		
21	比喻依照病症對病患用藥。		
22	比喻追隨後述對象。		
23	比喻將精神或情感集中在特定對象上。	放、撲、投入	
24	比喻以後述態度看待前述對象，常與「眼光」連用。		
25	比喻對特定對象做出後述臉部表情。		
26	比喻刻意符合特定對象的喜好。常用「投…所好」。		
27	比喻符合後述對象喜好，常與「緣」連用。	投緣	
28	比喻跳入後述地點自殺。		
29	比喻靈性存在物轉換成胎兒，以新的生命型態出生。		

Table 1. Senses of *TÓ U* in Chinese WordNet

As shown above, two important observations can be revealed as follows. First, though *TÓ U* has 29 senses, it can be approximately classified into five distinct meaning categories: ‘to throw’, ‘to vote’, ‘to send’, ‘to seek shelter’, and ‘to project’. Second, Table 1 also indicates that both the spatial and non-spatial senses are indeed encoded in *TÓ U*, and perhaps it is the reason why *TÓ U* bears multiple senses. Under this view, the goal of the study is to distinguish and categorize the different multi-faceted uses of *TÓ U* in a principled and systematic way.

1.3 The Issue: Semantic Roles

As observed from Sinica Corpus, *TÓ U* is usually immediately followed by a nominal NP. As to the nominal NP of [*TÓ U*+NP], it is the source for the semantic information of the event involved. The verb cooperates with the subsequent noun to form a V-N sequence that may determine the meaning of the whole construction. Consider the following examples:

(6) 球員一起投球練習，

qiú yuán yì qǐ tóu qiú liàn xí

Ball player together throw ball practice

“The players throw balls to practice together.”

(7) 球員一起投籃練習，

qiú yuán yì qǐ tóu lán liàn xí

Ball player together throw basket practice

“The players throw balls into basket to practice together.”

(8) 我**投**票後真怕清華又出現一幢供人物議的建物！

wǒ tóu piào hòu zhēn pà qīng huá yòu chū xiàn yì chuáng gōng rén wù yì de jiàn wù

1SG vote after really afraid really afraid Tsing Hua again appear one-CL controversial building

"I really afraid that a controversial building appears in Tsing Hua again after I vote."

(9) 他想**投**黃大洲或是陳水扁。

tā xiǎng tóu huáng dà zhōu huò shì chén shuǐ biǎn

3SG want vote Huang Da Zhou or Chen Shui Bian

"He wants to vote Da-Zhou Huang or Shui-Bian Chen"

(10) 他出於對明朝忠耿，曾赴閩**投**唐王，

tā chū yú duì míng cháo zhōng gěng céng fù mǐn tóu táng wáng

3SG out from to Ming Dynasty loyalty once arrive Min seek shelter Tang King.

"He used to go to Min for seeking shelter form King Tang because of his loyalty to the Ming Dynasty."

The core meaning of *TÓ U* is "to throw", and thus *TÓ U* can be immediately followed by a theme or a moved entity. However, in examples (6-7), *qiú* 球 'ball' is a Theme, but *lán* 籃 'basket' is a Goal. Then observe Examples (8-9). *TÓ U* in these examples means 'to vote' rather than 'to throw'; *piào* 票 'vote' is a Theme, and *huáng dà zhōu* 黃大洲 'Da-Zhou Huang' is a Goal. Now observe the NP precisely in Examples (9-10), *huáng dà zhōu* 黃大洲 'Da-Zhou Huang' and *táng wáng* 唐王 'Tang King' cannot be classified as a theme or a moved entity. Furthermore, they may be ambiguous since *huáng dà zhōu*

黃大洲 'Da-Zhou Huang' and *táng wáng* 唐王 'Tang King' are both mankind. It is worth pointing out here that *huáng dà zhōu* 黃大洲 'Da-Zhou Huang' is a Recipient Goal, and *táng wáng* 唐王 'Tang King' is a Locational goal. The semantic information of events in (9) and (10) are not the same.

However, in linguistic views, the Mandarin verb *TÓ U* is one of the Verbs of Throwing (Liu 2000), and Verbs of Throwing have been described as "instantaneously causing ballistic motion by imparting a force." (Levin 1993) In reality, not all the [*TÓ U*+NP] combinations cause ballistic motion. Here, we will ask some questions: What is relevant to the interpretation of the ballistic motion? What causes *TÓ U* to be used differently? With detailed semantic criteria, this study aims to provide a systematic analysis to account for the semantic-to-syntactic correlations among different senses of *TÓ U*

1.4 Scope and Goal

With the above data, it is obvious that *TÓ U* may profile different senses with distinct syntactic patterns and semantic attributes. On the basis of the above observations, there are some specific issues that need to be further investigated:

1) ***How can we distinguish and categorize different uses of TÓ U in a principled way in terms of frame structure and event type?***
2) ***What are the semantic-to-syntactic correlations profiled in the various uses of TÓ U?***
3) ***How can we explain the interrelations between the distinct semantic types?***

To solve the above issues, this study aims to examine instances of *TÓ U* in a fairly large corpus, and analyze their associations with the object-NPs in [*TÓ U* +NP]. To account for the behavior of the verb *TÓ U*, the theory of Frame Semantics (Fillmore and Atkins 1992) is used to analyze *TÓ U* with particular constituent information coded by the object-NPs in the construction. In view of the correspondence of the construction and its meaning, Construction Grammar (Goldberg 1995, 2010) is applied to account for their interrelationship of different meaning domains with frame-based constructional analysis.

1.5 Organization of the Thesis

This thesis is organized in the following sequence. Chapter 1 is the general introduction of the study. Chapter 2 reviews previous works related to the notion of [V + NP], cause-motion events, the English Verbs of Throwing, and the Chinese Verbs of Throwing *TÓ U*. Chapter 3 describes the database, theoretical framework and methodology applied in this study. Chapter 4 presents corpus observation on syntactic patterns. Chapter 5 proposes analysis of [*TÓ U* +NP]. Chapter 6 concludes the study with the significance of the study and notes further research issues.

Chapter 2
Literature Review

In this chapter, three groups of literature are reviewed: Group 1 is about verbal semantic studies; Group 2 is about Verbs of Throwing; Group 3 is about [V+NP] pattern. In Group 1, I examined works done by Talmy (2000), Goldberg (1995) and Pan and Chang (2005) which are in Section 2.1 and Section 2.2, respectively. In Group 2, I reviewed Verbs of Throwing in English and the Chinese Verbs of Throwing *TÓ U*. In Section 2.3, Levin (1992) classified English verbs according to verbs' shared meanings, the syntactic patterns, and the syntactic alternations. In Section 2.7, Liu *et al* (2000) provided not only the differences between *TÓ U* and other Verbs of Throwing *ZHÍ* 擲, *DIU* 丟 and *RENG* 扔 but also some preliminary observations of *TÓ U*. In Group 3, three case studies, given in Section 2.4 to 2.6, are about Mandarin verbs in the identical pattern--[V+NP]. In Section 2.4 [*QIǍNG* 搶 +NP] (Liu 2002) and Section 2.5 [*GǍN* 趕 +NP] (Liu 2005) are two significant frame-based semantic studies. As shown in these two case studies, the construction has implicated meaning that is not from its derivational constituents but from the construction itself. In Section 2.6, Feng-Hsi Liu (2006) indicates that *throw* verb can be applied in Dative Alternation.

2.1 Talmy (2000): The participant roles of caused-motion event

It is proposed in Talmy (2000) that the basic motion event "consists of one object (the 'Figure') moving or located with respect to another object (the reference-object or 'Ground'). Besides these two components, its semantic structure has another two internal

components, i.e. ‘Path’ and ‘Motion’. The ‘Path’ is the course followed or the site occupied by the Figure object with respect to the Ground object, and the ‘Motion’ refers to the presence per se in the event of motion or location.” Moreover, he also showed that motion events can be associated with two external co-event components: **Manner** and **Cause**, as illustrated in (11) below:

(11) a. The pencil *rolled* off the table.

[Move+Manner]

b. I *pushed* the keg into the storeroom.

[Move+Cause] (Talmy 2000, vol. II: 26, 4)

As illustrated in Example (11), the motion events are exhibited by the verb *rolled* and *pushed*. In Example (11a) the verb “*rolled*” specifies how the pencil moves and so expressed as Manner, whereas in (11b) the verb “*pushed*” expresses an external force of “I”, which causes the keg to move into the storeroom and thus describes the cause of the event. The external co-event components, Manner and Cause, can be conflated with Move into verbs of motion to specify the unique way of movement and the force that makes the motion happens. In short, Talmy’s system of motion can be illustrated as the following figure:

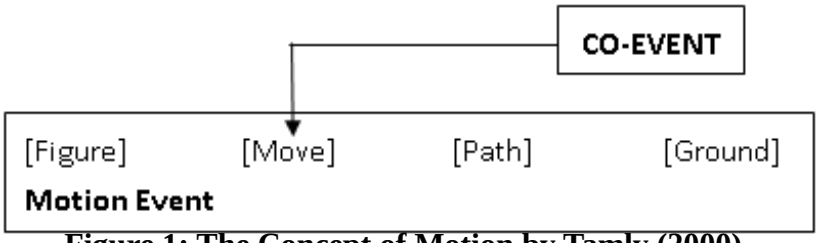


Figure 1: The Concept of Motion by Tamly (2000)

The similar construction can be found in Mandarin. By looking into how those semantic components are lexicalized in motion events, *TÓ U* is also combined with an external force, Figure, Ground, and path. Consider the following example:

(12) 我　　投　　球　　進　　洞

[Force] **[Move+Cause]** [Figure] [Path] [Ground]

wǒ tóu qiú jìn dòng

1SG throw ball into hole

"I throw a ball into the hole."

In Example (12) the verb *TÓ U* expresses an external force of "I" which causes the ball to move into the hole and thus describes the cause of the event.

2.2 English and Chinese caused-motion construction

English and Chinese caused-motion constructions are proposed by Goldberg (1995) and Pan and Chang (2005), respectively. Goldberg (1995) identified that English caused-motion event is a unique construction realized in the form of [NP1 V NP2 PP] which is associated with the meaning 'X CAUSES Y TO MOVE Z' as shown by (13):

(13) a. Joe kicked the dog into the bathroom.

b. Joe hit the ball across the field.

In Example (13) the causer argument “Joe” directly causes the theme argument “the dog” and “the ball” to move along a path designated by the directional phrase “into” and “across”, respectively. With the mapping of the syntactic pattern and the constructional meaning, it is suggested that a verb which does or does not encode the sense of motion will be associated with the sense of caused motion under this construction.

Pan and Chang (2005) focused on the difference between the Mandarin Chinese and English caused-motion constructions. As for Chinese caused-motion event, it can be expressed by the V-Preposition Structure, such as *rēng xiàng* 扔向 ‘throw to’ in 他把球扔向了我 *tā bǎ qiú rēng xiàng le wǒ* ‘He threw a ball to me.’ Furthermore, the direction and the path of motion in Mandarin Chinese can be both encoded by a preposition or co-verb following a verb, like *dào* 到, *zài* 在, *wǎng* 往, *xiàng* 向, *shàng lái* 上來, *xià lái* 下來, *jìn lái* 進來, *chū lái* 出來, and *huí lá* 回來. Nevertheless, in terms of English, the path of motion can only be expressed by a preposition, such as “into” in “He threw the stone into the river.” It is worth pointing out here that Mandarin Chinese usually uses a causative marker, such as *bǎ* 把, to show the caused-motion event. In terms of the caused-motion event in English, it can only be illustrated by the caused-motion construction [NP1 V NP2 PP] with no causative markers.

In brief, the caused-motion construction can be expressed by the V-Preposition Structure and the BA-construction in Mandarin Chinese with a preposition or co-verb encoded, whereas the caused-motion construction can only be expressed by a preposition in English.

2.3 Levin (1993): English Verbs of Throwing

Mandarin verb *TÓ U* is semantically similar to the English verb *throw.* When it comes to English verb *throw*, it has been described by Levin as "instantaneously causing ballistic motion by imparting a force."

One argument of *throw* refers to the entity that is set in motion and that moves unaccompanied by the agent. In addition, this verb can also be used as verbs of change of possession by means of change of location, as shown by their ability to participate in the dative alternation:

(14) Dative Alternation:

a. Steve tossed the ball to Anna.

b. Steve tossed Anna the ball.

c. Steve tossed the ball to the hole.

d. *Steve tossed the hole the ball.

(Levin 1993:147)

Observing the data from Sinica Corpus, the sense of English verb *throw* does share some similarities and differences. Consider the following examples:

(15) a. 我投球給他

Wo *TÓ U* *qiú* *gei* *ta*

I throw ball to him

'I throw a ball to him.'

b. 我投給他球

Wo TÓU gei ta qiú

I throw to him ball

'I throw him a ball.'

c. *我投他球

**Wo TÓU ta qiú*

I throw him ball

'I throw him a ball.'

(16) a. 我投票給他

Wo TÓU piào gei ta

I vote vote for him

'I vote for him.'

b. 我投給他票

Wo TÓU gei ta piào

I vote to him vote

'I vote for him.'

c. 我投他票

Wo TÓU ta piào

I vote him vote

'I vote for him.'

It is observed that the Mandarin *TÓU* can also be used in some Dative Alternation. However, not all dative patterns are allowed in Mandarin *TÓU*, like (15c). Feng-Hsi Liu

(2006) has focused on the dative constructions in Chinese, and I will introduce it in Section 2.6.

2.4 Liu (2002): *QIǍNG* 搶+NP

Liu (2002) proposed a complete corpus-based selection of Mandarin verbal semantic studies. In this study, Liu focused on the [V+NP] frame—The Frame-Setting Verb—*QIǍNG* 搶 'rob/vie for,' and indicates that the verb *QIǍNG* in the semantic frame [*QIǍNG* +NP] illustrates a grammatical function like a pro-verb. To be specific, *QIǍNG* fails to encode the semantic interpretation of an opaque event, but the nominals following *QIǍNG* can provide the detailed semantic information for the specific event encoded in [V+NP]. For example, '搶生意' means 'to vie for business' rather than 'to rob the business'

In addition, the different expressions are shown in different patterns: "As a verb denoting a possessional transfer, *QIǍNG* may take a GOAL, expressing the original ownership; on the other hand, *QIAN* takes a THEME to express the object or 'target' for possession. Furthermore, the predominant pattern of *QIǍNG* is associated with a THEME, expressing a wide variety of presumably valuable objects." (Liu 2002: 147) The three patterns are shown as follows:

(18) a. Pattern 1: *QIǍNG* + Goal

QIǍNG yínháng 搶銀行 'to rob a bank'

QIǍNG liángcāng 搶糧倉 'to rob the barn'

b. Pattern 2: *QIĂNG* + Theme

QIĂNG gōngzuò 搶工作‘to vie for jobs’

QIĂNG shēngyì 搶生意‘to vie for business’

QIĂNG dìpán 搶地盤‘to vie for turf’

QIĂNG fēngtóu 搶鋒頭‘to vie for popularity’

QIĂNG jìngtóu 搶鏡頭‘to vie for camera/spot light’

QIĂNG gōngláo 搶功勞‘to vie for credits’

QIĂNG wèizi 搶位子‘to vie for seats/positions’

c. Pattern 3: *QIĂNG* + Goal + Theme

QIĂNG lǐsì yī qiān yuán 搶李四一千元

‘to rob Lisi 1000 dollars’

As for the semantic frame of *QIĂNG*, it highlights two important components: COMPETITION and GAIN—In the event of *QIĂNG*- NP (x), an activity (x) is carried out by means of COMPETITION for the purpose of GAINING a desirable target (x). Furthermore, *QIĂNG* indicates three different types of activities, including ‘to rob,’ ‘to fight for scarce resource,’ and ‘to gain priority for doing activity (x).’(Liu 2002: 148-9)

To sum up, this study shows that “the specific function of some certain verbs is like a pro-verb, which provides information about the manner, the means or the purpose of carrying out various ‘secondary’ activities.” (Liu 2002: 152) That is, though the [V+NP] combination indeed provides the information, it cannot be directly extracted from the nominal argument.

2.5 Liu (2005): *GǍN* 趕+NP

Liu (2005) again examined that the [V+NP] combination exactly contains salient information, but it cannot be directly extracted from the verb and its following noun phrases. This study shows that the verb *GǍN* 趕 encodes an inanimate NP as its argument containing four subcategories as shown in (19):

(19) a. 趕集/考/廟會/演講

GAN ji2/kao3/miao4-hui4/yan3jiang3

GAN market/exam/temple-festival/speech

'to rush to take part in the market/ exam/ religious festival/ public speech'

b. 趕公車/飛機

GAN gong1che1/fei1ji1

GAN bus/aircraft

'to rush to catch the bus/ airplane'

c. 趕時間/進度/三點半

GAN shi2jian1/jin4du4/san1dian3ban4

GAN time/schedule/three-o'clock-half

'to rush to save time/to catch up with a schedule/to get to the bank by 3:30 pm'

d. 趕報告/作業/課/衣服/貨

GAN bao4gao4/zuo4ye4/ke4/yi1fu2/huo4

GAN report/homework/clothes/goods

'to rush to finish writing a paper/ to rush to finish writing homework/ to rush to

finish teaching classes/ to rush to finish making clothes/ to rush to finish manufacturing goods'

As shown above, the four subcategories are (19a) scheduled special events, (19b) vehicles running on a fixed schedule, (19c) lexically specified (overt) time expressions, and (19d) artifacts to be produced by a deadline. In general, the event inferred from the NP is a "volitional activity requiring speed to reach a certain goal by a certain time." (Liu 2005: 318~9)

The verb *GǍN* functions as a "pro-verb" and the construction thus encodes three meaning components: an ACTIVITY performed by the agent, a TARGET STATE associated with the object, and a TIME FRAME. With *GǍN* functioning as a pro-verb, the interpretation of [*GǍN*+NP] can be read as: "to achieve a STATE by a certain TIME through a speedy engagement in an ACTIVITY." (Liu 2005: 319) Under this view, this study also shows that "the semantic information of the 'ellipsed' activity in the [*GǍN*+Inanimate NP] pattern cannot be obtained directly from the lexicon. Only when the pro-verb, *GǍN*, combined with a potentially event-evoking inanimate nominal, can all the detailed eventive information be automatically inferred." (Liu 2005: 321)

Furthermore, Liu also proposed two implications (Liu 2005: 327~8):

a. Both knowledge representation and natural language processing are founded on the base of lexical semantic studies. "The semantic information encoded on verbs is considerable essential for sentence understanding. Verbs like *GǍN* appear to set a frame, or denote a manner, rather than naming a specific activity."

b. The verb of the construction always provides core information about event structure and participant roles; meanwhile, the pattern of the lexical item "may also coerce certain meaning components into the interpretation."

2.6 Liu (2006): Dative Construction in Chinese

Feng-Hsi Liu (2006) focused on the dative constructions in Chinese where it concerns three constructions:

(20) a. The *gei* object construction V NP *gei* NP

我送了一本書給他。

Wo song -le yiben shu gei ta

I give-as-present -PERF one-CL book to him

'I gave a book to him as a present.'

b. The V*gei* double object construction V*gei* NP NP

我送給他一本書。

Wo song -gei ta yiben shu

I give-as-present-to him one-CL book

'I gave him a book as a present.'

c. The double object construction V NP NP

我送她一本書

Wo song ta yiben shu

I give-as-present him one-CL book

'I gave him a book as a present.'

However, the manner of motion *DIU* 丟 'to throw' that occurs in (a) and/or (b) does not occur in (c):

(21) a. The *gei* object construction V NP *gei* NP

我丟球給他。

Wo DIU qiú gei ta

I throw ball to him

'I throw a ball to him.'

b. The V*gei* double object construction V*gei* NP NP

我丟給他球。

Wo DIU gei ta qiú

I throw to him ball

'I throw him a ball.'

c. The double object construction V NP NP

*我丟他球

Wo DIU ta qiú

I throw him ball

'I throw him a ball.'

Liu (2006) examined that a verb can be applied in the double object construction when it implies one the following senses:

(22) **a. result**

他抹了我一身泥

Ta mo -le wo yi shen ni

he rub-on-PERF me one-body mud

'He rubbed mud all over me.'

b. causative

那件事擠了我一身汗

Najian shi ji -le wo yishen han

that-CL matter anxious-PERF me one-body sweat

'That matter made me so anxious I sweated all over.'

c. naming

我們稱他小糊塗

Women cheng ta xiao hutu

we call him little muddle-headed

'We call him "Little Muddle-headed".'

d. change of state

他煮了老王一包麵

Ta zhu -le Laowang yibao mian

he cook-PERF Laowang one-package noodles

'He cooked a package of noodles that belonged to Laowang.'

e. consumption

我用了他一本字典

Wo yong-le ta yiben zidian

I use -PERF him one-CL dictionary

'I used a dictionary that belongs to him.'

f. obtaining

我拿他不少東西

Wo na -le ta bushao dongxi

I take-PERF him not-few things

'I took quite a few things from him.'

g. giving

他給了我一個蘋果

Ta gei -le wo yige pingguo

he give-PERF me one-CL apple

'He gave me an apple.'

To sum up the above descriptions, Dative constructions in Chinese indeed show some restrictions: 1) Manner of motion does not occur in the double object construction.

2) A verb can be applied in the double object construction when this verb implies one of the senses in (22). Because the Chinese Verbs of Throwing *TÓ U* 投 and *DIU* 丟 are near synonym pairs, *TÓ U* may not occur in the double object construction as well, and I will discuss it in Section 4.5.

2.7 Liu (2000): Chinese Verbs of Throwing

Liu *et al*. (2000) further studied Verbs of Throwing –'*TÓ U* 投', '*ZHÍ* 擲', '*DIU* 丟', and '*RENG* 扔'. Two kinds of endpoint, that is, the Path-endpoint (the Goal role) and the Event-endpoint (the resultative state) were introduced to capture the lexical semantic properties of verbs of throwing. Both *TÓ U* and *ZHÍ*, but not *DIU* and *RENG*, take a Goal as their direct object and thus are lexically specified with a path-endpoint. (e.g. *TÓ U lan* 投籃 'to shoot the basket'; *TÓ U Hu* 投湖 'to throw oneself into the lake'; *ZHI dì yǒu shēng* 擲地有聲 'to throw something to the ground with a thump'). Besides, only *TÓ U* requires a spatially bounded path-endpoint. As for *DIU* and *RENG*, they can be distinguished in terms of <± event-endpoint>. Event-endpoint is relevant to the final point of an event, usually denoting a resultative or completive state.

Furthermore, the different interpretations between *TÓ U* and *DIU* may render when followed by the same object-theme, forming a V-O compound. Consider the following Table:

	Manner	**Directionality**
投球	carefully targeting	toward a single and precise direction
丟球	randomly throwing	no specific direction

Table 2. The Interpretations between *TÓ U* and *DIU* in V-O Compound

It is observed that *TÓ U* means "targeting carefully", in which the direction is single and precise.

The findings of the study indicate that V-O compound in Mandarin is an important clue for delimiting lexical meanings. The observed distinctions help to pinpoint the crucial semantic features for the representation of the Chinese verbal semantics.

2.8 Summary

The studies in related to caused-motion event, the verbs of throwing, and the [V+NP] combinations are reviewed in this chapter. Talmy (2000) proposed the importance of the participant roles in caused-motion event; Goldberg (1995) explored the basic meaning of a construction relies on both verbs' profiled participant roles and the argument roles associated with the construction; Pan and Chang (2005) indicated that unlike English caused-motion constructions, there are various patterns in Chinese caused-motion constructions; the English *throw* has been described by Levin (1993) as "instantaneously causing ballistic motion by imparting a force." Liu et al (2002) and Liu et al (2005) proposed that the [V+NP] combinations always provide the information which cannot be directly extracted from the nominal argument, but from the construction itself. In addition,

Liu et al (2000) also proposed that the manner of *TÓ U* is carefully targeting, and the directionality of *TÓ U* is to a single direction and bounded goal; Feng-Hsi Liu (2006) focused on the dative constructions in Mandarin Chinese.

Though numerous studies have focused on caused-motion event, few studies have paid attention to the NP following *TÓ U* and the lexicalized [*TÓ U*+NP]. With a corpus-based investigation, the goal of this study is to examine instances of *TÓ U* in a fairly large corpus, and analyzes their associations with the object-NPs in [*TÓ U* +NP].

Chapter 3
Database, Theoretical Framework and Methodology

3.1 Database

The corpus data used in this study come from Academic Sinica Balanced Corpus of Modern Chinese (http://db1x.sinica.edu.tw/kiwi/mkiwi/), which involves numerous texts with topics in society, life, literature, philosophy, science, and art; the Chinese Word Sketch (http://wordsketch.ling.sinica.edu.tw/), which contains grammatical co-occurrence statistics and differences of distribution patterns; and the Academia Sinica Bilingual Ontological WordNet (Sinica BOW, http://bow.sinica.edu.tw/), which shows English-Chinese bilingual lexical access. Other sources used in this study are the FrameNet (http://framenet.icsi.berkeley.edu/), Chinese WordNet (http://lope.linguistics.ntu.edu.tw/cwn/) and the online search engine Google (http://www.google.com/webhp?hl=zh-TW).

3.2 Theoretical Framework

3.2.1 Frame Semantics

In regard to lexical semantic approaches, Fillmore and Atkins (1992) proposed that the interpretation of a verb can be acquired when semantic frame is clearly defined. What a semantic frame denotes is actually a knowledge schemata defined as “a structure background of experiences, beliefs or practices, constituting a kind of conceptual prerequisite for understanding the meaning” (Fillmore and Atkins 1992: 76-7). One way of representing semantic properties is through the use of semantic features. For example,

the semantic features of *bachelor* are [+male] and [+single]. Priest Paul has fit all the semantic features of *bachelor*; nonetheless, he is not regarded as a *bachelor*. Here, the semantics of *bachelor* should be under a structure background of a normal marriage society. The structure background refers to the experiences shared by people who live in a culture. We conceptualize the meaning from our embodied experiences. Frame semantics characterizes the semantic and syntactic properties of words by relating them to semantic frames. These are schematic representations of situations involving various participants, props, and other conceptual roles, each of which is a frame element. To be specific, words or word senses are not related to each other directly, but only by way of their links to common background frames and indication of the manner in which their meanings highlight particular elements of such frames (Fillmore and Atkins 1992: 76-77). For example, the commercial transactional verbs, such as, *buy, sell, charge, pay, cost*, and *spend*, are characterized by constructing a scenario in which one person acquires control or possession of something from a second person. The needed background requires an understanding of property ownership, a money economy, implicit contract, and a great deal more. The categories derived from the commercial transaction frame are Buyer, Seller, Goods, and Money. According to Fillmore and Atkins (1992:79), these verbs differ in the ways of expressing these categories:

	Buyer	**Seller**	**Goods**	**Money**
Buy	Subj	(from)	Direct-Obj	(for)
Sell	(to)	Subj	Direct-Obj	(for)
Charge	(Indirect-Obj)	Subj	(for)	Direct-Obj

Spend	Subj	NULL	For/on	Direct-Obj
Pay	Subj	(Indirect-Obj)	(for)	Direct-Obj
Cost	(Indirect-Obj)	NULL	Subj	Direct-Obj

Table 3: Semantin and Syntactic Valence for Verbs in the Transaction Frame

To sum up, verbs of the same class share the same semantic frame. Contrary to the "case frame" (Fillmore, 1968), this approach identifies semantic meaning with a concern of cognitive or conceptual structures. According to Levin and Rappaport (1996), the problem of the theory of thematic roles is that it appears to lack a rigorous and consistent set of diagnoses of the various role types. If we apply the frame-based semantics, we can easily acquire the knowledge of the word if we share the same background experiences. It is more general and natural in identifying the word, which is not possible to use thematic roles.

Under this view, the meanings of a word can be understood simply with its background frame which motivates the concept of the word. Each frame contains specific core frame elements, and word senses are distinguished by their highlighting different frame elements. Profiling different semantic elements can lead to different syntactic realizations. Therefore, by way of viewing different syntactic behavior, verb meanings can be identified. This study uses this theory as the basis, establishing the background frames of [*TÓ U*+NP], examining which frame elements are highlighted, and how the verb *TÓ U* links to these background frames.

3.2.2 FrameNet

FrameNet (https://framenet.icsi.berkeley.edu), created by the research group leaded by Fillmore in UC Berkeley, provides an on-line lexical resource for English. It contributes to a classification of English verbs into many groups on the basis of Frame Semantics by examining the corpus evidence. In FrameNet, a frame is defined with its essential participant roles, or, frame elements (FEs). The syntactic patterns with the frame elements are listed in the annotation data of each lemma in the frame. Though the research targets of FrameNet are English lexical items, it can serve as the foundation for reference of Mandarin lemma selection.

Checking the *Throw* Verbs in English, they are classified under the *Cause_motion* Frame in FrameNet. This frame is defined as follows:

"An Agent causes a Theme to undergo translational motion. Although different members of the frame have different degrees of profiling of the trajectory, the motion may always be described with respect to a Source, Path and/or Goal."

Basically, the core frame elements involved in this frame are *Agent, Theme, Source, Path,* and *Goal*. According to the FrameGraphers[1], *Cause_motion* frame is controlled by the *Transitive_action* frame and presupposes *Excreting, Grining, Ingestion* and *Gathering_up* frames as background. The hierarchical relations can be illustrated as follows:

[1] The function of FrameGrapers in the FrameNet is to illustrate the frame-to-frame connections.

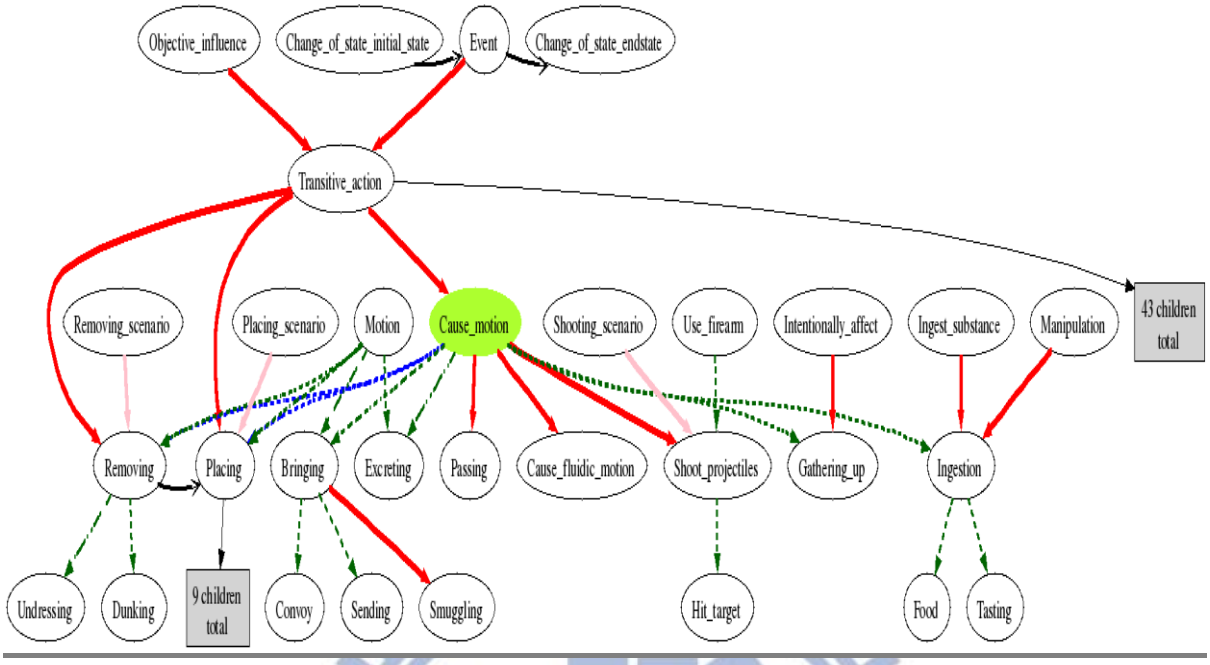


Figure 2. The frame-to-frame relationships of *Cause_motion* Frame

Figure 2 entails the verb *Throw* exactly bears some relations to *Transitive_action* frames. However, because FrameNet does not focus on the syntactic patterns, we cannot know about the semantic-to-syntactic correlations profiled in the various uses of *Throw* verbs easily. Furthermore, since the *Cause_motion* frame is defined in English views, according to the data observation in Section 1.2 and 1.3, not all the examples of *Throw* verb *TÓ U* in Mandarin are applied with the definition of the frame provided in FrameNet. Under this view, this study will use the constructional analysis so as to provide a more systematic analysis of *TÓ U*.

3.2.3 Construction Grammar

According to Goldberg (1995), the defination of Construction Grammar is that “C is a CONSTRUCTION iff$_{def}$ C is a form-meaning pair < F*i* , S*i* > such that some aspect of

F*i* or some aspect of S*i* is not strictly predictable from C's component parts or from previously established constructions." That is, Construction Grammar takes constructions as basic units of language. The construction per se represents "form-meaning correspondences that exist independently of a particular verb." (Goldberg 1995:1) Namely, Construction Grammar differs from other semantic theories in which in addition to word meanings, it emphasizes the meaning derived from the syntactic pattern. Take *rob* and *steal* for example, by examining the profiled participant roles and the argument roles associated with the construction, we can figure out the difference between *rob* and *steal*:

(17) rob <**thief target** goods>
steal <**thief** target **goods**> (Goldberg 1995:45)

Under this view, the advantage of Construction Grammar is that it can be applied to account for the dynamic or temporary meaning coerced by the construction itself (Huang *et al* 2003). A phrasal pattern is considered a construction if the meaning of the construction is not strictly predictable from its derivational parts or from other constructions. On the contrary, though Frame Semantics provides semantic background for the analysis of the argument structure of verbs, it may fail to express the constructional meaning interacting with the lexical meaning of verbs. On that ground, a certain transitive verb, such as *TÓ U* in Mandarin Chinese, when combined with its objects-NP, should also be viewed as a construction. The constructional approach is utilized to account for the meaning encoded in the actual event of [V+NP] pattern in Mandarin Chinese.

3.2.4 The Prototype Category Theory

Prototypicality, as studied by Rosch (1973, 1977, 1978), is intimately bound up with what we might call "the two axes of categorization". A given entity and verbal categories may be classified in many alternative terms, which are shown as follows:

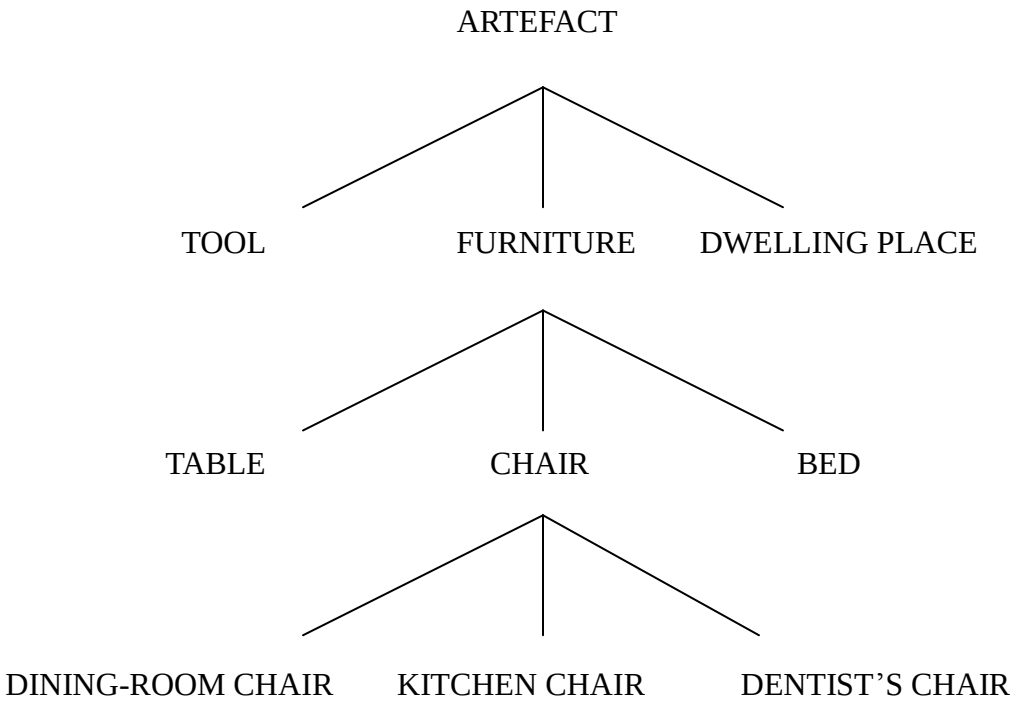


Figure 3. The two axes of categorization (nominal categories)

Chair, piece of furniture, artifact, and indeed entity in Figure 3 are all true ways of describing the entity we are able to sit. To be specific, CHAIR, FURNITURE, ARTEFACT, and KITCHEN CHAIR represent four levels of the same domain. CHAIR is included in the super-ordinate level FURNITURE, which in turn is included in the even higher level ARTEFACT. Under this view, KITCHEN CHAIR is a sub-ordinate category of CHAIR.

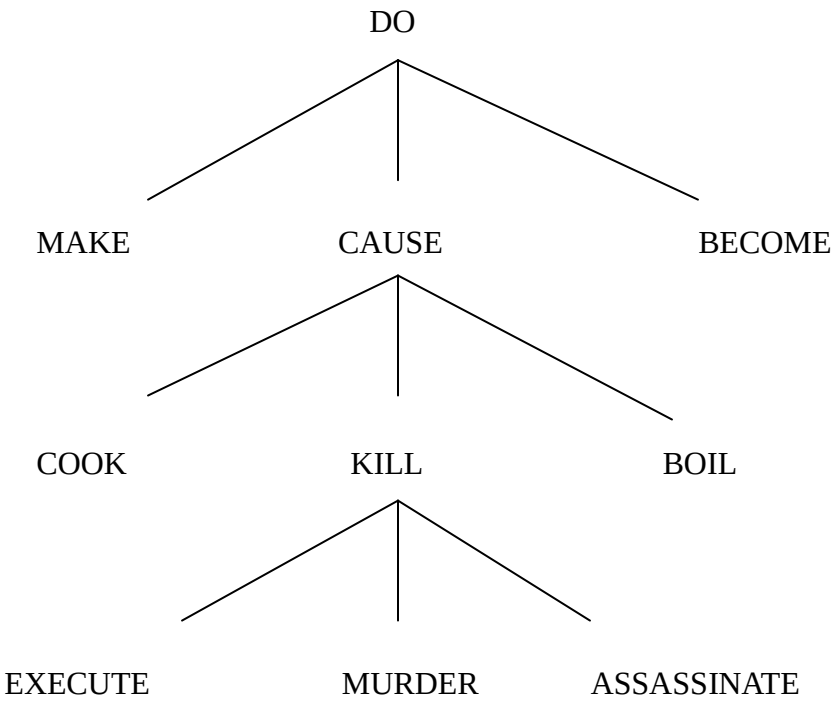


Figure 4. The two axes of categorization (verbal categories)

Kill, MURDER, or other action can indeed indicate the actions people do. To be specific, DO, CAUSE, KILL, and MURDER represent four levels of the same domain. KILL is included in the super-ordinate level CAUSE, which in turn is included in the even higher level DO. Under this view, MURDER is a sub-ordinate category of KILL.

According to Figure 3 and Figure 4, the prototype will be understood as a schematic representation of the conceptual core of a category and "clearest cases of category membership defined operationally by people's judgments of goodness of membership in the category" (Rosch 1978:36). A prototype of a category is thus regarded as a salient exemplar of the category. People categorize objects on the basis of the resemblance of the shared attributes between the prototypical members of the category and the objects.

However, if the central attributes of a category are replaced, they are usually viewed as semantic shift or substitution, and the appropriate cognitive term refers to this is prototype shift. To be precise, prototype shift is a semantic shift from the prototypical meaning to non-prototypical extended meanings, and I would like to introduce it in Section 3.2.5 and 3.2.6.

3.2.5 Non-prototypical Extended Meaning -- Metaphor

In a traditional view, Metaphor is to point out an idea with the attributes associated with another. Lakoff (1933) proposed two types of metaphors-- conventional metaphors and novel metaphors, both of which comply with the Invariance Principle.

3.2.5.1 Conventional metaphors

Conventional metaphors include conceptual metaphors and event structure metaphors. In terms of conceptual metaphors, it can be easily understood by means of TIME IS MONEY, TIME IS A LIMITED RESOURCE and TIME IS A VALUABLE COMMODITY in which “TIME” refers to target domain and “MONEY”, “LIMITED RESOURCE” and “VALUABLE COMMODITY” refers to source domain, respectively. The examples of the variety of expressions will be shown as below:

TIME IS MONEY

How do you spend your time these days?

That flat tire cost me an hour.

TIME IS A LIMITED RESOURCE

You don't use your time profitable.

You are running out of time.

TIME IS A VALUABLE COMMODITY

I don't have the time to give you.

Thank you for your time

(Lakoff & Johnson 1980:7-8)

In terms of event structure metaphors, it includes states, changes, processes, actions, causes, purposes, and means to space, motion and force. Event structure metaphors given in Lakoff (1993) will be shown as below:

THE EVENT STRUCTURE METAPHORS

States are locations (bounded regions in space)

Changes are movements (into or out of regions)

Causes are forces.

Actions are self-propelled movements.

Proposes are destinations.

Means are paths (to destinations)

Difficulties are impediments to motions.

Expected progress is a travel schedule; a schedule is a virtual traveler, who reaches prearranged destinations at prearranged times.

External events are large, moving objects.

Long term, purposeful activities are journeys.

Lakoff (1993: 220)

Mappings between various aspects of structure and space, motion, and force entail the following mappings shown as below:

Manner of action is manner of motion. (*We are running right along.*)

A different means for achieving a purpose is a different path. *(Do it this way*.)

Forces affecting action are forces affecting motion. (*We're stuck.*)

Progress made is distance traveled or distance from goal. (*We've come a long way*.)

Lakoff (1933)

3.2.5.2 Novel Metaphor

Novel metaphor includes image metaphor, generic-level metaphor and great chain metaphor.

a. Image metaphor

Image metaphor differs from conventional metaphor since image metaphor does not map one concept domain into another domain but one image onto another image. Metaphorical image mapping work much the same as metaphorical mapping with difference about the domains mapped are conventional mental image. Consider the following sentence provided by Lakoff (1993:229):

- My wife … whose waist is an hourglass.

Lakoff (1993:229)

To begin with, we form an image in our brain of a female and an hourglass. Secondly, we map the middle of the hourglass onto the waist of the female by means of virtue their common shape. And it is worth pointing out here that we basically do not map the waist of a female onto other parts of an hourglass owing to our conventional knowledge of the shapes of an hourglass and of a female. Therefore, Image metaphor is called one-shot metaphor.

b. Generic Level Metaphor

Generic level metaphor is to deal with personification and proverb proposed by Lakoff and Turner (1989) in which an overwhelming number of personifications have a certain pattern. A case in point is EVENT ARE ACTIONS in which an event is viewed as an action by agent originating from a more common metaphor. Take death for example, the reason why it is usually personified as drivers can be accounted for by looking at the DEATH IS DEPARTURE. If we can view departure as an action caused by agent (*drivers*), this is why we personify death as drivers.

c. Great Chain Metaphor

Great chain metaphor is a kind of widespread metaphor usually found in analogy, like the sentence "John is a wolf; Mary is a rabbit". Notice that conventional metaphors take a part in these examples by mapping our knowledge about the animals to person.

3.2.6 Non-prototypical Extended Meaning -- Metonymy

Metonymy was traditionally viewed as "a figure of speech in which the name of one thing is used to in place of another associates with or suggested by it," which is from *Webster's New World Dictionary Third Collede Edition*, S.V. "metonymy". In cognitive views, the definition of metonymy is shown as following:

Metonymy is a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same domain, or ICM (idealized cognitive models) (Kövecses and Radden 1998:39).

Kövecses and Radden (1998) proposed that there are two general conceptual configurations: whole ICM and its parts, and parts of an ICM, which are listed as following:

A. Whole ICM and its parts

(1) Thing-and-part ICM

(2) Scale ICM

(3) Constitution ICM

(4) Complex event ICM

(5) Category-and-member ICM

(6) Category-and-property ICM

B. Parts of an ICM

(7) Action ICM

(8) Perception ICM

(9) Causation ICM

(10) Production ICM

(11) Control ICM

(12) Possession ICM

(13) Containment ICM

(14) Assorted ICMs involving indeterminate relationships

(15) Sign and reference ICMs

Some of the 15 types provided with relation to mental spaces of human thinking process specified as follows.

Taipei for “Taiwan” represents WHOLE THING FOR A PART OF THE THING; England for “Great Britain” represents PART OF A THING FOR THE WHOLE THING. Both mentioned above are two common metonymic variants of (A1) Thing-and-part ICM which is reversible. Constitution ICM in (A3) has two reversible metonymies. The first type is OBJECT FOR MATERIAL CONSTITUTING THAT OBJECT. For example, “There is a dog all over the street” refers to “There are parts of a dog body all over the street.” The second kind is THE MATERIAL CONSTITUTING AN OBJECT FOR OBJECT. For example, the word “wood” for “forest”. Category-and-property ICM in (A6) has two metonymic variants as well. The first type is CATEGORY FOR

DEFINING PROPERTY. We use “jerk” for “stupidly” is a case in point. The second kind refers to DEFINING PROPERTY FOR CATEGORY. For example, “Blacks and whites” stand for “black people and white people”, respectively.

Action ICM in (B7) has many kinds of metonymies: ACTION FOR OBJECT INVOLVED IN THE ACTION, like “kick” for “a kick”; OBJECT INVOLVED IN AN ACTION FOR ACTION, like ‘blanket’ for ‘to blanket the bed’; ACTION FOR RESULT, like “to cut” for “a cut”; RESULT FOR ACTION, like “screw-up” for “blunder”. In (B8) Perception ICM, *deng yi xia* “wait a second” and *kan yi yan* “have eyes on” is a case in point where what we wait is not a second but for some time and what we see is not an real eye but some entity coming into our view, respectively. Causation ICM in (B9) has many kinds of metonymies: one of them is PHYSIOLOGICAL/BEHAVIORAL EFFECT FOR EMOTION, like “she was upset” for “something made her upset”. The metonymy is subsumed under the general EFFECT FOR CAUSE metonymy. Possession ICM in (B12) stands for a productive metonymy and reverse variants. The first type is POSSESSOR FOR POSSESSED, like “This is John” for “John’s milk”; the second kind is POSSESSED FOR POSSESSOR, like “Mary married money” for “Married married a person with a lot of money”. Containment ICM has two metonymic variants as well: CONTAINER FOR CONTAINED, like “glass” for “wine”; CONTAINED FOR CONTAINER, like “the milk tipped over” for “the milk bottle tipped over”.

It is observed that some links are reversible among the 15 types, and some of them are not. Both CONTROLLER FOR CONTROLLED and CONTROLLED FOR CONTROLLER can exist under the Control ICM, whereas AUTHOR FOR HIS WORK not THE WORK FOR ITS AUTHOR can exist under Production ICM is a case in point.

3.2.7 Qualia Structure

According to Pustejovsky (1995: 76-7), "Qualia Structure specifies four essential aspects of a word's meaning (or *qualia*):

- CONSTITUTE: the relation between an object and its constituent parts;
- FORMAL: that which distinguishes it within a larger domain;
- TELIC: its purpose and function;
- AGENTIVE: factors involved in its origin or "bringing it about."

Take "novel" and "dictionary" for example and the interpretation of "dictionary" is similar to the reading of "novel". However, the qualia structure of "novel" can be interpreted as [CONST=narrative], [FORMAL=book], [TELIC=reading], and [AGENT=writing]; the TELIC role of "dictionary" is interpreted as [TELIC=consulting]. Namely, the two words are not confused in the same context.

Pustejovsky (1995) also noted that Qualia Structure can both characterize our knowledge of words and provide appropriate interpretations of the words. Consider the following example:

(23) a. Mary enjoyed the movie last night.

b. John quite enjoys his morning coffee.

The contextual interpretations of the two "enjoy" in (23a) and (23b) are different. To be specific, it is the Telic role of "movie" in (23a) and "coffee" in (23b) that provide the different readings of "watching the movie" and "drinking coffee", respectively.

An application of Qualia Structure to Mandarin Verbal Semantics is shown in *GǍN* 趕 'rush' (Liu 2005: 325). The analysis of English "enjoy" parallels the case of Mandarin *GǍN* with inanimate NPs in that [*GǍN* + NP] also involves an ellipsed activity whose information is provided by the object-NP as illustrated below:

(24) Qualia Representation

a. *GǍN gongche* 趕公車 'rush to catch the bus'
Bus [Telic = running on a fixed schedule]

b. *GǍN bao4gao4* 趕報告 'rush to finish the paper'
Paper [Agentive = writing]

In (24a), the Telic role of "bus" is profiled in relation to the inferred time frame. In (24b), it is the Agentive role of "paper" that gives rise to the inference of "writing". The qualia roles are the source information for interpreting the activity involved in the use of *GǍN*.

Furthermore, Qualia Structure can also solve the potential ambiguity in the interpretation of the predication in a sentence. For example, sentence like "John began a novel." may have two possible readings (Pustejovsky 1991):

(25) a. John began to read a novel.

b. John began to write a novel.

It is the Telic role [TELIC = read] of "novel" in (25a) and the Agentive role [AGENT = write] of "novel" in (25b) that project the two interpretations "read" and "write" to (25a) and (25b), respectively.

Another application of Qualia Structure to solve the potential ambiguity in the interpretation of the predication in a sentence is demonstrated in Liu (2005). There are two possible interpretations for *GAN3 bi3sai4* 趕比賽 "*GǍN* game." For example, in *GAN3le san1chang3 bi3sai4* 趕了三場比賽 "rush PFV three-CL games," one interpretation is "rushed to finish playing three games" [AGENT=playing], and the other reading is "rushed to finish watching three games" [TELIC=entertaining/watching]. The distinct qualia roles of the nominal argument are differentiable, and thus we can distinguish the potential ambiguity of the identical syntactic form easily.

Under this view, by means of Qualia Structure, a lexical can be appropriately interpreted in different contexts, and the ambiguity of the lexical may draw from its correlated construction. As mentioned in Section 1.3, the nominal arguments following *TÓ U* may cause the ambiguity. Nevertheless, the application of Qualia Structure is able to show how contextual meanings of [*TÓ U* + NP] construction can be obtained by means of Qualia roles.

3.3 Methodology

To capture and analyze the syntactic-to-semantics interactions of *TÓ U*, five steps are utilized and proceeded for this research:

***Step 1*: Collecting the Corpus Data**

Adopting a corpus-based approach, the first step for this thesis is to collect as much data of *TÓ U* as possible from the selected databases. In this study, I searched and collected corpus data from Sinica Corpus, Chinese Word Sketch, and Google as well.

***Step 2*: Observing and Investigating the Data**

With the collected data, the second step goes ahead with the observation of any possible linguistic phenomenon revealed in the data, including both semantic and syntactic information such as argument structures, participant roles, collocations or lexicalization patterns of the verb *TÓ U*.

***Step 3*: Sorting out the Semantic Meanings of *TÓ U* and Its Object-NPs**

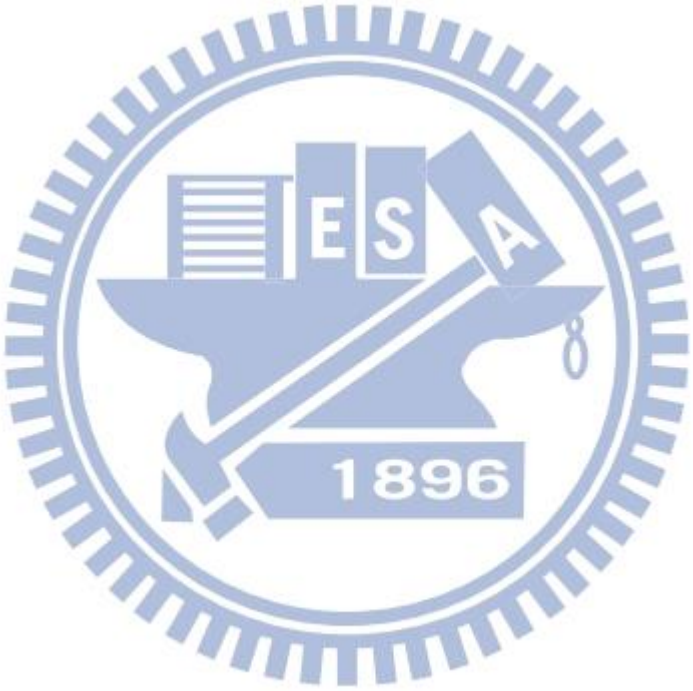
In order to account for the multiplex of *TÓ U* and its object-NPs, with the preliminary observation of the data, the third step comes to sorting out the possible meanings revealed in *TÓ U*.

***Step 4*: Categorizing the Syntactic Realizations of Different Meanings**

After sorting out the multiplex semantic meanings of *TÓ U*, the fourth step is to classify and categorize all the syntactic patterns of the data with regards to their associations with the meanings of *TÓ U*.

***Step 5*: Analyzing the semantic and syntactic correlations of the data**

Finally, the above classifications of the semantic to syntactic relationships of *TÓ U* will be analyzed on the basis of the theoretical framework introduced in Section 3.2.



Chapter 4
Findings

This chapter aims to present and describe the findings obtained in corpus observations. The verbal constellations with the verb *TÓ U* in the [*TÓ U* +NP] pattern is the issue in the thesis, and each of them sets a frame and takes a nominal argument to render an idiosyncratic sense which is different from the meaning purely composed by the verbal predicate and the object-NP. Since the constructional denotation is not inferred from its components, the non-compositional approach of Construction Grammar is adopted to analyze the target pattern. Section 4.1 introduces the distributional frequency of *TÓ U* about the syntactic patterns; Section 4.2 shows basic syntactic patterns and participant roles of [*TÓ U*+NP]; Section 4.3 represents the observation of the subtypes of *TÓ U*; Section 4.4 displays the lexicalized [*TÓ U*+NP] in the Corpus; Section 4.5 explores Dative Construction applied in [*TÓ U*+NP] combination, and Section 4.6 makes a brief summary.

4.1 Preliminary Observations of *TÓ U*

According to the linguistic data retrieved from the Sinica Corpus and Gigaword, the total number of the tokens of *TÓ U* is 20331. In the data, although there are some idiosyncratic uses of *TÓ U*, the majority of its uses are as a transitive verbal predicate which takes an object-NP in the [*TÓ U* +NP] combination. To examine the [*TÓ U* +NP] constellation, the use of a transitive predicate is our major concern in this chapter. Besides, the verb constellation includes the nominal arguments.

As indicated in the previous chapters, *TÓ U* is a verb that is found to bear multiple senses. Given the point that polysemy is "a single lexeme with different distinct but etymologically related senses"(Lyons 1977, 1995, Ravin and Leacock 2000) and "a gradient that straddles the border line between total semantic identity and distinctness and there is a meaning common to the sub-meanings"(Tuggy 1993, Greeraerts 1993, Deane 1988), we may wonder how these distinct meanings are related to each other and in overall presents a prototype category of *TÓ U*, and what the predominant core meanings that pertain to the prototypical use of *TÓ U* may be. To explore the issues, the results of the investigation on the distributional frequency of *TÓ U* with respect to the prototypical patterns are presented as below:

Distribution of syntactic patterns		
	Spatial motion	**Non-spatial motion**
NP_1<投<NP_2	**104/500 (20.8%)**	**179/500 (35.8%)**
NP_1<投<NP_2<PP	28/500 (5.6%)	30/500 (6%)
NP_1<投<NP_2<VP	17/500 (3.4%)	83/500 (16.6%)
NP_1<把<NP_2<投<PP	8/500 (1.6%)	5/500 (1%)
NP_1<投<NP_2<給<NP_3	12/500 (2.4%)	11/500 (2.2%)
NP_1<投<給<NP_2<NP_3	2/500 (0.4%)	4/500 (0.8%)
NP_1<投<NP_2<NP_3	**0 (0%)**	17/500 (3.4%)

Table 4: The Distributional Frequency of Prototypical Patterns of *TÓ U*

It is observed that *TÓ U* can be classified into spatial motion and non-spatial motion uses, and the "NP1<投<NP2" pattern is the most salient and predominant one (20.8% in spatial motion and 35.8% in non-spatial motion), which shows that unlike *Throw* in English, "NP1<投<NP2" pattern is the most prototypical in Mandarin Chinese. Nevertheless, it is worth pointing out here that "NP1<投<NP2<NP3" pattern is not allowed in spatial motion (0%) but allowed in non-spatial motion (3.4%).

Based on the findings revealed by the corpus distribution, I will classify different kinds of prototypical patterns according to its spatial motion ability, and I would like to show what semantic roles will be bound in the constructional denotation in Section 4.2.2

4.2 The prototype of *TÓ U*: *TÓ U* as a Caused-Motion Verb

Mandarin verb *TÓ U*, though regarded as encompassing cross-categorical nature as discussed in Chapter 1, is found to bear the core meaning as a caused-motion verb. Li (2007) once defined the typical caused-motion event as "one entity undergoes a locational change under the direct impact of an external force." In this section, the syntactic patterns and the participant roles will be given.

4.2.1 The basic patterns

Goldberg (1995) has defined that English caused-motion event as structurally realized in the construction [SUB [V OBJ OBL][2]. In terms of Mandarin Chinese, some caused-motion events are found to occur in the similar structure as well, and some

[2] V refers to a nonstative verb; OBL refers to a directional phrase.

caused-motion events are not. The basic prototypical patterns of caused-motion verb *TÓ U* can be shown as follows:

(26) **NP_1<投<NP_2< Path[在/到/至/進/往/回]+NP3**

a. [周俊三]$_{NP1}$投[球]$_{NP2}$[*進*籃]$_{PP}$，

zhōu jùn sān tóu qiú jìn lán

Zhou Jun-San SHOOT ball into basket

“Jun-San Zhou shoots a ball at basket.”

(27) **NP_1<投<NP_2**

a. [曹錦輝]$_{NP1}$投[滑球]$_{NP2}$，

cáo jǐn huī tóu huá qiú

Tsau Jin-Hui THROW-PF slider

“Jin-Hui Tsau threw slider.”

b. [周俊三]$_{NP1}$投[籃]$_{NP2}$，

zhōu jùn sān tóu lán

Zhou Jun-San SHOOT basket

“Jun-San Zhou shoots at basket.”

(28) **NP_1<投<NP_2<VP**

a. [球員]$_{NP1}$一起投[球]$_{NP2}$[練習]$_{VP}$，

qiú yuán yì qǐ tóu qiú liàn xí

Ball player together THROW ball practice

"The players throw balls to practice."

b. [球員]$_{NP1}$一起投[籃]$_{NP2}$[練習]$_{VP}$，

qiú yuán yì qǐ tóu lán liàn xí

Ball player together THROW basket practice

"The players shoot at a basket to practice."

(29) **NP_1<投<NP_2<給<NP3**

a. [張三]$_{NP1}$投[一個球]$_{NP2}$*給*[李四]$_{NP3}$。

zhāng sān tóu yí ge qiú gěi lǐ sì

Zhang San THROW one-CL ball give Li Si

"Zhang San throw a ball to Li Si."

(30) **NP_1<投給<NP_2<NP3**

b. [張三]$_{NP1}$投*給*[李四]$_{NP3}$[一個球]$_{NP2}$。

zhāng sān tóu gěi lǐ sì yí ge qiú

Zhang San THROW give Li Si one-CL ball

"Zhang San throw Li Si a ball."

(31) **NP_1<把<NP_2<投< Path[在/到/至/進/往/回]+NP3**

a. [美國飛機]$_{NP1}$*把*[炸彈]$_{NP2}$投[*在*高棉]$_{PP}$；

měi guó fēi jī bǎ zhà dàn tóu zài gāo mián

America airplane BA bomb throw in Gao mian

"The airplane of America throws a bomb into Gapmian."

In the above syntactic forms, they are prototypically involved in a structure that subcategorized three arguments: Subject NP, Object NP, and Oblique PP. It is worth pointing out here that unlike Oblique PP in English, PP in Mandarin Chinese may be expressed by a path marker that designates the path of motion (Pan and Chang 2005). Unlike the preposition in English, the path marker in Mandarin is usually denoted by the coverb *gěi* 給 (Li and Thompson 1981, Liu 2006) or the non-predicate path verbs including *dào/zhì/xià/jìn/wǎng/huí* 到/至/下/進/往/回 (Liu 2012), and it is followed by a NP that specifies the spatial goal. Furthermore, a VP may optionally and sequentially follow the [*TÓ U* +NP] construction to denote a purpose that involves in the caused-motion event.

4.2.2 The core participant roles

Given the syntactic forms that prototypically involve and subcategorize three arguments--Subject NP, Object NP, and Oblique PP, it is indispensable to examine how the semantic roles map into the syntactic roles in denoting a prototypical caused-motion event of *TÓ U*. In this regard, the core participant roles are given as follows:

- Agent [NP1]: All the subjects of *TÓ U* are Agents. It refers to a human who controls the ballistic motion of the theme.

  E.g. [曹錦輝/Agent]投滑球，

  cáo jǐn huī tóu huá qiú

  Tsau Jin-Hui THROW-PF slider

  “Jin-Hui Tsau threw slider.”

- Theme [NP2]: The direct object of *TÓ U* can be a Theme. It refers to a throwable physical entity which can undergo the ballistic motion.

  E.g. 曹錦輝投[滑球/Theme]，

  cáo jǐn huī tóu huá qiú

  Tsau Jin-Hui THROW-PF slider

  "Jin-Hui Tsau threw slider."

- Locational Goal [NP2]: The direct object of *TÓ U* can be a Locational Goal. It refers to a spatial bounded goal where the theme ends up after the ballistic motion.

  E.g. 周俊三投[籃]$_{NP2}$，

  zhōu jùn sān tóu lán

  Zhou Jun-San SHOOT basket

  "Jun-San Zhou shoots at a basket."

- Recipient Goal [NP2]: The direct object of *TÓ U* can be a Recipient Goal where a coverb *gěi* 給 does necessary precede it

  E.g. 張三投給[李四]$_{NP2}$一個球。

  zhāng sān tóu gěi lǐ sì yí ge qiú

  Zhang San THROW give Li Si one-CL ball

  "Zhang San throw Li Si a ball."

- Locational Goal [NP3]: The indirect object of *TÓ U* can be a Locational Goal with a path-marker *zài/dào/zhì/jìn/wǎng/huí* 在/到/至/進/往/回 preceding it and it refers to a bounded Endpoint where the ballistic motion ends.

  E.g. 周俊三投球*進*[籃]$_{NP3}$，

  zhōu jùn sān tóu qiú jìn lán

  Zhou Jun-San SHOOT ball into basket

  "Jun-San Zhou shoots a ball at basket."

- Recipient Goal [NP3]: The indirect object of *TÓ U* can be a Recipient Goal where a coverb *gěi* 給 precedes it and it receives the theme.

  E.g. 張三投一個球*給*[李四]$_{NP3}$。

  zhāng sān tóu yí ge qiú gěi lǐ sì

  Zhang San THROW one-CL ball give Li Si

  "Zhang San throw a ball to Li Si."

- Purpose [VP]: It occurs in a serial verb construction with a purpose event that is supposed to achieve by the agent.

  E.g. 球員一起投球[練習]$_{VP}$，

  qiú yuán yì qǐ tóu qiú liàn xí

  Ball player together THROW ball practice

  "The players throw ball to practice."

It is worth pointing out here that the NP3 preceded by the non-predicate path marker *zài/dào/zhì/jìn/wǎng/huí* 在/到/至/進/往/回 (Liu 2012) denotes a spatial location as an endpoint of the ballistic motion. In addition, only in Dative Construction, like Example (29), can a Theme occupy NP3 position.

4.3 The Subtype of *TÓ U: TÓ U* with Metaphorical Extended Senses

Given the prototypical meaning of *TÓ U* in 4.2, I will represent the syntactic and semantic observations on the possible semantic subtypes of *TÓ U* with respect to the prototypical meaning of *TÓ U* within spatial motion and non-spatial domains. The basic patterns and the observed participant roles that these subtypes of *TÓ U* involve will be introduced in section 4.3.1 and 4.3.2, respectively.

4.3.1 The basic patterns

Just as *TÓ U* in prototypical caused-motion patterns, *TÓ U* in metaphorical extended patterns also requires three argument roles: Subject NP, Object NP, and Oblique PP, which is shown below:

(32) **NP_1<投<NP_2< Path Marker[在/到/至] + NP_3**

a. 昨[一位高雄市民]$_{NP1}$投[書]$_{NP2}$[至本報]$_{PP}$，

zuó yí wèi gāo xióng shì mín tóu shū běn bào,

Yesterday a Kaoshung citizen MAIL-PF book self-newspaper,

“Yesterday, a Kaoshung citizen mailed a letter to our publisher.”

b. [林毅夫]$_{NP1}$投[敵]$_{NP2}$[至大陸]$_{PP}$，

lín yì fū tóu dí zhì dà lù

Lin Yi-Fu DEFECT-PF enemy to China

"Yi-Fu Lin defected to China"

(33) **NP_1<投<NP_2**

a. [百分之六十]$_{NP1}$表示會去投[票]$_{NP2}$

bǎi fēn zhī liù shí yì biǎo shì huì qù tóu piào

Percent sixty indicate will to VOTE

"Sixty percent people indicate that they are going to vote."

b. [他]$_{NP1}$出於對明朝忠耿，曾赴閩投[唐王]$_{NP2}$

tā chū yú duì míng cháo zhōng gěng céng fù mǐn tóu táng wáng

3SG out from to Ming Dynasty loyalty once arrive Min SEEK SHELTER Tang King.

"He used to go to Min for seeking shelter form King Tang because of his loyalty to the Ming Dynasty."

c. [他]$_{NP1}$想投[黃大洲]$_{NP2}$或是[陳水扁]$_{NP2}$

tā xiǎng tóu huáng dà zhōu huò shì chén shuǐ biǎn

3SG want vote Huang Da Zhou or Chen Shui Bian

"He wants to vote Da-Zhou Huang or Shui-Bian Chen"

(34) **NP_1<投<NP_2<VP**

a. [球員]$_{NP1}$一起投[票]$_{NP2}$[表決]$_{VP}$，

qiú yuán yī yī qǐ tóu piào èr biǎo jué

Ball player together VOTE decide

"The players vote to decide together."

b. [林毅夫]$_{NP1}$已經投[共]$_{NP2}$[叛國]$_{VP}$了，

lín yì fū yì yǐ jīng tóu gòng èr pàn guó

Lin Yi-Fu already DEFECT-PF China betray country

"Yi-Fu Lin has already defected to China and betrayed R.O.C."

(35) **NP$_1$<投<NP$_2$<給<NP3**

a. [我]$_{NP1}$投[票]$_{NP2}$給[你]$_{NP3}$。

wǒ yì tóu piào èr gěi nǐ

1SG VOTE give you

"I vote for you."

(36) **NP$_1$<投給<NP$_2$<NP$_3$**

a. [我]$_{NP1}$投給[你]$_{NP2}$[一票]$_{NP3}$。

wǒ yì tóu gěi nǐ sān yí piào

1SG VOTE give you one-CL vote

"I vote for you."

(37) **NP$_1$<投<NP$_2$<NP$_3$**

a. [我]$_{NP1}$投[你]$_{NP2}$[一票]$_{NP3}$。

wǒ yì tóu gěi nǐ sān yí piào

1SG VOTE give you one-CL vote

"I vote for you."

(38) **NP_1<把<NP_2<投<Path[在/到/至]+NP_3**

a. [政府]$_{NP1}$不可能*把*[巨款]$_{NP2}$投[*在*庫頁島]$_{PP}$；

zhèng fǔ bù kě néng bǎ jù kuǎn tóu zài kù yè dǎo

Government impossible BA huge money invest Kuril Islands

"It is impossible for the government to invest such a colossal sum of money to Kuril Islands."

It is worth pointing out here that unlike Dative Construction in the basic prototypical patterns, Dative Construction in non-prototypical patterns allows that a Recipient Goal immediately follows *TÓ U*, as shown in Example (37).

4.3.2 The participant roles

As observed from the corpus, *TÓ U* is a multi-faceted verb which manifests different semantic senses when it involves in different type of arguments and may thus profile various distinct but interrelated participant roles. In this section, the potential participant roles for the Subject NP, Object NP and Oblique PP selected will be given and defined. Furthermore, their semantic relation with the roles of the prototypical sense of *TÓ U* will be further examined in detail in Chapter 5.

- Agent [NP1]: All the subjects of *TÓ U* are Agents. It refers to a human who controls the activity of the theme.

E.g. [百分之六十]$_{NP1}$表示會去投票

bǎi fēn zhī liù shí yì biǎo shì huì qù tóu piào

Percent sixty indicate will to VOTE

"Sixty percent people indicate that they are going to vote."

- Theme [NP2]: The direct object of *TÓ U* can be a Theme which is less physical or tangible.

E.g. 百分之六十表示會去投[票]$_{NP2}$

bǎi fēn zhī liù shí yì biǎo shì huì qù tóu piào

Percent sixty indicate will to VOTE

"Sixty percent people indicate that they are going to vote."

- Locational Goal [NP2]: The direct object of *TÓ U* can be a Locational Goal, and it is not necessary spatial bounded.

E.g. 他出於對明朝忠耿，曾赴閩投[唐王]$_{NP2}$

tā chū yú duì míng cháo zhōng gěng céng fù mǐn tóu táng wáng

3SG out from to Ming Dynasty loyalty once arrive Min SEEK SHELTER Tang King.

"He used to go to Min for seeking shelter form King Tang because of his loyalty to the Ming Dynasty."

- Recipient Goal [NP2]: The direct object of *TÓ U* can be a Recipient Goal where a coverb *gěi* 給 does not necessary precede it.

E.g. 我投[你]$_{NP2}$一票。

wǒ tóu nǐ yí piào

1SG VOTE give you one-CL vote

"I vote for you."

- Locational Goal [NP3]: The indirect object of *TÓ U* can be a Locational Goal where a path-marker *dào/zhì/jìn* 到/至/進 precedes it and details the preceding Goal.

E.g. 林毅夫投敵至[大陸]$_{NP3}$，

lín yì fū tóu dí zhì dà lù

Lin Yi-Fu DEFECT-PF enemy to China

"Yi-Fu Lin defected to China"

- Recipient Goal [NP3]: The indirect object of *TÓ U* can be a Recipient Goal where a coverb *gěi* 給 precedes it and it receives the theme.

E.g. 我投票給[你]$_{NP3}$。

wǒ yì tóu piào èr gěi nǐ

1SG VOTE give you

"I vote for you."

- Purpose [VP]: It occurs in a serial verb construction with a purpose event that is supposed to achieve by the agent.

E.g. 球員一起投票[表決]$_{VP}$，

qiú yuán yī yī qǐ tóu piào èr biǎo jué

Ball player together VOTE decide

“The players vote to decide together.”

To sum up, this section gives the possible syntactic patterns that *TÓ U* may occur with. Based on the result of the distributional frequency, the “NP1<投<NP2” pattern is the most prototypical in Mandarin Chinese. With the mapping of the core pattern with different participant roles, there are similarities and differences between the prototypical *TÓ U* and its metaphorical extended use. It is important that Dative Construction in non-spatial motion allows that a Recipient Goal immediately follows *TÓ U*, whereas it is not allowed in spatial motion.

4.4 The Lexicalization of [*TÓ U*+NP] in the Corpus

To reveal the detailed information of the constructions with [*TÓ U*+NP], all the instances of *TÓ U* as a transitive verb and its following object-NPs are together examined. Though the main predicate is *TÓ U* ‘to throw’, the specific activities undertaken may not be the same. We may postulate that the nominal argument following *TÓ U* is the key element of the whole embedded scenario, implicating that some [*TÓ U*+NP] combinations share spatial motion activities and some share non-spatial motion activities with certain rules or means for carrying out the event. As [*TÓ U* +NP] is a productive pattern from corpus, we also observe some [*TÓ U* +NP] patterns can to be lexicalized V-O complements:

Examples of [*TÓ U*+NP]	Meanings
投　宿	‘to seek temporary lodging’
投　敵	‘to defect to the enemy’
投　稿	‘to submit a piece of writing’
投　資	‘to invest’
投　書	‘to mail a letter for complaining’
投　江	‘to jump into a river’
投　醫	‘to see a doctor’

Table 5. Lexicalized Constructions of [*TÓ U*+NP] in the corpus

In the data of [*TÓ U*+NP] as shown above in Table 5, there are quite a few tokens that are nearly lexicalized. Based on Lakoff and Johnson(1980), they noted that “Most of our fundamental concepts are organized in terms of one or more spatialization metaphors.” Under this view, the domain of prototypical spatial motion may provide the basic cognitive model for describing other spatial or non-spatial activities such as MOTION as ACTIVITY or CAUSE as EFFECT. (Lakoff and Johnson, 1980) Therefore, according to the different semantic types of NP, I will make a precise observation about lexicalized [*TÓ U*+NP] within different semantic types of NP in different syntactic patterns.

4.4.1 Theme-Incorporated Lexicalization

tóu gǎo 投稿 ‘to submit’, *tóu zī* 投資 ‘to invest’, *tóu shū* 投書 ‘to mail a letter for complaining’, and the like, are lexicalized [*TÓ U*+NP-T] compounds. When Theme is incorporated, the [*TÓ U*+NP-T] pattern will become lexicalized V-O compound. Unlike the Verbs of Throwing *TÓ U*, the lexicalized [*TÓ U*+NP-T] can be immediately followed

by a NP-Goal without the path-marker. Consider the following examples, and we can figure that the path marker is necessary when *TÓ U* is used as a prototypical motion verb. On the contrary, a path marker is not necessary when [*TÓ U*+NP-T] is lexicalized:

(39) a. 投球進籃 *tóu qiú jìn lán* 'to throw a ball into basket'

-- the [*TÓ U*+NP-T] within the verb *Throw*

b. 投稿當地報紙 *tóu gǎo dāng dì bào zhǐ* 'to submit to the local newspaper.'

-- lexicalized [*TÓ U*+NP-T]

4.4.2 Goal-Incorporated Lexicalization

Compounds like *tóu sù* 投宿 'to seek temporary lodging', *tóu dí* 投敵 'to defect to the enemy', *tóu jiāng* 投江 'to jump into a river', *tóu yī* 投醫 'to see a doctor', and the like, are lexicalized [*TÓ U*+NP-G] compounds. When Goal is incorporated, the [*TÓ U*+NP-G] pattern will become lexicalized V-O compound, and the unspecified Theme is reflexive to the Agent. Unlike the Verbs of Throwing *TÓ U*, the lexicalized [*TÓ U*+NP-G] can be followed by a NP-G without the path-marker. To be precise, in the lexicalized [*TÓ U* +NP-G]+NP-G, the second Goal must detail the first goal. It is worth pointing out here that the semantic transfers are actually WHOLE ICM FOR ITS PART. (Kövecses and Radden, 1998)

(40) a. *投籃進籃 **tóu lán jìn lán* 'to throw a ball into basket'

-- the [*TÓ U*+NP-G] within the verb *Throw*

b. 投宿四季賓館 *tóu sù sì jì bīn guǎn* 'to seek temporary lodging in Si Ji hotel.'

-- lexicalized [*TÓ U*+NP-G]

4.5 Dative Alternation

Given that there exist similarities and differences when Dative Construction is applied in spatial motion and non-spatial motion use mentioned in Section 4.3, in this section, I will explore the caused-motion verb *TÓ U* applied in Dative construction. As mentioned in Section 2.6, Feng-Hsi Liu (2006) focuses on the dative constructions in Chinese where it concern three constructions:

- The *gei* object construction V NP *gei* NP
- The V*gei* double object construction V*gei* NP NP
- The double object construction V NP NP

Now please consider the following examples:

(41) a. 我投球給你

wǒ tóu qiú gěi nǐ

1SG THROW ball give you

"I throw a ball to you."

b. 我投給你球

wǒ tóu gěi nǐ qiú

1SG THROW give you ball

"I throw you a ball."

c. *我投你球

**wǒ tóu nǐ qiú*

1SG THROW you ball

“I throw you a ball.”

d. *我投球你

**wǒ tóu qiú nǐ*

1SG THROW give ball you

“I throw a ball to you.”

(42) a. 我投球進洞

wǒ tóu qiú jìn dòng

1SG THROW ball into hole

“I throw a ball into a hole.”

b. *我投進洞球

**wǒ tóu jìn dòng qiú*

1SG THROW into hole ball

“I throw a ball into a hole.”

c. *我投洞球

**wǒ tóu dòng qiú*

1SG THROW hole ball

“I throw a ball into a hole.”

d. *我投球洞

**wǒ tóu qiú dòng*

1SG THROW ball hole

“I throw a ball into a hole.”

(43) a. 我投票給你

wǒ tóu piào gěi nǐ

1SG VOTE give you

“I vote for you.”

b. 我投給你票

wǒ tóu gěi nǐ piào

1SG VOTE give you vote

“I vote for you.”

c. 我投你票

wǒ tóu nǐ piào

1SG VOTE you vote

“I vote you a vote.”

d. *我投票你

**wǒ tóu piào nǐ*

1SG VOTE vote you

“I vote for you.”

Observing the Example (41-42) above, they stand for spatial motion constructions, and Goal can be classified into two types: Locational Goal and Recipient Goal. If the semantic role of goal is Recipient, the coverb *gěi* 給 is still necessary and Dative Alternation can be applied. The Example (41a) and (41b) are acceptable due to the fact that *nǐ* 你 ‘you’ is a Recipient Goal, and it should be immediately preceded by the coverb *gěi* 給. On the other hand, examples (42b-42d) are not acceptable since *dòng* 洞

'hole' is a Locational Goal rather than a Recipient Goal. Therefore, Example (42) cannot be applied in Dative Alternation.

It is worth pointing out here that Example (41c) is incorrect but Example (43c) is correct. There are two reasons that can explain this exception. First, *TÓ U* in Example (43c) is a non-spatial motion verb rather than a spatial motion verb. Second, the non-spatial motion verb *TÓ U* can be applied in the double object construction since it implies the sense of "giving" in Example (22g) provided in Section 2.6 (Liu 2006).

4.6 Summary

As observed above, two questions will be taken into consideration: Should these different senses of *TÓ U* in [*TÓ U* +NP] be postulated according to the lexical rule approach? Furthermore, is there any other way to account for the diverse uses of *TÓ U*? Jackendoff (1997) proposed that a constructional approach is more economic than a lexical rule approach[3]. A constructional approach indicates that the verbal predicate takes the coerced interpretation. However, lexical rule approach provides some extra senses for the lexical item (Yu 2005). Therefore, a constructional approach can be appropriately used to interpret different semantic information encoded in the caused-motion event of the [*TÓ U* +NP] combinations.

[3] Jackendoff (1997: 534) suggests that two approaches are compared with many examples. One of the examples is 'We slept the whole afternoon away.' The lexical rule approach suggests *sleep away* is considered as a complex verb that licenses the object, while the constructional approach expresses *V NP away* is viewed as a meaning-bearing construction that licenses both the verb and the object.

Chapter 5
Analysis

This chapter represents a corpus-based analysis of [*TÓ U*+NP] in Mandarin Chinese. The framing system by Liu and Chiang (2008) is adopted here to illustrate the multi-layered taxonomy of Caused motion sequences. Section 5.1 describes semantic profile of caused-motion domain of *TÓ U*. Section 5.2 represents schematic properties and extensions. Section 5.3 shows Qualia Structure and constructional interpretations. Section 5.4 summarizes the interrelationship of the multiple senses of *TÓ U*. An overview of the frames and the frame categorization by introducing the conceptual schema of caused-motion frame and the hierarchical structure of the framing system are also presented in Section 5.5, and Section 5.6 summarizes this chapter.

5.1 Semantic Profile of Caused-motion Domain of *TÓ U*

In terms of Cognitive Linguistics, Langacker (1987) has made a clear definition about the concept of base and profile. Langacker (1987) indicated that "the semantic value of an expression derives from the designation of a specific entity identified by its position within a larger configuration." To be specific, the base is a kind of prototypical knowledge that the concept presupposes, and the profile is a kind of focal point referring to the specific element.

Given the definition regarding base and profile, the prototype of *TÓ U* within a caused-motion event is postulated as a base for the predication of *TÓ U*. With different profiling of designated nominal arguments, the multi-faceted uses of *TÓ U* are emphasized. Furthermore, given the semantic roles of *TÓ U* in Section 4.2, the

prototypical use of *TÓ U* involves Agent, Theme, Path, Goal, and Purpose. The prototypical case for the Theme receives the energy from Agent and undergoes a translational motion, so the prototypical case for it may be a concrete entity. As for the Path, it refers to the prominent starting point and ending point of the route or even the direction of the movement. In terms of the prototypical Goal, it must be a locational goal. As to the Purpose, it is to denote the purpose that involves in the caused-motion event brought out by *TÓ U*. A conceptual schema is given as a representation for the event, as shown below:

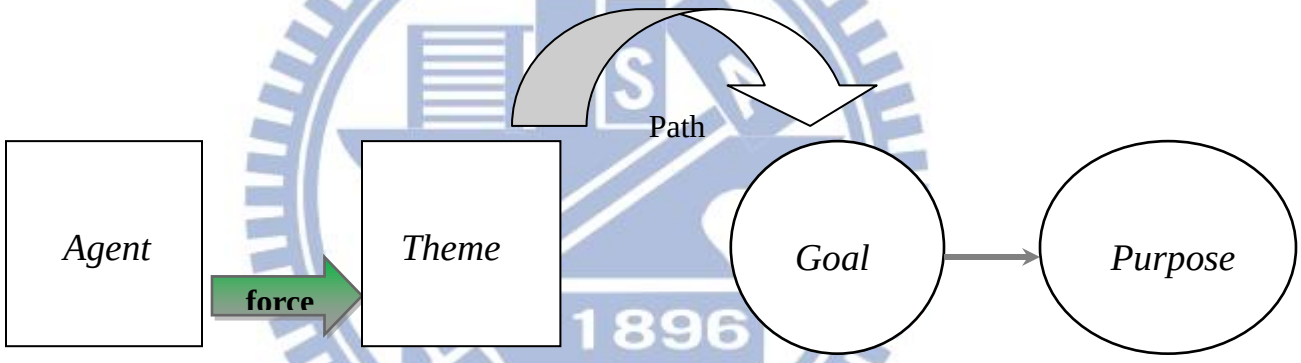


Figure 5. Conceptual Schema for Prototypical Caused motion event of *TÓ U*

5.2 Schematic Properties and Metaphorical Extensions

Due to the fact that caused-motion is a basic concept where "people used to organize their physical world and is best understood as an experiential gestalt," caused-motion event can be viewed as "the outcome of human's categorization and conceptualization of physical world" (Lakoff 1980). In this section, the semantic properties of the caused-motion event of [*TÓ U* +NP] will be provided by event schema, and the metaphorical extended senses will be discussed in the next sections.

5.2.1 Semantic Profile about Spatial Motion of *TÓ U*

5.2.1.1 Prototypical Event Schema of [*TÓ U*+NP]

Unlike English, the Chinese [*TÓ U* +NP] combination, which profiles the Theme in Fig. 6 and profiles the Goal in Fig. 7, is the most salient and predominant mentioned in Section 4.1 and thus it is assumed to be the most central and prototypical:

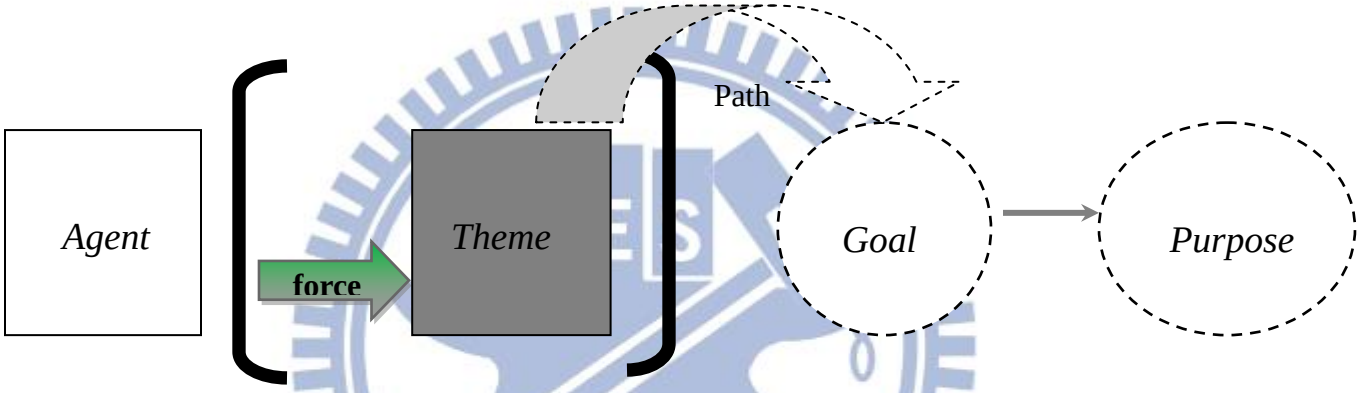


Figure 6. Conceptual Schema for Prototypical Event Schema of [*TÓ U*+NP-T]

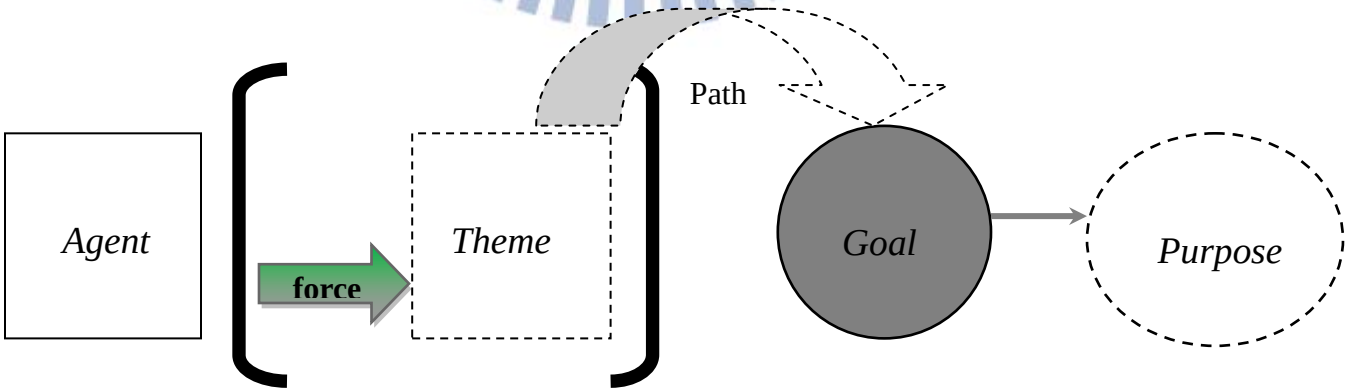


Figure 7. Conceptual Schema for Prototypical Event Schema of [*TÓ U*+NP-G]

In Fig. 6, when the postverbal NP is a Theme, unlike English, the Goal and Path may be unspecified. The following is a corpus example:

(44) 曹錦輝投[滑球/Theme]，

cáo jǐn huī tóu huá qiú

Tsau Jin-Hui THROW-PF slider

“Jin-Hui Tsau threw slider.”

In Fig. 7, when the postverbal NP is a spatial bounded Goal, it profiles the role of LocNP. Unlike English, the Theme and the Path may be unspecified. The following is a corpus example:

(45) 周俊三投[籃/Goal]，

zhōu jùn sān tóu lán

Zhou Jun-San SHOOT basket

“Jun-San Zhou shoots at basket.”

5.2.1.2 Prototypical Event Schema of [*TÓ U* + NP] + VP

The VP following [*TÓ U*+NP] stands for the Purpose that the [*TÓ U*+NP] combination brings out. The Goal may be unspecified in Fig. 8, and the Theme may be unspecified in Fig. 9, respectively:

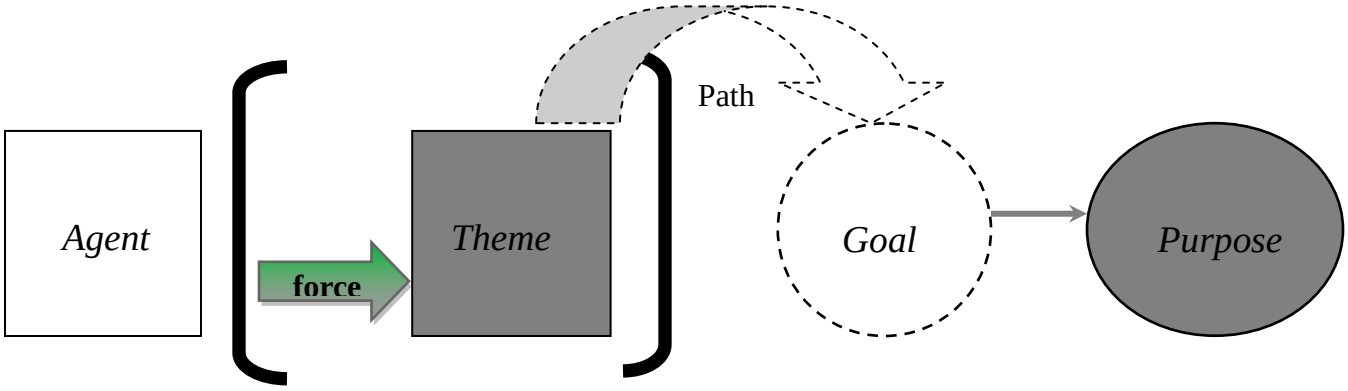


Figure 8. Conceptual Schema for Prototypical Event Schema of [*TÓ U*+NP-T]+VP

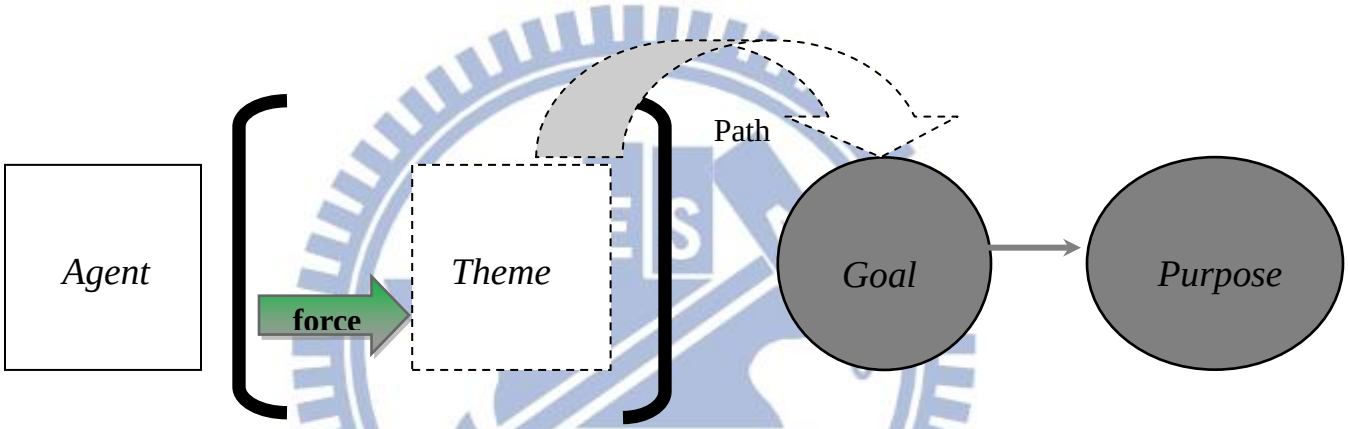


Figure 9. Conceptual Schema for Prototypical Event Schema of [*TÓ U*+NP-G]+VP

Note that the semantic transfer occurs, which is actually "a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same domain, or ICM (idealized cognitive models)." (Kövecses and Radden 1998:39)

Kövecses and Radden (1998) provided a general conceptual configuration: CAUSE AS EFFECT metonymy. The following are examples:

(46) CAUSE AS EFFECT: "投錢" stands for "許願"

Ex. 投[錢/Theme][許願/Purpose]，

(47) CAUSE AS EFFECT: “投球” stands for “練習”

Ex. 投[球/Theme][練習/Purpose]，

(48) CAUSE AS EFFECT: “投籃” stands for “練習”

Ex. 投[籃/Goal][練習/Purpose]，

5.2.1.3 Prototypical Event Schema of BA-Alternation

When the *TÓ U* is applied in BA-alternation, it profiles the Theme, and the Path and Goal cannot be unspecified:

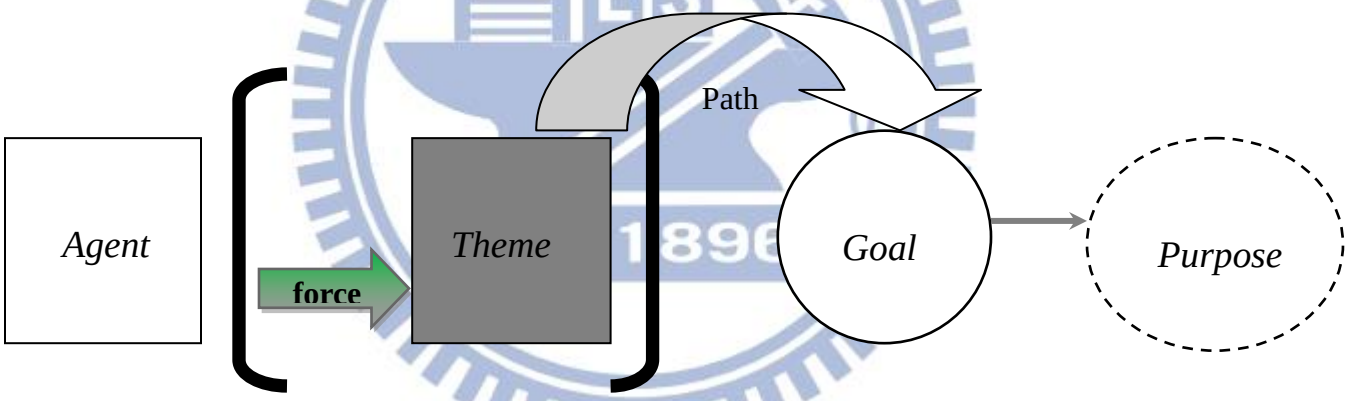


Figure 10. Conceptual Schema for Prototypical Event Schema of *TÓ U* in BA Alternation

The following are corpus examples:

- 美國飛機*把*[炸彈/Theme]投[*在*/Path marker][高棉/Goal]；

  měi guó fēi jī bǎ zhà dàn tóu zài gāo mián

  America airplane BA bomb throw in Gao mian

  “The airplane of America throws a bomb into Gapmian.”

5.2.2 Metaphorical Extension: From Spatial to Non-Spatial Domains

Lakoff and Johnson (1980) stated that "Most of our fundamental concepts are organized in terms of one or more spatialization metaphors." As mentioned in Section 4.4, the domain of prototypical spatial motion may provide the basic cognitive model for describing other spatial or non-spatial activities such as "ACTIVITY as MOTION or ACTIVITY as JOURNEY" (Lakoff and Johnson 1980). In addition, as to the metaphorical extension, Traugott (1982, 1990) suggested that "semantic shift goes from external-situated to internal-situated meanings." Claudi and Heine (1986) also proposed that "metaphorical extension follows the order: Space> Process>Quality." In view of this, we may postulate the direction for the extension of caused-motion *TÓ U* event as follows:

(49) Direction of Metaphorical transfer for caused-motion *TÓ U*:

Spatial Motion > Physical Motion > Process > Nonspatial Quality

Given the conceptual semantic base of the prototypical *TÓ U*, this section aims to discuss the metaphorical extension from Spatial to Non-spatial domains.

5.2.2.1 [*TÓ U*+NP-Theme] in Non Spatial Motion Domains

When the postverbal NP is a Theme, the Theme may be less physical or tangible and the caused-motion event is interpreted as a non-spatial motion:

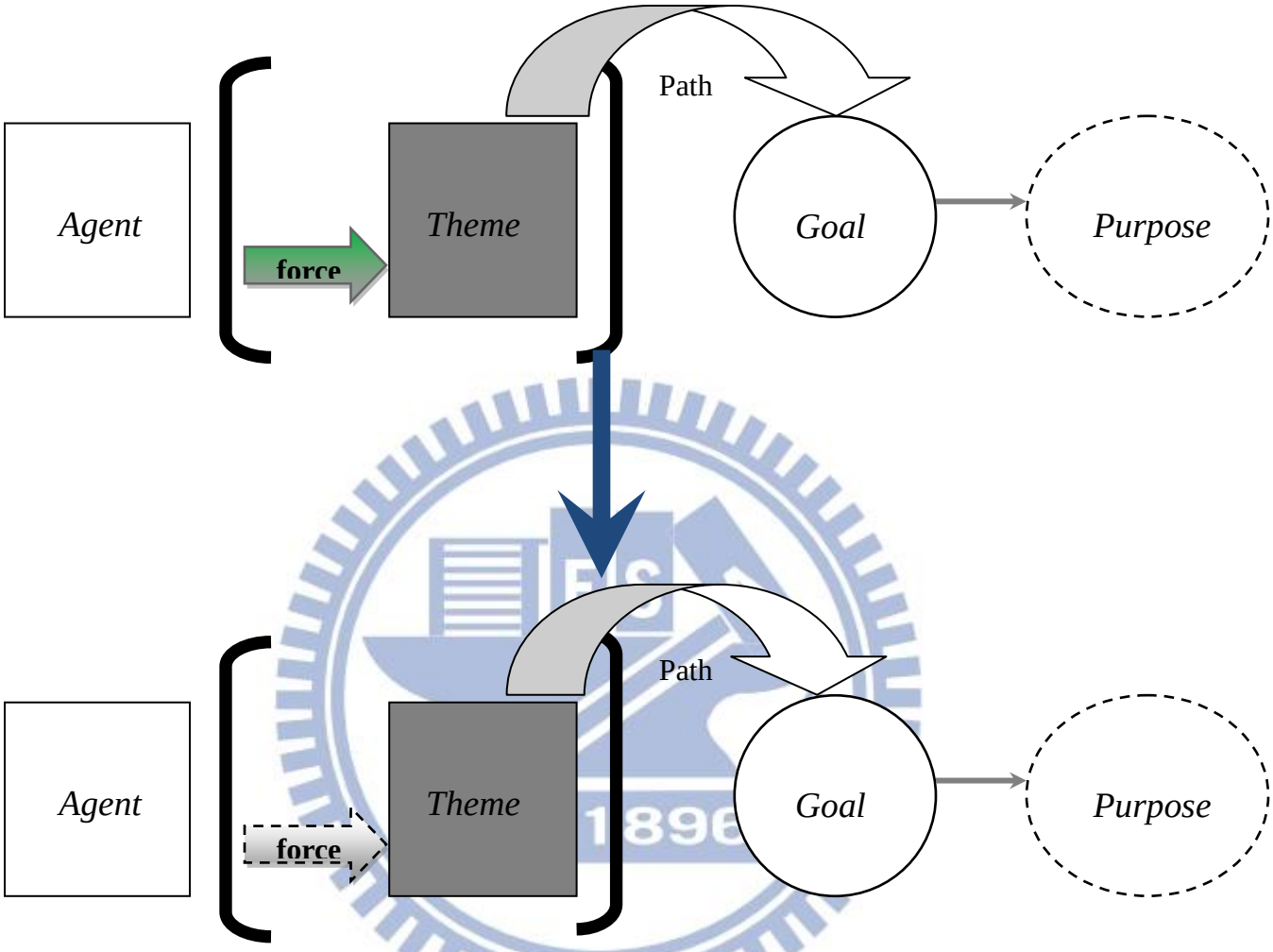


Figure 11. Conceptual Schema for Non-spatial Motion of [*Tó U*+NP-T]

Consider the following examples, *qiú* 球 'ball' in Example (50a) is a throwable physical entity, whereas *zī jīn* 資金 'find' in Example (50b) is less physical and tangible and thus (50b) denotes a non-spatial motion:

(50) a. 我投球進洞

wǒ tóu qiú jìn dòng

1SG THROW ball into hole

"I throw a ball into a hole."

b. 我投資金到大陸

wǒ tóu zī jīn dào dà lù

1SG INVEST fund to China

"I invest funds to China."

When the postverbal NP-Theme is incorporated, it may profiles the role of Means since there is a specified or unspecified Purpose that the Agent wants to achieve with it. In addition, the [*TÓ U* +NP-T] will be lexicalized and become V-O compound involved in the non-spatial motion, and the Path is unspecified. The following are examples with lexicalized [*TÓ U* +NP-T], and the Conceptual Schema for the transfer of Theme-Incorporated:

(51) a. 投資大陸 *tóu zī dà lù* 'to invest to China'

b. 投稿本公司 *tóu gǎo běn gōng sī* 'to submit to our company'

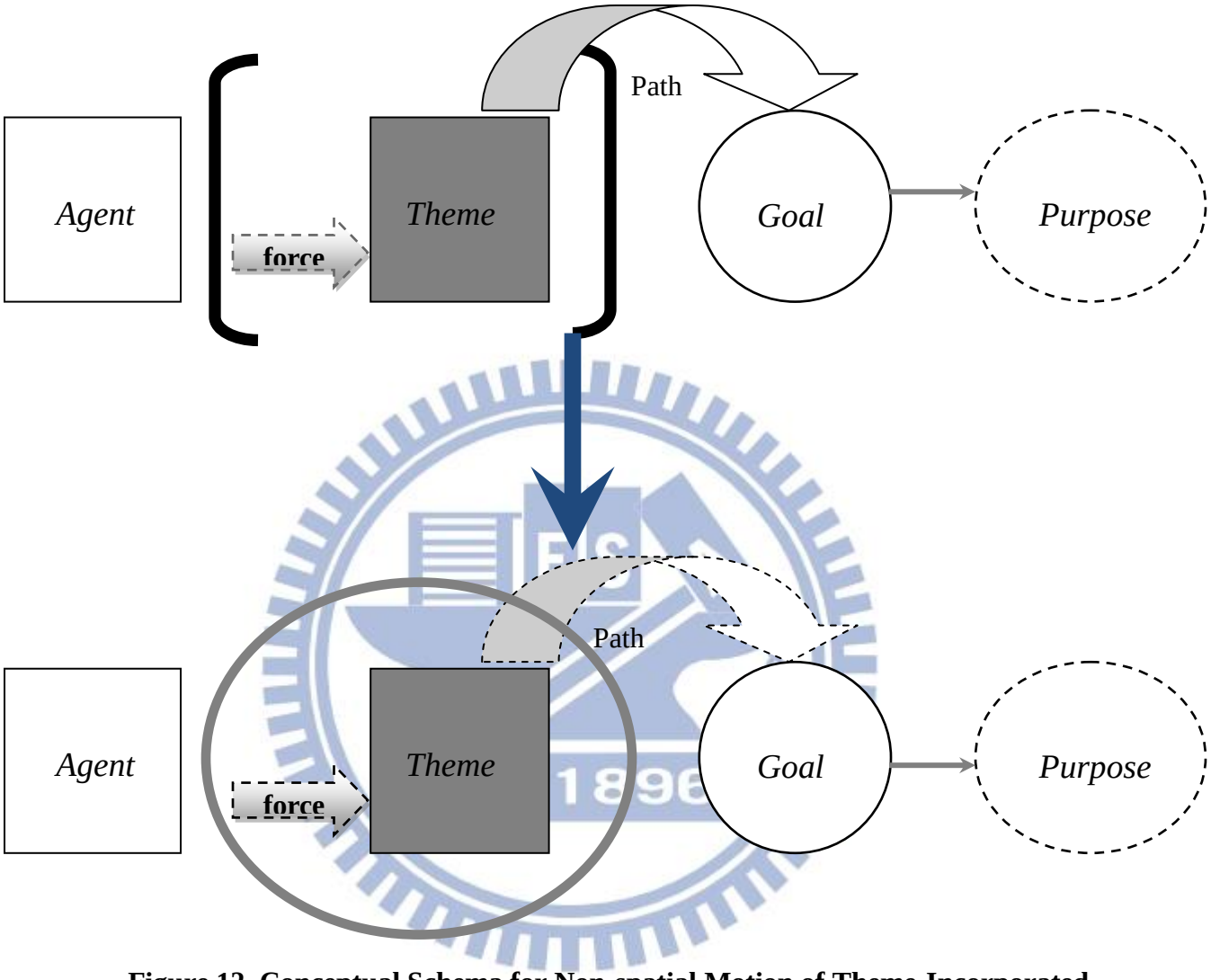


Figure 12. Conceptual Schema for Non-spatial Motion of Theme-Incorporated

5.2.2.2 [*TÓ U*+NP-Goal] in Non Spatial Motion Domains

When the postverbal NP is a Goal, it may be not a spatial bounded Goal, and in a syntactic view, the object-theme is unspecified and reflexive to the Agent; in a semantic view, it becomes a self-motion construction instead of a caused-motion one:

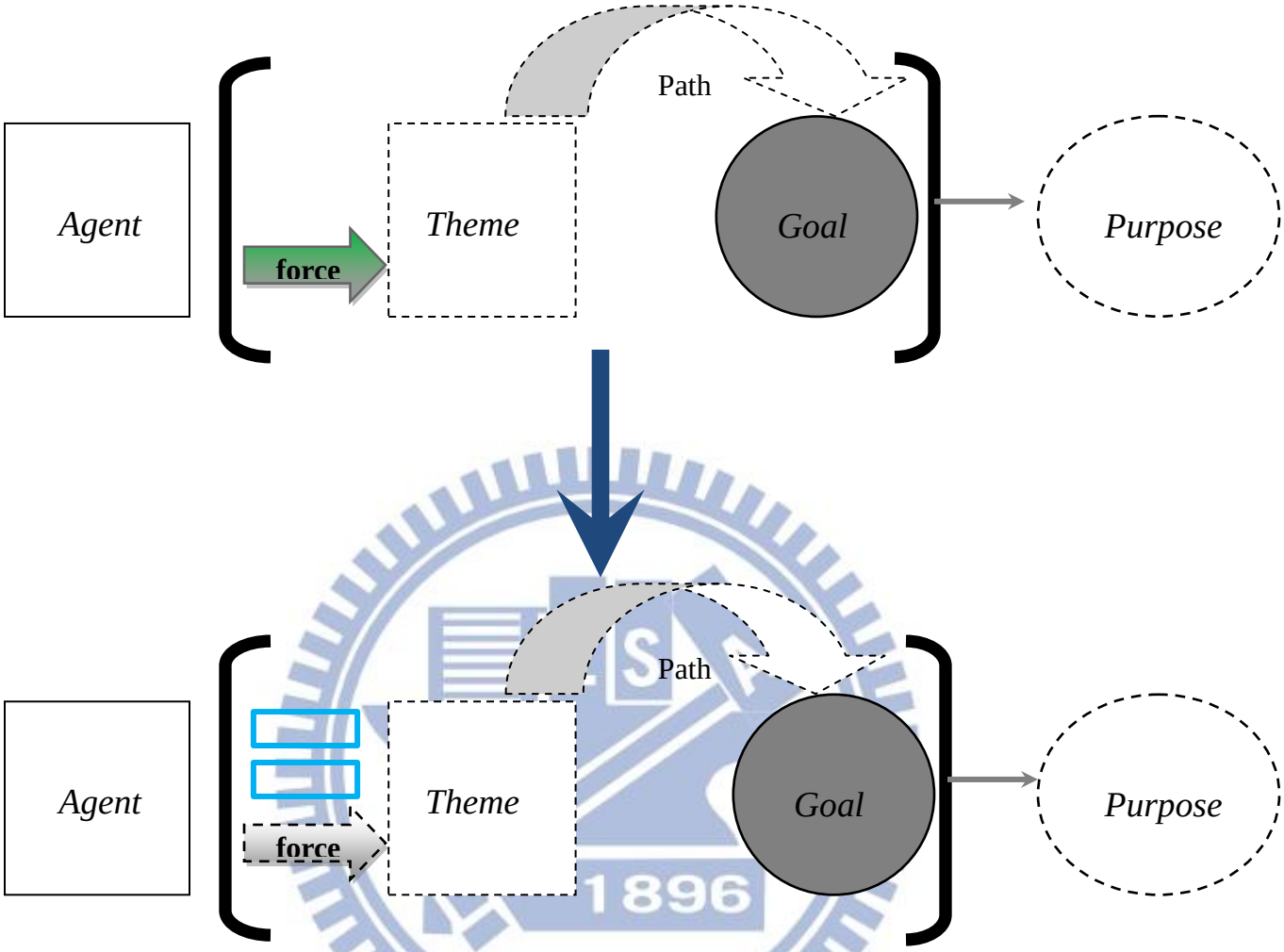


Figure 13. Conceptual Schema for Non-spatial Motion of [*Tó U*+NP-G]

Consider the following examples, *lán* 籃 'basket' in Example (52a) is a spatial bounded goal, whereas *zhōng gong* 中共 'China' in Example (52b) is not a spatial bounded goal and the only moving entity is the Agent itself, and thus Example (52b) is a self-motion construction:

(52) a. 我投籃

wǒ tóu lán

1SG SHOOT basket

"I shoot at basket."

b. 我投中共

wǒ tóu zhōng gòng

1SG DEFECT China

"I defect to China."

In addition, the [*TÓ U* +NP-G] pattern may be lexicalized and become V-O compound such as 投共 *tóugòng* involving a self-motion in non-spatial motion:

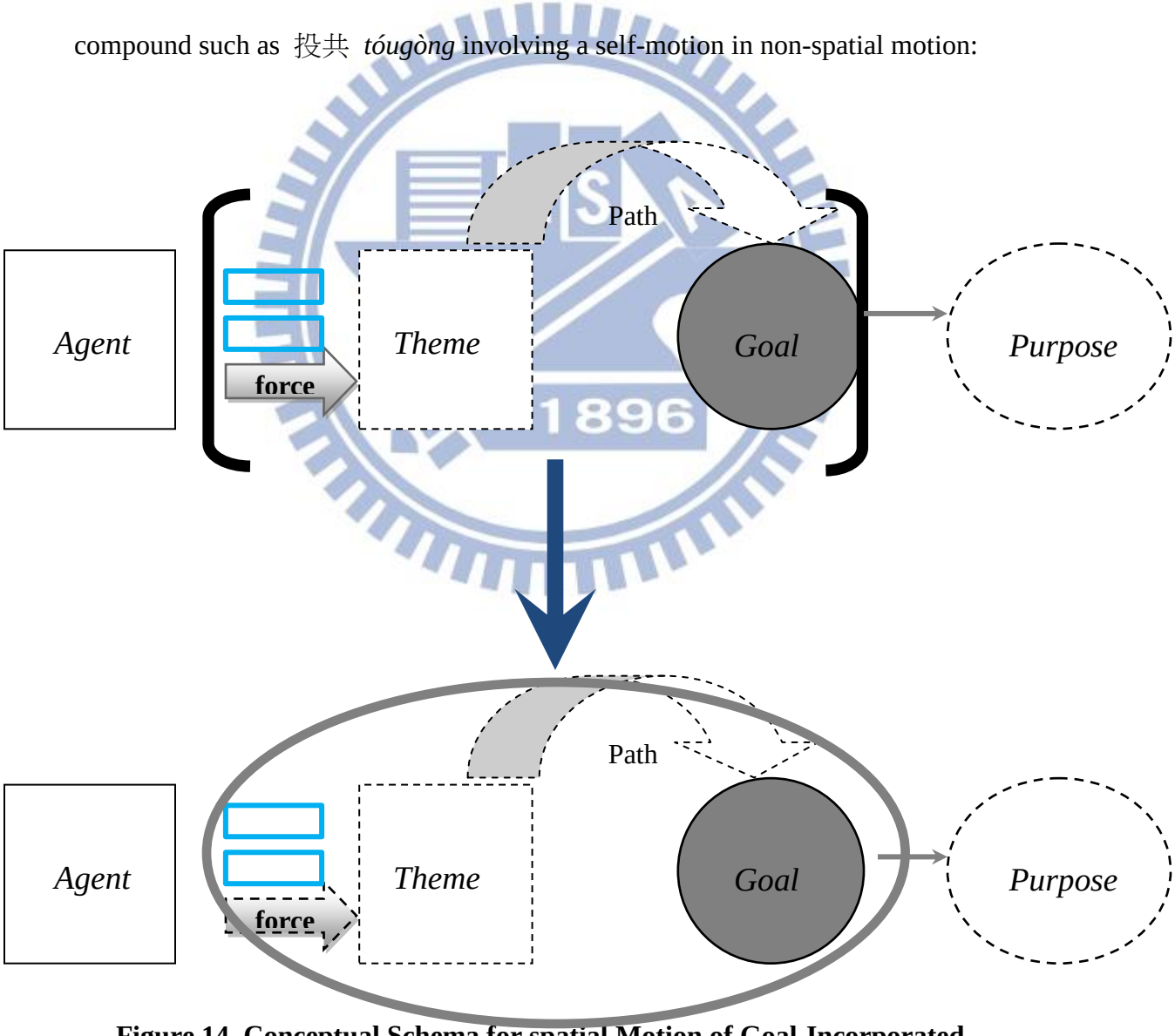


Figure 14. Conceptual Schema for spatial Motion of Goal-Incorporated

The following are examples with lexicalized [*TÓ U* +NP-G] , which are derived on the basis of the Conceptual Schema of Goal-Incorporated:

(53) a. 投宿 *tóu sù* ‘to seek temporary lodging’

b. 投敵 *tóu dí* ‘to defect to the enemy’

c. 投江 *tóu jiāng* ‘to jump into a river’

d. 投醫 *tóu yī* ‘to see a doctor’

5.3 Qualia Structure and Constructional Interpretations

As mentioned in section 3.2.7, the Qualia Structure (cf. Pustejovsky 1995:76-7), specifying four essential aspects of an object-NP, is introduced to distinguish the potential ambiguity pertaining to the event denoted by the [*TÓ U*+NP] construction. Again, here are the qualia roles listed as follows:

- CONSTITUTE: the relation between an object and its constituent parts;
- FORMAL: that which distinguishes it within a larger domain;
- TELIC: its purpose and function;
- AGENTIVE: factors involved in its origin or “bringing it about.”

In the [*TÓ U* + NP] combination, the Qualia role of the object NP evokes the appropriate reading of *TÓ U* in context. Generally speaking, object NPs of different semantic roles would prefer to profile different Qualia roles, and thus different readings

can be obtained. Given that a noun as a qualia structure, it is the Telic role that highlights the Theme and Goal combining with *TÓ U*. Consider the following examples:

(54) Theme -- Q-role: Telic

a. 投票 'to vote'

Vote [Telic = for election]

b. 投稿 'to submit a piece of writing'

Manuscript [Telic = for publication]

c. 投資 'to invest'

Fund [Telic = for getting the profit]

(55) Goal -- Q-role: Telic

a. 投宿 'to seek temporary lodging'

Lodging [Telic = for living in]

b. 投江 'to jump into a river'

River [Telic = to jump into]

According to Pustejovsky (1995), the Telic role refers to the "purpose that an agent has in performing an act" and the "built-in function or aim which specifies certain activities". And thus, in (54), it is the profiled Telic role of *piào* 票 'vote', and *gǎo* 稿 'manuscript' and *zī* 資 'fund' that evokes the readings 'for election / publication / getting the profit', respectively; in (55), it is the profiled Telic role of *sù* 宿 'Lodging' and *jiāng* 江 'river' that evokes the readings 'for living in/ to jump into', respectively.

Furthermore, these qualias are applied to solve the problem pertaining to constructional ambiguity. As discussed in Section 1.3, at first sight, *huáng dà zhōu* 黃大洲 'Da-Zhou Huang' in Example (9) and *táng wáng* 唐王 'Tang King' in Example (10) are humen, and the readers may misunderstand if the interpretation of *TÓU táng wáng* 投唐王 is similar to *TÓU huáng dà zhōu* 投黃大洲. In fact, the two readings are facilitated by Telic role of the object NP in Example (9) and Formal role of the object NP in Example (10), respectively. We can figure out that the Telic role for Example (9) is "to vote" reading since it is for election, and *huáng dà zhōu* 黃大洲 'Da-Zhou Huang' is a candidate standing for a Recipient Goal; the Formal role for Example (10) is "to seek shelter" reading since *táng wáng* 唐王 'Tang King' for "Tang King's camp" represents WHOLE THING FOR A PART OF THE THING metonymy (Kövecses and Radden 1998), and thus *táng wáng* 唐王 'Tang King' is a location standing for a Locational Goal.

Consequently, Qualia Structure helps to effectively differentiate and account for the possible ambiguous readings of one expression in a systematic way.

5.4 Interrelationships of the Different Semantic types of *TÓU*

Given the analysis for the possible semantic profiles and extensions of *TÓU* based on the interaction of frame elements and syntactic patterns along with metaphorical transfers, the interrelationships among the various uses for *TÓU* can thus be illustrated by the multi-faceted hierarchical structure shown below:

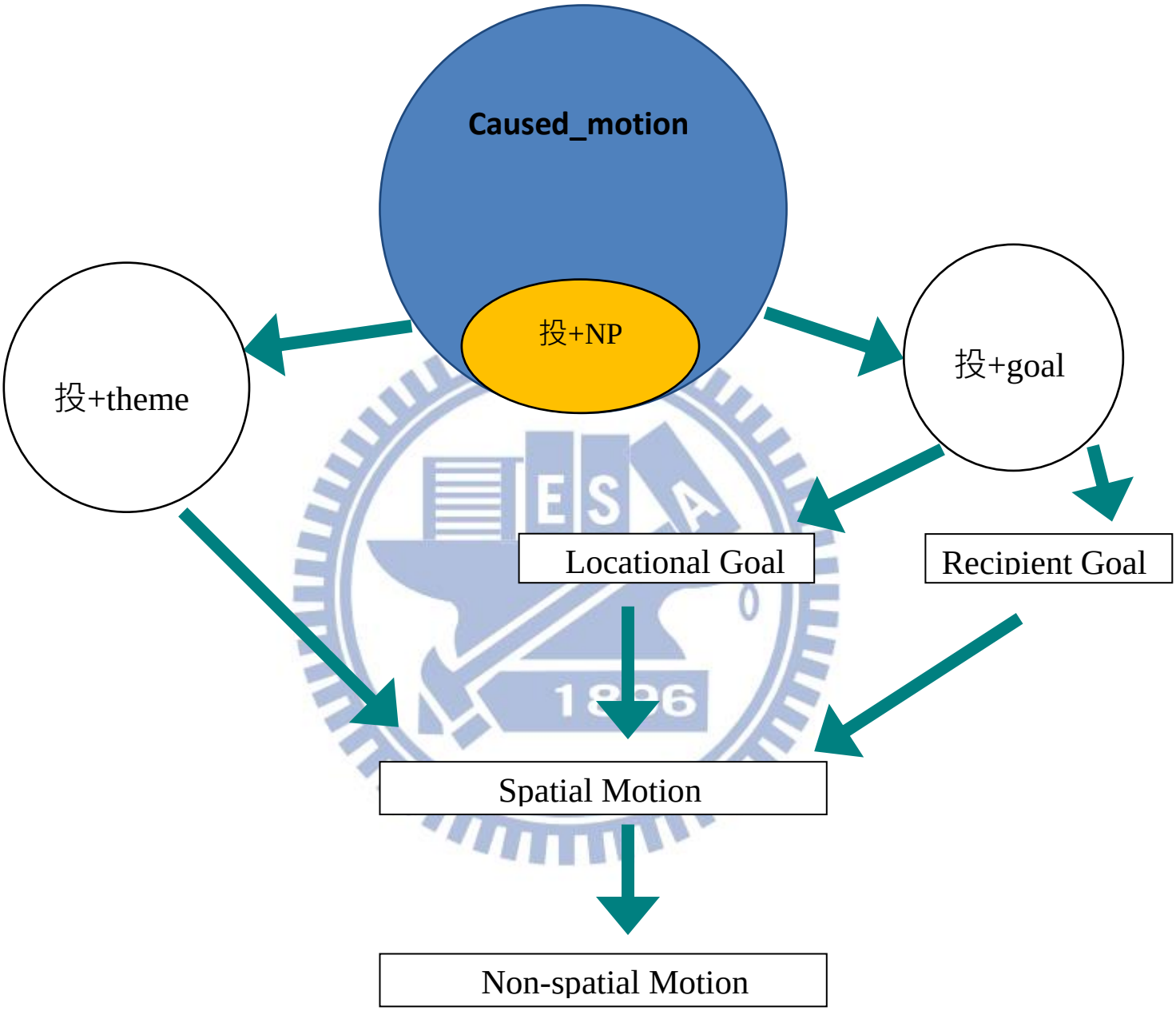


Figure 15. The interrelationships of the multiple senses of *TÓ U*

In Figure 15, the prototypical meaning of *TÓ U* falls into the domain of caused-motion. In addition, the prototypical use of *TÓ U* can be followed by NP-Theme or NP-Goal. Notice that the goal may be Locational Goal or Recipient Goal, and the

[*TÓ U*+NP] combination can be applied in Dative Alternation when the Goal is a recipient. Besides, several metaphorical processes are involved to process the relevant derived uses; such semantic relations are indicated by the above Figure.

5.5 Conceptual Schema of Caused Motion

According to Liu and Chiang (2008), a Conceptual Schema (CS) illustrates the cognitive background of an event with a set of default participant roles, that is, the Frame Elements (FEs). The conceptual schema describes a cognitive basis of a certain frame and the frame-to-frame relationship among its sub-frames.

Reviewing the Proto-motion Event Schema (PMS) by Liu et al. (2012), several essential semantic components that are crucial to caused motion have been identified as semantic components encoded in various motion verbs. As a cognitive representation of motion, PMS has integrated the verb-internal lexical features in verbs of motion together with the verb-external participant roles co-occurring with them. As illustrated by Liu et al (2013)[4], [Manner], [Route], [Direction], and [Endpoint] are identified as verb-internal components as in (56b). On the other hand, we have verb-external elements in (56a) as *rìběn* 日本 'Japan' specifying Route, *dōng* 東 'east' denoting Direction, and *měiguó* 美國 'America' describing Endpoint.

(56) a. 他 [飛]Manner [經日本]Route [往東]Direction [到美國]Endpoint

tā fēi jīng rìběn wǎng dōng dào měiguó

he fly through Japan toward east arrive America

'He flew east through Japan to America.'

[4] Liu, Meichun, Chia-yin Hu, Hsin-shan Tsai, Shu-ping Chou. 2013. The Proto-Motion Event Schema: Integrating Lexical Semantics and Morphological Sequencing, Paper submitted to *Journal of Chinese Linguistics*.

b. 球 [滾]$_{Manner}$ [落]$_{Route}$ [進]$_{direction}$ [到]$_{Endpoint}$洞裡

qiú gǔn luò jìn dào dònglǐ

ball roll fall enter arrive hole

'The ball rolled-fell into the hole.'

(Liu et al. 2013)

As for the caused motion frame, it has been defined as "a motion event co-occurring with the causing event of the Agent and Theme." Thus, incorporated with the PMS proposed by Liu et al. (2013), the essential verb-external participant roles [Mover] and [Moved Entity] are identified as the crucial frame elements for caused-motion frame, as in (57).

(57) [我]$_{Mover}$ 投[球]$_{Moved\_Entity}$ [進]$_{Endpoint}$ [洞]$_{Locative}$

wǒ tóu qiú jìn dòng

1SG throw ball into hole

'I throw a ball into the hole.'

In the same vein, external participants *wǒ* 我 'I', *qiú* 球 'ball', and *dòng* 洞 'hole' specified in the motion frame are viewed as the essential frame elements specifying the caused motion. We suggest the caused motion is plotted with the frame elements: 1) Mover, 2) Moved Entity, 3) Route NP, 4) Directional NP, 5) Locative NP, and 6) Deictic as displayed in the conceptual schema of caused motion as shown below.

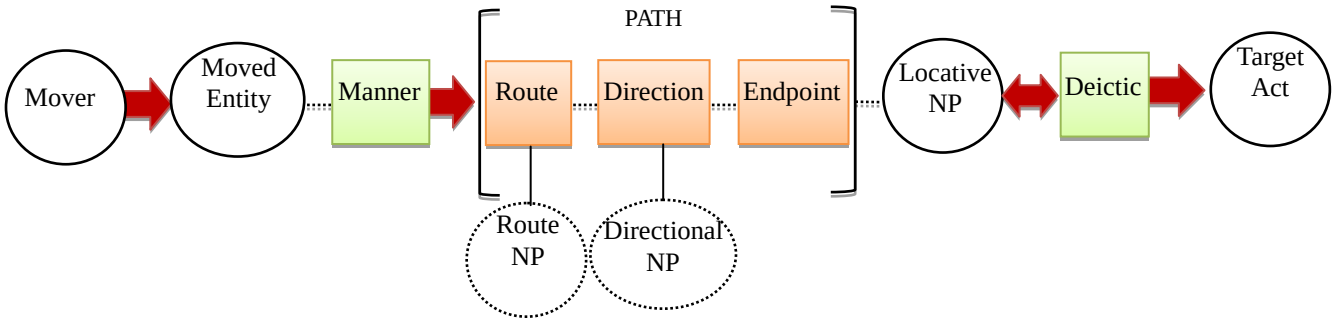


Figure 16. Conceptual Schema for Caused Motion

In the conceptual schema, a Moving entity (Figure) adopts a particular way of movement (Manner). With such a manner of motion, the Moving entity decides on the motional contour in which it may pass an immediate point (Route NP) toward a location (Directional NP) and reach its final destination (Locative NP). The speaker-oriented perspective of motion (Deictic) is independently specified in schematizing the self-initiated motion. Incorporated into Motion, Deictic verbs serve as an optional marker indicating the spatial orientation in relation to the deictic center, the Speaker. Moreover, the notion of Deictic is commonly used to signify the relative position of the Speaker to Locative NP. In this sense, Deictic also helps to locate a Speaker-centered endpoint.

5.5.1 The Hierarchical Structure of the Caused Motion Frame

Following the assumption that the meanings of verbs can only be defined in semantic frame with profiled lexical elements (Fillmore and Atkins 1992, Goldberg 2005), Mandarin Chinese motion sequences are analyzed and categorized by a frame-based hierarchical taxonomy, by Liu and Chiang (2008) with a multi-layered structured classification of semantic frames: Archiframe > Primary frame > Basic frame >

Microframe. Frames in the higher level denote a broader scope of certain semantic domain with background information. Frames in the lower level inherit from upper frames and provide frame-specific description. Based on the findings in previous chapters, Mandarin motion sequence can be categorized into specific frames, which will be analyzed into different layers.

The following sections will successively illustrate the Archiframe of Caused Motion and the Throwing Primary frame. A Figure of the hierarchical structures of the above frames is provided below:

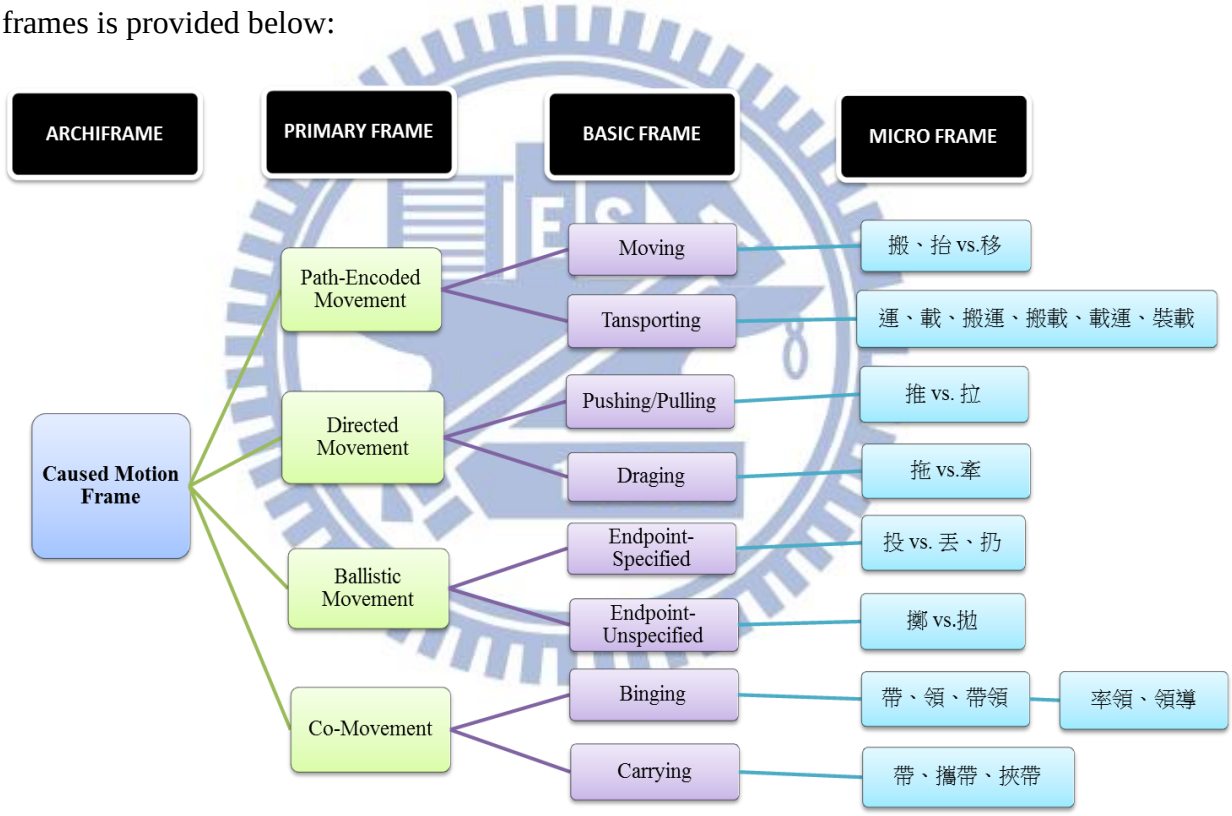


Figure 17. The Hierarchical Structure for Caused-motion Frame

Based on the analysis given in this study, it is obvious that *tóu* 投 'throw' is a caused-motion verb that highlights a the Ballistic Movement of the Mover and Moved entity, which is much different from other Mandarin caused-motion verbs, such as the

path-encoded caused-motion verbs *bān* 搬, *yùn* 運, *yí* 移 'move,' and etc, directed caused-motion verbs *tuī* 推 'push,' *lā* 拉 'pull,' and *qiān* 牽 'hold,' and co-movement caused-motion verbs *dài* 帶, *lǐng* 領, 'bring.' Therefore, we propose that *tóu* 投 'throw' on its own belongs to Ballistic Movement Primary Frame, which will be introduced in detail in the following sections.

5.5.1.1 Layer1: Caused-motion ArchiFrame

According to Liu and Chiang (2008), the Archiframe (AF) is the highest frame in the hierarchical framing system. It points out a unique and independent semantic domain of an event, in this case, the Caused Motion. The Archiframe defines an overarching conceptual schema as a semantic prerequisite for illustrating subframes that inherit. The information regarding the Archiframe of Caused Motion is described below:

Definition: An Agent (Mover) causes a Theme (Moved Entity) to undergo a certain course of motional path, sometimes with the specification of a particular way of movement (Manner), passing through an intermediate landmark (Route NP) toward a spatial orientation (Directional NP) to arrive at a final destination (Locative NP) with an optional marking of speaker-oriented center (Deictic).

Frame Elements: Mover, Moved Entity, Manner, Route NP, Directional NP, Locative NP, Deictic

Representative Lemmas:

bān 搬 'move', *yí* 移 'move', *tái* 抬 'lift to move', *zài* 載 'load', *bān yùn* 搬運 'move to transport', *bān zài* 搬載 'move to load', *zài yùn* 載運 'load to transport',

zhuāng zài 裝載 'load', *tuī* 推 'push', *lā* 拉 'pull', *qiān* 牽 'hold', *tuō* 拖 'drag', *gǎn* 趕 'rush', *chè* 撤 'recede', *jǔ* 舉 'lift', *dài* 帶 'bring', *ling* 領 'lead', *xī* 攜 'carry', *dàiling* 帶領 'lead', *tóu* 投 'throw', *zhí* 擲 'throw', *diū* 丟 'throw', *rēng* 扔 'throw', *pāo* 拋 'throw', *chōng* 沖 'flush', *chuī* 吹 'blow', *shè* 射 'shoot', shuāi 摔 'fall', *pēn* 噴 'spray', *yā* 壓 'press', *pāi* 拍 'tap'

Conceptual Schema:

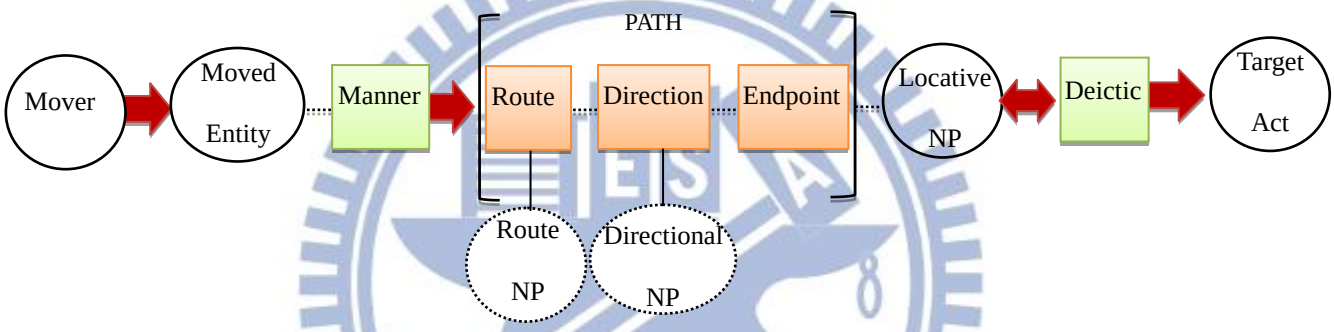


Figure 18. Conceptual Schema of Caused-motion ArchiFrame

Defining Pattern:

a. Mover [NP]< * <Moved_Entity[NP]<{Path}+Locative [NP]

[周俊三/Mover]投[球/Moved_Enity]進[籃/Locative]

zhōu jùn sān tóuqiú jìn lán

Zhou, Jun-san throw ball enter basket

'Zhou, Jun-san throws the ball at basket.'

b. Mover [NP]< * <Moved_Entity[NP]<Manner<{Path}+Locative [NP]< Deictic [VP]

[我/Mover]帶[學生/Moved_Enity][跑/Manner]到[校外/Locative][去/Deictic]

wǒ dài xuéshēng pǎo dào xiào.wài qù

I bring students run arrive campus outside go

I brought the students to run to the outside of the campus.'

c. Mover [NP]< * <Moved_Entity[NP]<Deictic [VP]< Locative [NP]

[他/Mover]拉[我/Moved_Entity][去/Deictic][他家/Locative]

tā lā wǒ qù tā jiā

He pull me go his home

'He pulls me to go to his home.'

d. Mover [NP]< * <Moved_Entity[NP]<{Path}+Locative [NP] <Deictic [VP]

[媽媽/Mover]推[俊和/Moved_Entity]到[學校/Locative][去/Deictic]

mā mā tuī jùn-hàn dào xuéxiào qù

Mother push Jun-han arrive school go

'Mother pushes Jun-han to the school.'

5.5.1.2 Layer2: Ballistic Movement Primary Frame

As described by Liu and Chiang (2008), Primary frames (PFs) are subparts under the Archiframe with a unique set of core frame elements. Primary frames are distinguished from one another by different profiled or highlighted frame elements and syntactic representation. As illustrated in the conceptual schema in the previous section, caused motion verbs include four subparts which could be divided by their different core frame elements: Path-encoded Movement, Directed Movement, Ballistic Movement and Co-Movement. The four primary frames under the Archiframe of Caused Motion can be summarized as follows.

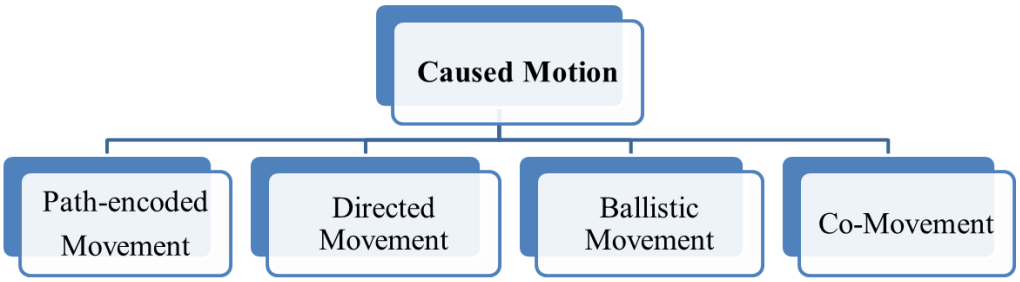


Figure 19: Primary Frames under Caused Motion Archiframe

Information of Ballistic Movement primary frame will be provided as follows:

Definition: The Agent (Mover) causes the Theme (Moved Entity) to undergo ballistic motion to arrive at a final destination (Locative NP).

Frame Elements: Mover, Moved Entity, Path, Locative NP, Purpose

Representative Lemmas: *tóu* 投 'throw', *zhí* 擲 'throw', *diū* 丟 'throw', *rēng* 扔 'throw', *pāo* 抛 'throw'

Conceptual Schema:

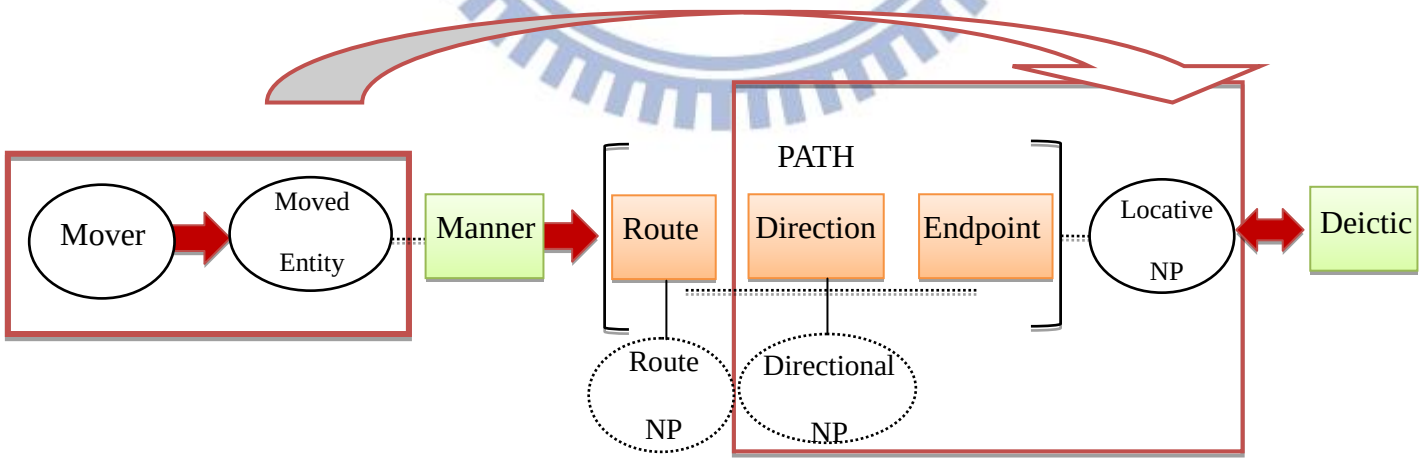


Figure 20: Conceptual Schema of Ballistic Movement Frame

Defining Patterns:

a. Mover [NP]< * <Moved_Entity[NP]<{Path}+Locative [NP]

[周俊三/Mover]投[球/Moved_Enity]進[籃/Locative]

zhōu jùn sān tóuqiú jìn lán

Zhou, Jun-san throw ball enter basket

'Zhou, Jun-san throws the ball into the basket.'

b. Mover [NP]<*<Locative [NP]<Purpose [VP]

[球員/Mover]一起投[籃/Location NP][練習/Purpose]，

qiú yuán yì qǐ tóu lán liàn xí

Ball player together shoot basket practice

"The players shoot at basket to practice."

c. Mover [NP]< * <Moved_Entity[NP]

[有些人/Mover]拋[石塊/Moved_Entity]，警察卻不加以取締

yǒu xiē rén pāo shí kuài jǐng chá què bù jiā yǐ qǔ dì

Some people throw stone policeman bit not ban

"Some people throw the stones, but the policemen do not ban them"

d. Mover [NP]< * <Moved_Entity[NP]<Purpose [VP]

[民眾/Mover]扔[石頭/Moved_Entity][洩憤/Purpose]

mín zhòng rēng shí tou xiè fèn

People throw stone release anger

"The people throw to give vent to their's anger."

e. Moved_Entity[NP]<*

[信/Moved_Entity]丟了

xìn diū le

Letter lost-PF

“The letter has been lost.”

f. Mover[NP]<*<Result

[台灣師大侯金賢/Mover]第二擲擲出[六十七公尺一三的成績/Result]，

tái wān shī dà hóu jīn xián dì èr zhí zhí chū liù shí qī gōng chǐ yī sān de chéng jī

NTNU Hóu Jīn-Xián second throw threw-PF out sixty seven meter one three DE grade

“Hóu Jīn-Xián, standing for NTNU, got the grades of sixty seven meters and thirteen in second round of throwing.”

5.5.1.3 Layer 3: Basic Frame

Basic frames are sets of semantically restricted frames under primary frame, denoting a narrower scope of meaning. According to Liu and Chiang (2008), basic frames are “semantically more informative, distributionally more frequent and common, and are associated with foregrounded or backgrounded frame elements within the set of primary-selected elements.” (Liu and Chiang 2008:10). To be specific, basic frames are defined by a set of highlighted frame elements inheriting from primary frames as well as distinctive syntactic behaviors. They inherit the defining patterns from the primary frame but develop some unique syntactic patterns of their own, which separate them from one another. There are two basic frames under the Ballistic Movement Primary frame, Endpoint-specified basic frame and Endpoint-unspecified basic frame, will be introduced in the following section.

5.5.1.3.1 Endpoint-specified Basic Frame

Definition: Motion sequences of Endpoint-specified frame describe a motion event specifying a bounded goal (Locative NP) that the moved entity (Figure) arrives at.

Frame Elements: Mover, Moved Entity, Path, Locative NP, Purpose

Representative Lemmas: *tóu* 投 'throw', *diū* 丟 'throw', *rē*ng 扔

Defining Patterns:

a. Mover [NP]< * <Moved_Entity[NP]<{Path}+Locative [NP]

[周俊三/Mover]投[球/Moved_Enity]進[籃/Locative]

zhōu jùn sān tóuqiú jìn lán

Zhou, Jun-san throw ball enter basket

'Zhou, Jun-san throws the ball into the basket.'

b. Mover [NP]<*<Locative [NP]<Purpose [VP]

[球員/Mover]一起投[籃/Location NP][練習/Purpose]，

qiú yuán yì qǐ tóu lán liàn xí

Ball player together shoot basket practice

"The players shoot at basket to practice."

5.5.1.3.2 Endpoint-unspecified Basic Frame

Definition: Motion sequences of Endpoint-unspecified frame describe a motion event does not specify a bounded goal that the moved entity (Figure) arrives at.

Frame Elements: Mover, Moved Entity, Purpose

Representative Lemmas: *zhí* 擲 'throw', *pāo* 拋 'throw'

Defining Patterns:

a. Mover [NP]<*<Result

[台灣師大侯金賢/Mover]第二擲擲出[六十七公尺一三的成績/Result]，

tái wān shī dà hóu jīn xián dì èr zhí zhí chū liù shí qī gōng chǐ yī sān de chéng jī

NTNU Hóu Jīn-Xián second throw threw-PF out sixty seven meter one three DE grade

"Hóu Jīn-Xián, standing for NTNU, got the grades of sixty seven meters and thirteen in second round of throwing."

b. Mover [NP]<*<Moved_Entity [NP]<Purpose [VP]

[民眾/Mover]一起拋[繡球/Moved Entity][練習/Purpose]，

mín zhòng yì qǐ pāo xiù qiú liàn xí

People together throw embroidered ball practice

"People throw a embroidered ball together to practice."

c. Mover [NP]<*<Moved_Entity [NP]

[他/Mover]常常拋[繡球/Moved Entity]，

tā cháng cháng pāo xiù qiú

He often throw embroidered ball

"He often throws an embroidered ball."

5.6 Summary

Given the analysis on Mandarin Verb of Throwing *TÓ U*, this section will summarize the analysis introduced in the previous sections. First of all, this study has shown that the caused-motion verb *TÓ U* with the different multi-faceted uses can be classified in a

principled way. By means of the semantic profiling, we can figure out that how the distinct subtypical meanings of *TÓ U* can be carried out from the prototypical of *TÓ U*. Secondly, Though both [*TÓ U*+NP-T] and [*TÓ U*+NP-G] combinations exist metaphorical extended meaning, it is worth pointing out here that [*TÓ U*+NP-G] combination is from caused-motion to self-motion, and then from self-motion to lexicalization. Last but not least, this study incorporates the framed analysis based on corpus observations proposed by Liu and Chiang (2008). The overall conceptual schema of [*TÓ U*+NP] will be given as below:

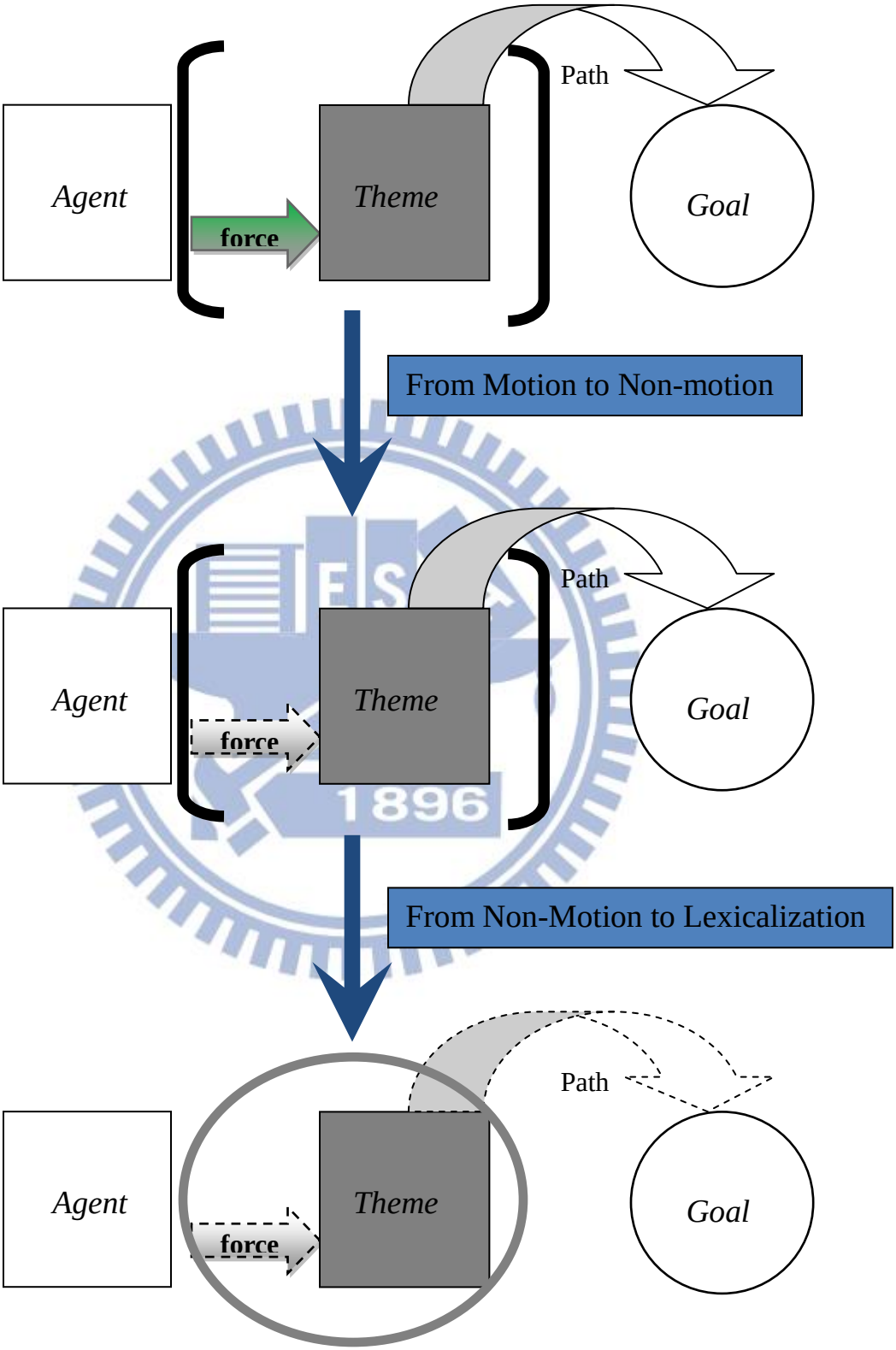


Figure 21: Overall Conceptual Schema of [*TÓ U*+NP-T]

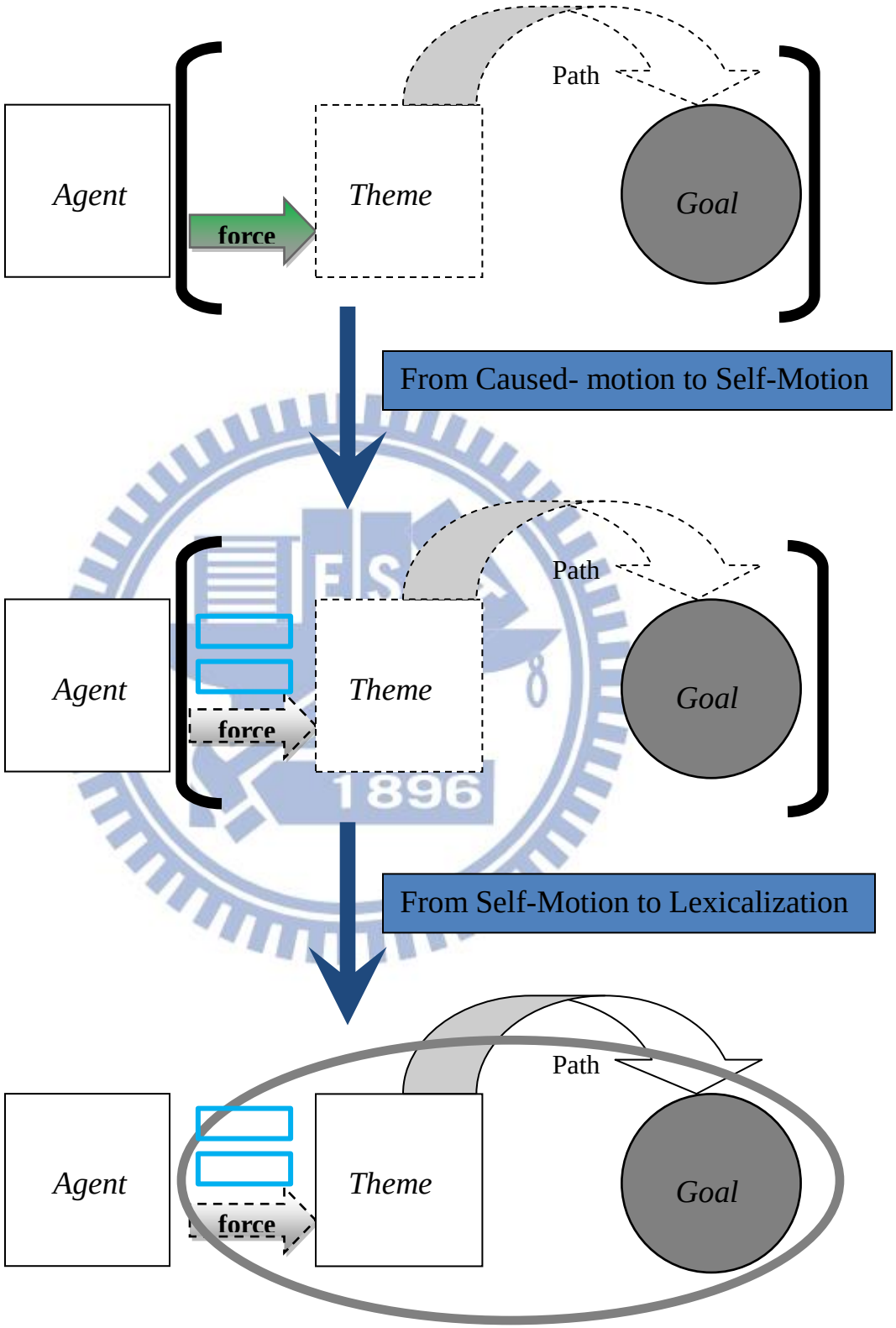


Figure 22: Overall Conceptual Schema of [*TÓ U*+NP-G]

Chapter 6
Conclusion

6.1 Conclusion

This thesis is an interesting verbal semantic study of [*TÓ U*+NP] in Mandarin Chinese. As mentioned above, the transitive verb *TÓ U* takes object-NPs to form two possible constructions--[*TÓ U*+NP-T] and [*TÓ U*+NP-G]. On the basis that the nominal arguments take diverse idiosyncratic semantic roles, at first sight, the [*TÓ U*+NP] combination can be viewed as a polysemous compound. However, a constructional approach seems more economic than a lexical rule approach since a constructional approach provides a solution that the verbal predicate takes the coerced interpretation. In addition, the proper interpretation of the construction cannot be obtained by its derivational parts (viz. the verbal predicate and the object-NP) but can be acquired from the construction itself. In other words, the real activity encoded in the [*TÓ U*+NP] sequence should be examined to render a proper interpretation for the construction. Thus, four equally significant approaches are incorporated and applied in this thesis.

First of all, by means of the Construction Grammar (Goldberg 1995), a construction is viewed as a lexical item which provides a solution that the verbal predicate takes the coerced interpretation. Under this view, the [*TÓ U*+NP] pattern can be viewed as a form-meaning pair encoded with unique semantic components.

Secondly, on the basis of Frame Semantics (Fillmore and Atkins 1992), the senses of *TÓ U* may be taken as sharing the background knowledge of a ballistic motion with a bounded goal. And different uses of *TÓ U* may evoke different semantic profiles of the

existing frame with a set of foregrounded or backgrounded frame elements defined by the core participant roles involved in the event.

Third, by virtue of the Conceptual Schema (Liu and Chiang 2008), [*TÓ U*+NP] can be illustrated clearly within the cognitive background of an event with a set of default role participants, that is, the Frame Elements.

Finally, the approach of Qualia Structure (Pustejovsky 1995) is utilized to explain the contextually-induced meanings. It does not merely characterize our knowledge of words, but also suggests interpretations of words in context. Furthermore, it can be used to distinguish the potential ambiguity of the [*TÓ U*+NP] combination.

6.2 Future Research

Although this research has shed some light on the semantic range of the caused motion of *TÓ U*, there is still room for further investigation. For example, what about the use of *tóu yǐn liào* 投飲料 'insert the coins to get the drink' (Liu 2000)? *yǐn liào* 飲料 'the drink' is neither a Theme nor a Goal. Furthermore, what are the contrast of near synonym pairs among of *TÓ U* 投, *ZHÍ* 擲, *DIU* 丟 and *RENG* 扔? Hopefully the research will arouse much attention and give some inspiration to the studies concerning Verbs of Throwing in Mandarin Chinese.

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Website Resources

Academic Sinica Balanced Corpus of Modern Chinese.

http://db1x.sinica.edu.tw/kiwi/mkiwi/

Chinese WordNet:

http://lope.linguistics.ntu.edu.tw/cwn/

Chinese Word Sketch (中文詞彙特性速描系統)

http://wordsketch.ling.sinica.edu.tw/

FrameNet

http://www.icsi.berkeley.edu/~framenet/

Mandarin Verbnet

http://verbnet.nctu.edu.tw/verbnet/website/

Sinica Corpus (中研院平衡語料庫)

http://dbo.sinica.edu.tw/SinicaCorpus/index.html