國立交通大學

外國語文學系外國文學與語言學碩士班

碩士論文

漢語他動動詞「推」與「拉」詞彙語意研究

A Lexical Semantic Study of TUI and LA in Mandarin

研究生：洪宛儀

指導教授：劉美君教授

中華民國一百零三年六月

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碩士論文

A Thesis

Submitted to Graduate Institute of Foreign Literatures and Linguistics

College of Humanity and Social Science

National Chiao Tung University

in partial Fulfilment of the Requirements

for the Degree of

Master of Arts

June 2014

Hsinchu, Taiwan, Republic of China

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摘要

　　本研究試圖從詞彙語意學的角度來探討漢語他動動詞「推」與「拉」的研究。主要會探討三個主要議題：1)漢語他動動詞「推」與「拉」以及其他原型他動動詞的語意區分；2）深入討論漢語他動動詞「推」與「拉」跟時貌標記如「著」的相關性；3）試圖解釋「推」與「拉」的多種語意擴展之關聯。

　　根據李(2007)的原型他動動詞移動事件之研究，我們可以區分及解釋他動動詞「推」與「拉」以及其他原型他動動詞的語意及句法的不同。他動動詞「推」與「拉」通常會比較側重主事者和受事者之間的致使施力(causing event)，而其他原型他動動詞比較側重受事者的移動事件(motion event)。進一步結合李(2007)與 Talmy(2000)，我們可以很明確的區分「推」與「拉」跟時貌標記「著」一起使用的語意區別。當「推」與「拉」單獨呈現時，通常會比較側重致使事件，而當致使事件變成只是表現出一種移動方式(Manner)時，也就是說在句法上「推」與「拉」跟時貌標記「著」一起使用的情況之下([推/拉+著])，通常會強調受事者的移動方式(manner-with-motion)。

　　最後結合了框架語意(Fillmore and Atkins 1992)、原型理論(Rosch 1973)及概念隱喻理論(Lakoff and Johnson 1980, Langacker 1987)，我們探討了「推」與「拉」語意之句法的相關連性。為框架詞彙語意理論，本研究提出了一個概念上的架構來描述「推」與「拉」延伸語意之間的相關連性，也推論了「推」與「拉」的意思都是種這個原型語意延伸出來的概念，也對「推」與「拉」之間的延伸語意提出了一個系統性及原則性的分析。

鑑於認知詞彙語意的角度，本研究提供了一個系統性的框架來分析動詞語意，也呈現了不同的語言在詞彙化過程中也會有不同的語意選擇與延伸；因此，本研究反映詞彙擴展的多意性。

關鍵詞: 漢語「推」字, 漢語「拉」字, 漢語推拉他動動詞, 框架語意學, 詞彙語意學, 語意擴展, 概念隱喻理論, 原型理論

A Lexical Semantic Study of TUI and LA in Mandarin

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Abstract

This study attempts to investigate three issues: 1) to distinguish and explain the distinct semantic and syntactic differences between a prototypical caused-motion verb with those of *tuī* 推 'push' and *lā* 拉 'pull;' 2) to discuss the aspectual correlations of *tuī* 推 'push' and *lā* 拉 'pull;' and 3) to explain the interrelationship of the multiplex metaphorical extensions of *tuī* 推 'push' and *lā* 拉 'pull.'
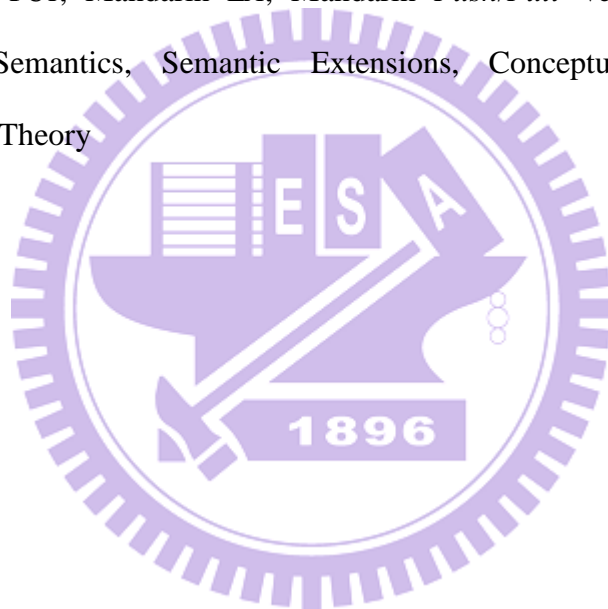
Based on Li (2007), we can distinguish and explain the distinct semantic and syntactic differences between a prototypical caused-motion verb with those of *tuī* 推 'push' and *lā* 拉 'pull,' where the former profiles the motion event focusing on the physical translocation of the Moved Entity, while the latter profiles the causing event stressing on the force interaction between the Agent and the Moved Entity. With further incorporation of Li (2007) and Talmy (2000), we've presented the distinction of *tuī* 推 'push' and *lā* 拉 'pull' with or without the co-occurrence of aspectual marker *zhe* 著 by showing that without *zhe* 著, *tuī* 推 'push' and *lā* 拉 'pull' typically emphasizes on the causing event; however, with *zhe* 著, the causing event becomes an event that only demonstrates a kind of Manner. Therefore, based on Talmy (2000), we can thus view [*tuī/lā+zhe*] as demonstrating a kind of motion-with-manner.

By merging Frame Semantics (Fillmore and Atkins 1992), Prototype Theory (Rosch 1973) and Conceptual Metaphor Theory (Lakoff and Johnson 1980, Langacker 1987), we can examine the semantic-to-syntactic correlations between the various senses of *tuī* 推 'push' and *lā* 拉 'pull.' On the basis of frame-based verbal semantic approach, this paper further

provides a conceptual schema to depict the interrelationship of the multiple senses of *tuī* 推 'push' and *lā* 拉 'pull' and provides a systematic and principled analysis of conceptualizing these multiplex metaphorical extensions with related cognitive-frame elements.

In light of a cognitive-semantic approach of lexical semantics, this study provides a systematic and unified framework in analyzing and representing verbal semantics and further representing a clear case study that shows different languages have different manipulations of lexical senses; therefore, reflecting the multiple senses of lexical extensions.

Keywords: Mandarin *TUI*, Mandarin *LA*, Mandarin *Push*/*Pull* Verbs, Frame Semantics, Lexical Semantics, Semantic Extensions, Conceptual Metaphor Theory, Prototype Theory

誌 謝

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Chapter 1

Introduction

1.1 Background

Lexical semantics has always been one of the core issues in both theoretical and applied linguistics. Recent developments of lexical semantics has shown close interaction between the semantic properties of lexical items and syntactic behaviors with a general assumption that the syntactic behavior of a verb, is determined by the meaning of the verb (cf. Levin 1993, Fillmore 1982, Fillmore and Atkins 1992, Levin and Rappaport 2005, Liu 2002, among others) and interacts with constructional patterns (cf. Jackendoff 1990, 2002; Goldberg 1995, 2006, 2010). In particular, verbal semantics has always been a central concern, since verbs are considered to be the core of sentences and crucial in delimiting syntactic structures (Jackendoff 1983, Levin 1993).

Several pioneering studies have shown great contributions: Fillmore (1971) proposes Frame Semantics, emphasizing that "meanings are relativized to frames;" Levin (1993) classifies English verbs into semantically distinct classes with a diathesis alternation approach; Goldberg (2005) proposes that "each word sense evokes an established semantic frame;" and Liu (2002) focuses on Mandarin verbal semantics particularly on the study of Mandarin near-synonyms with corpus-based approach and proposes that verbal semantics is determined by its verbal syntactic behaviors. These previous studies have built a solid foundation for the study of verbal semantics. However, verbs with multiplex sense extentions; that is, a single verb mapped onto multiple sense domains through metaphorical or metanymic transfers, have not yet been widely discussed within the above frameworks.

In light of the frameworks above, this study attempts to examine the semantic-to-syntactic correlations of the diverse uses and sense extensions of *tuī* 推 'push' and *lā* 拉 'pull' by exploring the cognitive semantic mechanisms involved. It will explain the interrelationship among such diverse usages and analyze the metaphorical extensions of the core meaning, which can be mapped onto multiple semantic domains that are conceptualized as related cognitive-frames in the view of Frame Semantics (Fillmore and Atkins 1992).

1.2 The Issues

The issues this study is concerned about include: 1) *tuī* 推 'push' and *lā* 拉 'pull' as Caused-motion verbs; 2) Aspectual correlations of *tuī* 推 'push' and *lā* 拉 'pull;' and 3) Multiplex Sense Extensions of *tuī* 推 'push' and *lā* 拉 'pull.'

1.2.1 Issue 1: *Tuī* and *Lā* as Caused-motion verbs

Mandarin *tuī* 推 and *lā* 拉 are equivalent to the English verbs *push* and *pull*. As verbs pertaining to caused-motion, *tuī* 推 'push' and *lā* 拉 'pull' not only posit the semantic and syntactic properties of a typical caused-motion verb, that is, an Agent exerting an external force and thus causing a translocational movement of the affected object (Theme/Patient) (Talmy 1985, 2000; Li 2007), but *tuī* 推 'push' and *lā* 拉 'pull' also posit intimate deictic relations between the Agent and the Moved Entity. In (1) below, presents the prototypical caused-motion event and (2) illustrates the event of *tuī* 推 'push' and *lā* 拉 'pull:'

(1) Proto-caused-motion events:

[NP1 我][V 搬/移][NP2 一箱蘋果][PP 到屋裡]。

    wǒ   bān/yí yì-xiāng píngguǒ dào wū-lǐ

    I   move   one-box apple arrive house-inside

    'I moved a box of apples into the house.'

(2) Causal events of *tuī* and *lā*:

[NP1 我][V 推/拉][NP2 一輛腳踏車][PP 到屋裡]。

    wǒ   tuī/lā yí-liàng jiǎotàchē dào wū-lǐ

    I   push/pull   one bicycle   arrive house-inside

    'I pushed/pulled a bicycle into the house.'

    In the above (1) and (2) examples, it clearly demonstrates that the events of *tuī* 推 'push' and *lā* 拉 'pull' are quite similar to that of prototypical caused-motion events which usually depict the syntactic pattern of [NP1 V NP2 PP] with the notion of 'X CAUSES Y TO MOVE Z' (Goldberg 1995). This phenomenon of the obligation to have a PP in prototypical caused-motion event in Chinese is also corresponding to those of English where the PP must be considered when determining the causal event of a verb (Goldberg 1995). Other from being verbs pertaining to caused-motion, *tuī* 推 'push' and *lā* 拉 'pull' also posit intimate deictic relations between the Agent and the Moved Entity as illustrated in (3) and (4):

(3) [*Tuī/Lā*+NP+Deictic]

我[V 推/拉]父親[Deictic 來/去]紀念堂。

    wǒ tuī/lā fùqīn   lái/qù   jìniàntang

    I push/pull father   come/go memorial hall

    'I pushed/pulled my dad to come/go to the memorial hall.'

(4) [*Tuī*/*Lā*+Deictic]

    (a) 民眾[ᵥ推/拉 Deictic 來]一車垃圾包。

       mín-zhòng tuī/lā　lái　yì-chē lèsèbāo

       people push/pull come one-car trash bag

       'People pushed/pulled over a pile of trash bags.'

    (b) *民眾[ᵥ推/拉 Deictic 去]一車垃圾包。

       mín-zhòng　tuī/lā　qù yì-chē lèsèbāo

       people　push/pull go one-car trash bag

       *'People pushed/pulled away a pile of trash bags.'

    A closer look at examples (3) and (4), we observe that there's not only a causal relation between the motion event and the causing event (Talmy 1976, 1985, 1991, 2000; Li 2007), but there's also an intimate deictic relation between the Agent and the Moved Entity in the events of *tuī* 推 'push' and *lā* 拉 'pull.' In (3), we can either say *wǒ tuī/lā fùqīn lái/qù jìniàntang* 我推/拉父親來/去紀念堂 'I pushed/pulled my dad to come/to go to the memorial hall.' However, in (4), it is more preferred to say *mín-zhòng tuī/lā lái yì-chē lèsèbāo* 民眾推/拉來一車垃圾包 'People pushed/pulled over a pile of trash bags,' that is, *tuī* 推 'push' and *lā* 拉 'pull' plus deictic *lái* 來 'come' ([*Tuī*/*Lā*+*lái*]) meaning *to push/pull over* than to say **mín-zhòng　tuī/lā qù yì-chē lèsèbāo* *民眾推/拉去一車垃圾包 *'People pushed/pulled away a pile of trash bags,' that is, *tuī* 推 'push' and *lā* 拉 'pull' plus deictic *qù* 去 'go' ([*Tuī*/*Lā*+*qù*]) meaning *to push/pull away*. Why is this the case and how can we deal with such collocational constraints? Why is movement towards the speaker better than movement away from the speaker? Moreover, how can we explain the following cases in (5) where *tuī* 推 'push' and *lā* 拉 'pull' are immediately followed by *zǒu* 走 'to leave,' which, like *qù* 去 'go,' also means movement away from an original location?

4

(5) [*Tuī/Lā+ zǒu*]

(a) 工務單位出動推土機[V 推 V 走]巨石。

gongwù dānwèi chū-dòng tuītǔjī tuī zǒu jùshí

service division set-out bulldozer push go huge-stone

'The service division set-out bullozers to push away huge stones.'

(b) 每天都有南方來的客商[V 拉 V 走]十幾車土豆，

měitiān dōu yǒu nánfang lái de kè-shāng lā zǒu shí jǐ chē tǔdòu

everyday all have southern come POSS merchants pull go ten more car potato

'Southern merchants come everyday to pull away more than a dozen cars of potatoes.'

1.2.2 Issue 2: Aspectual correlations of *Tuī* and *Lā*

Other from observing that *tuī* 推 'push' and *lā* 拉 'pull' depict intimate relations with deictic *lái* 來 'come' and *qù* 去 'go,' we also discover that, based on corpus distributions, the majority of *tuī* 推 'push' and *lā* 拉 'pull,' as verbs pertaining to caused motion, frequently collocate with aspectual marker *zhe* 著 instead of other aspectual markers such as *le* 了 and *guò* 過[1] as illustrated in the examples below:

(6) [V + ASP]

(a) 他推著輪椅進學校上課，

tā tuī zhe lúnyǐ jìn xuéxiào shàng-kè

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[1] The present study only considered *tuī* 推 'push' and *lā* 拉 'pull' with the collocation of aspectual marker *zhe* 著 and not other aspectual markers such as *le* 了 and *guò* 過 for *tuī* 推 'push' and *lā* 拉 'pull' plus *zhe* 著 occupies the majority of the data set and there are some collocational constraints that changes the semantics of the verbs.

he push ASP wheelchair enter school   class

'He pushed the wheelchair into school for classes.'

(b) 他們會拉著你到一個人少的角落，

tāmén huì   lā   zhe nǐ   dào yí-ge rén   shǎo de   jiǎoluò

they   will pull ASP you arrive one people few DE corner

'They will pull you to a corner where less people are around.'

(c) 母親推著小孩參觀美術館，

mǔqīn   tuī   zhe xiǎohái cānguān měishùguǎn

mother push ASP child   visit   museum

'Mother pushed the child to visit the museum.'

(d) 王叔叔拉著母親一起合照，

wáng shúshu lā zhe mǔqīn   yìqǐ   hézhào

Wang uncle pull ASP mom together take-picture

'Uncle Wang pulled mom to take a picture together.'

Therefore, the examples in (6) lead us to wonder: Whether or not the collocation of aspectual marker *zhe* 著, have similar semantic properties as those without one? If so, under what circumstances do we choose to use *zhe* 著 and when without it? And if not, what are the specific semantic distinctions between the two usages?

1.2.3 Issue 3: Multiplex Sense Extensions of *Tuī* and *Lā*

Mandarin verbs *tuī* 推 'push' and *lā* 拉 'pull' are transitive and semantically diverse with multiplex sense extensions. According to the online lexical database, Chinese Wordnet[2], *tuī* 推 'push' and *lā* 拉 'pull' are identified with 18 and 21 senses respectively which are embodied by precise expressions of sense and sense relations as shown in the following tables:

	sense	Meaning	Synonym
推	1	反主事者身體方向施力而使後述對象順著施力方向移動。[3]	
	2	比喻逃避責任或義務。	踢
	3	比喻將預定的時間往後移。	延期、延後、延
	4	比喻拒絕接受後述對象。	
	5	比喻公布並推銷後述對象。	
	6	比喻眾人同意讓後述對象擔任特定職務。	公推、推舉、舉
	7	比喻介紹後述對象的優點讓大眾知道。	
	8	認為後述對象最符合前述描述。	
	9	比喻使事件發展到後述狀態。	
	10	根據前述訊息來判斷並得知後述結論。	
	11	從時間參考點開始計算。	
	12	用工具在物體表面修剪長在該物體表面的後述對象,通常是較短的毛髮或草。	推移
	13	筋骨損傷時,用手調整身體結構,治療疾病。	嚕
	14	用手或特定工具在皮膚表面揉搓。	
	15	把焦距調近。	

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[2] Chinese WordNet is constructed by Academia Sinica to serve as a large-scale semantic lexical database for Chinese with precise expressions of sense and sense relations (Huang et al., 2008b). The information of the lexical entry analyzed in this database contain the following: parts-of-speech, sense notions, examples, corresponding English synset(s) from Princeton WordNet, lexical semantic relations and much more that are theoretically based on lexical semantics.

[3] The highlighted sense descriptions represent the motional uses of *tuī* 推 'push' and *lā* 拉 'pull' that involve locational change.

	16	演奏弦樂器時手指按住弦向掌心施力，使音產生由高到低的律動，通常用於吉他。	
	17	比喻贊成他人所發表的言論。	
	18	以推動的方式使特定液狀物質均勻地分佈在特定物體的表面上。	

Table 1: Senses of *tuī* 推 in Chinese Wordnet

	sense	Meaning	Synonym
	1	向主事者身體的方向施力而使後述對象順著施力方向移動。	
	2	兩手握在一起。	
	3	演奏樂器，通常為弦樂器。	
	4	將後述對象引到自己這邊來。	招、攬
	5	鼓動後述對象一起做特定事件。	
	6	動物排泄糞便。	
	7	建立特定對象間的關係。	扯、搭、攏
	8	提高音量。	
	9	延長時間。	
	10	延長距離。	
拉	11	延展。	
	12	架設電線線路。	
	13	把焦距調遠。	
	14	乘車長途旅行。	
	15	從已分配的時間挪出一些時間。	偷、撥、勻
	16	在輕鬆的情況下，沒有特定主題或目的地交談。	聊、聊天、開講、敘、敍
	17	將所有賭資投注於賭局中。	
	18	只差最後一步就可獲得勝利，通常用於球賽或賭局。	
	19	比喻持續進行而達到後述狀態。	
	20	將線狀物或帶狀物展開並固定。	牽
	21	拿特定物品並往主事者靠近。	

Table 2: Senses of *lā* 拉 in Chinese Wordnet

Based on the above sense descriptions along with their synonym sets, these findings have revealed that *tuī* 推 'push' and *lā* 拉 'pull' posit multiplex senses where both motional and non-motional usages are considered altogether while observing the sense and sense relations

of these lexical entries.

On the basis of Chinese WordNet with the multiplex senses of *tuī* 推 'push' and *lā* 拉 'pull,' a further view into corpus distribution has also proved that *tuī* 推 'push' and *lā* 拉 'pull' are associated with wide ranges of sense extensions, where *tuī* 推 'push' appears to bear at least six extended senses and *lā* 拉 'pull' with at least three extended senses other than the prototypical meaning of *to push* and *to pull* as listed below:

(7) **The multiplex sense extensions of *Tuī* 推 'push'**

(a) Extension 1: to recommend someone or something to the outside world (*tuī-jiàn* 推薦 'recommend')

兩院主動推代表。

liǎng yuan zhǔdòng tuī dàibiǎo

two   court   initiate push representative

'The two courts are initiatively recommending representatives.'

(b) Extension 2: to promote or advertise a product to the outside world (*tuī-xiāo* 推銷 'promote')

他們也在本地推 ichon-Kun 周邊產品，

tā-mén yězài běndì tuī ichon-Kun zhōu-biān shāngpǐn

they   also   at   local push ichon-Kun surrounding product

'They are also promoting ichon-Kun surrounding products at local places.'

(c) Extension 3: to postpone a previously set temporal event (*tuī-yán* 推延 'postpone')

占旭剛再度推婚期。

zhànxùgāng zài-dù tuī hūn-q í

zhànxùgāng again push wedding date

'Zhang Xu-Gang is postponing the wedding date again.'

(d) Extension 4: to evade or shrink responsibility or obligation (*tuī-xiè* 推卸 'refuse')

雙方互推責任。

shuāng fang hù tuī zérèn

  two   sides mutual push responsibility

'The two sides are mutually shrinking off responsibilities.'

(e) Extension 5: to trim or shave hairy parts of body or surface (*tuī-diào* 推掉 'trim')

什麼年代了居然還有人規定要去推頭髮！

shéme nián-dài le jūrán hái yǒu rén guīding yào qù tuī tóu-fǎ

what   decade ASP surprisingly still have people require to go push hair

'What decade is today that still have some people requiring to go to trim their hair.'

(f) Extension 6: to reject an offer or invitation (*tuī-diào* 推掉 'reject')

林老師又再推邀請。

lín lǎo shī yòu zài tuī yāoqǐng

lin teacher again is push invitation

'Teacher Lin is pushing off invitations again.'

(8) **The multiplex sense extensions of *Lā* 拉 'pull'**

(a)   Extension 1: to extend or delay a time that is set previously (*lā-cháng* 拉長 'lengthen')

記者又在拉時間，

jìzhě yòu zài lā shíjiān

reporter again pull time

'The reporter is prolonging the time again.'

(b) Extension 2: to increase voice (*lā-kāi* 拉開 'increase')

今晚心血來潮，突然很想拉嗓子！

jīn wǎn xīn-xiě-lái-cháo túrán hěn xiǎng lā sǎngzi

tonight heart-blood-come-wave suddenly really want pull   throat

'Tonight I suddenly have the feeling of increasing my voice.'

(c) Extension 3: to persuade/attract/gain consumers from buying or joining an

organization or company (*lā-lǒng* 拉攏 'persuade/attract')

業者都在動腦筋拉客人。

yèzhě dōu zài dòng nǎojīn lā kèrén

industry all   is move brain pull consumer

'All industries are thinking of ways to attract consumers.'

In order to account for the intimate deictic relations between the Agent and the Moved Entity in the events of *tuī* 推 'push' and *lā* 拉 'pull,' the collocational constraints of *tuī* 推 'push' and *lā* 拉 'pull' with the occurrence of aspectual marker *zhe* 著, and their possible wide ranges of sense extensions, the following research questions are thus raised:

1. **In general, what are the distinct grammatical and distributional patterns underlying *tuī* 推 'push' and *lā* 拉 'pull?' More specifically, how can we explain the deictic (*lái* 來 'come'/*qù* 去 'go') relations between the Agent and the Moved Entity that are occurring with *tuī* 推 'push' and *lā* 拉 'pull?' What are the collocational constraints of aspectual markers in the events of *tuī* 推 'push' and *lā***

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拉 'pull' based on corpus distributions?

2. **Based on the observations of syntactic behaviors, what kind of generalizations can be made as to the semantic-to-syntactic correlations? That is, what are the distinct semantic criteria and conceptual principles revealed in the distributional patterns of *tuī* 推 'push' and *lā* 拉 'pull?'**

3. **How can we explain the wide ranges of metaphorical extensions underlying the different uses of *tuī* 推 'push' and *lā* 拉 'pull?' How are the different senses interrelated? What is the principled account for dealing with such a diverse range of uses?**

1.3 Scope and Goal

The scope of this paper is limited to the transitive usages of Mandarin caused-motion verbs: *tuī* 推 'push' and *lā* 拉 'pull,' as main predicates, with the focus of observing the construction of [V+NP expressions]. With a further look into corpus data, the distributional frequencies and collocational patterns reveal that *tuī* 推 'push' and *lā* 拉 'pull' depict both motional and non-motional distinctions which correspond to our classification and categorization of the causal events of *tuī* 推 'push' and *lā* 拉 'pull'[4] and the metaphorical extensions of *tuī* 推 'push' and *lā* 拉 'pull' through the exploration of frame-specific semantic roles of the complement NP(s).

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[4] The events of *tuī* 推 'push' and *lā* 拉 'pull' are those that are categorized and classified under the frame of Caused_Motion with further indication that they are the prototypical senses of *tuī* 推 'push' and *lā* 拉 'pull.'

By integrating Frame Semantics (Fillmore and Atkins 1992), Prototype Theory (Rosch 1973, 1978) and Conceptual Metaphor Theory (Lakoff and Johnson 1980, Langacker 1987), the goal of this study aims to explore the cognitive-semantic motivations of the multiplex metaphorical extensions of *tuī* 推 'push' and *lā* 拉 'pull' and examine the semantic-to-syntactic correlations among the various senses of *tuī* 推 'push' and *lā* 拉 'pull.'

On the basis of frame-based verbal semantic approach, this paper further aims to provide a conceptual schema to depict the interrelationship of the multiple senses of *tuī* 推 'push' and *lā* 拉 'pull' that are constructed under one single verb sense and provides a systematic and principled analysis for the conceptualization of the multiplex extended senses of *tuī* 推 'push' and *lā* 拉 'pull' with related cognitive-frame elements.

1.4 Organization of the Thesis

The thesis is organized as follows: Chapter 1 presents the general introduction of the study along with some background knowledge relevant to the issues. Chapter 2 reviews previous works related to the studies on English and Mandarin motion events, how English *Push/Pull* verbs relate to those of Mandarin *tuī* 推 and *lā* 拉, and previous studies on Mandarin *tuī* 推 'push' and *lā* 拉 'pull.' Chapter 3 lists the database, theoretical framework and methodology applied. In Chapter 4, corpus observations on grammatical and distributional patterns will be presented. Chapter 5 proposes a frame-based analysis on Mandarin *tuī* 推 'push' and *lā* 拉 'pull.' Last but not least, Chapter 6 concludes the thesis with related issues for further research.

Chapter 2

Literature Review

Tuī 推 'push' and *lā* 拉 'pull,' as verbs pertaining to caused-motion in Mandarin, correspond to verbs of exerting force: *Push/Pull* verbs in English (Levin 1993). As indicated by Levin (1993), these verbs have a causal relation of exerting a force onto an entity where *push* and *pull* are different in meaning with respect to the direction of force being exerted. As caused-motion verbs, *push* and *pull* are also categorized as verbs under the frame of Caused_Motion from the perspective of Frame Semantics (Fillmore 1982). However, contrary to English *push/pull*, *tuī* 推 and *lā* 拉 not only posit properties of a caused-motion verb, but they also demonstrate intimate deictic relations between the Agent and the Moved Entity. In this section, the traditional notions of motion events and the previous studies on the semantic distinctions of English *Push/Pull* verbs and Chinese *tuī* 推 and *lā* 拉 will be briefly reviewed.

2.1 Previous Works on Motion Events

2.1.1 Lexicalization Patterns and Co-event Relations

From the perspective of Cognitive Semantics, Talmy (2000) proposes that a motion event typically involves four internal components: **Figure**, **Move**, **Path**, and **Ground** which are defined as an object (the **Figure**), under a motional act (**Move**), moving or located with respect to a location (the **Ground**) followed by a path or site (the **Path**). Besides the above four internal components, a motion event can also be associated with two additional external co-event components: **Manner** and **Cause**, as illustrated in (9) below:

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(9) (a) The pencil <u>rolled</u> off the table.

     [Move+Manner]

   (b) I <u>pushed</u> the keg into the storeroom.

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

The examples in (9) illustrate the typical motion events which are exhibited by the verbs *rolled* and *pushed*. In (9a), *rolled* expresses how the pencil moves and thereby expressing the Manner of motion, while in (9b), *pushed* exerts an external force that causes the pencil to move and thus describing the Cause of motion. The two external co-event components Manner and Cause thus divide the translational or spatial motion event into two types: self-initiated motion (9a) and other-initiated motion (9b). In order to define the co-event relations, Talmy proposes the co-event conflation patterns which conflate the main motion event and the subordinate co-event with the forms WITH-THE-MANNER-OF and WITH-THE-CAUSE-OF as the following examples illustrate:

(10) (a) MOVE + Manner

     The rock rolled down the hill.

     = [The rock MOVED down the hill] WITH-THE-MANNER-OF [the rock

       rolled].

   (b) MOVE + Cause

     I kicked the keg into the storeroom.

= [I $_A$MOVED the keg into the storeroom]

WITH-THE-CAUSE-OF [I kicked the keg][5].

(Talmy 2000:30)

Under the lexicalization patterns and the co-event conflations proposed by Talmy (2000), the translational motion events can thus be divided into two groups: self-motion event and caused-motion event which usually involves an external force/cause.

2.1.2 Proto-Caused-Motion Event

Following the framework of Talmy's motion events, Li (2007) attempts to focus on caused-motion events and classify Mandarin caused-motion verbs into prototypical versus non-prototypical ones. A Caused-motion event, according to Li (2007), involves five internal chain-effected components: **Causer**, **Driving Force**, **Theme**, **Motion**, and **Path** which made up the conceptual structure of a typical caused-motion event as illustrated below:

Typical Caused-motion concept
Causer →Driving Force→Theme→Motion→Path
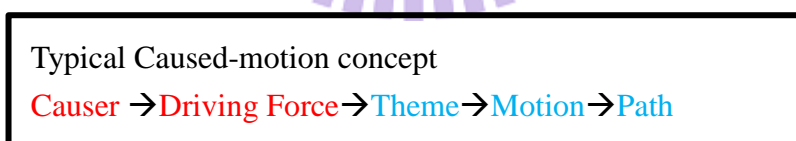
Figure 1: Typical Caused-motion concept (Li 2007: 24)

Based on Li (2007), a typical caused-motion event consists of a series of subevents: the causing event and the motion event, where the two entities or subevents have a causal relation, with one causing the other to undergo a translocational change, that is, the motion is initiated

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[5] The subscript "$_A$" is placed before a verb to indicate that the verb is agentive. ($_A$MOVED= CAUSE to MOVE) (Talmy 2000)

and controlled by an external causer. This typical caused-motion event is illustrated below[6]:

Subevent 1		Subevent 2
Causer→Causing Action	**+**	Theme→Motion
Causing event		Motion event
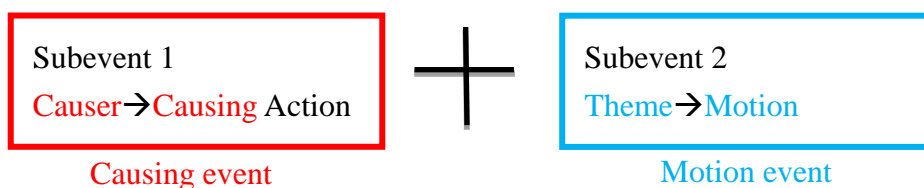
Figure 2: Typical Caused-motion concept (Li 2007: 23)

With the above five internal components and the association of the two subevents, Li (2007) further proposes that a prototypical caused-motion event consists of 'a human Causer volitionally exerts physical force and acted directly on a physical Theme and immediately caused the physical theme to move along a physical Path in a physical space.'

2.1.3 Constructional Analysis of Caused-motion

Other from the lexical and cognitive approaches to caused-motion, there are constructional-based approaches to account for both English and Chinese caused-motion verbs regarding the form-to-meaning correspondences. Under the framework of Construction Grammar, Goldberg (1995) defines English caused-motion as structurally following the pattern: [SUB [V OBJ OBL] with the meaning of 'X CAUSES Y TO MOVE Z'; that is, 'the causer argument directly causes the theme argument to move along a path designated by the directional phrase.' The form-meaning correspondence can be represented in figure 3:

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[6] An example for the involvement of two subevents given by Li (2007) could be: 'Mary *pushed* Jim into the room,' which involves one entity moves from one location to another location under the direct impact of an external causer.

```
Sem   CAUSE-MOVE  < cause      goal      theme>
                      |          |          |
             PRED   <                          >
                      |          |          |
                      ↓          ↓          ↓
Syn         V        SUBJ       OBL        OBJ
```
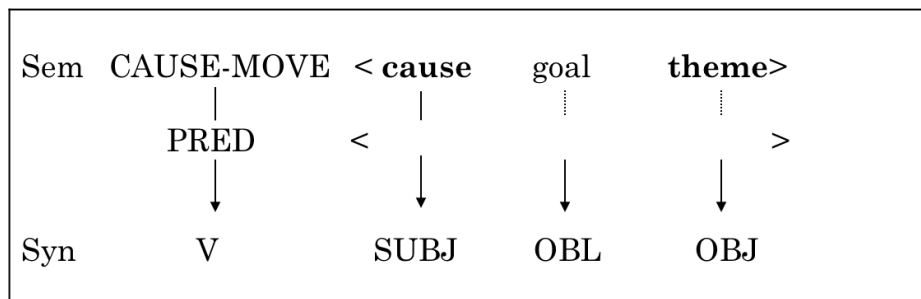
Figure 3: English Caused-Motion Construction (Li 1995, 7: 160)

The above figure illustrates the mapping of the syntactic form and the constructional meaning which postulates that any lexical verb, either encode or not encode the sense of motion will be associated with the sense of caused-motion once situated under such construction. For instance, the verb *sneeze* as in 'Frank sneezed the napkin off the table.'

As for the analysis of caused-motion in Chinese, Pan and Chang (2005) did a comparative study on English and Chinese caused-motion construction and pointed out that the crucial distinction between Chinese and English lies in the use of causative markers. In Chinese, causative markers such as *bǎ* 把, *shǐ* 使, or *rang* 讓 are commonly used to express causative motions, whereas in English, the notion of caused-motion can only be expressed by the rigid pattern of (i.e. [NP1 V NP2 PP]).

Moreover, Chinese illustrates vast ways of encoding the path of motion. A caused-motion event in Chinese can usually be expressed by a main verb following a preposition or a non-predicate verb to indicate the direction or path of motion, such as V 在 'at,' V 到 ' arrive,' V 向 'face,' V 往 'go toward,' V 上來 'go up,' V 下來 'come down,' V 進來 'come in,' V 出來 'come out,' V 回來 'come back,' whereas in English, path can only be encoded in a preposition as shown in the following contrastive pairs (11) and (12):

(11) English caused-motion pattern:

    (a) He threw the stone **into** the river.

(b) Jane sewed a button **onto** the jacket

(12) Chinese caused-motion pattern:

(a) 他把車開**到**南京了。

tā bǎ   chē kāi   dào   nánjīng le

he BA car drive   arrive   Nanjing le

'He drove the car to Nanjing.'

(b) 他把球扔**向**了我。

tā bǎ qiú rēng xiàng le wǒ

he BA ball throw face le me

'He threw me the ball.'

(c) 我們把羊群放**出去**了。

wǒ men bǎ yang.qún fàng chū.qù le

we BA goats.group release out.go le

'We've released the goats.'
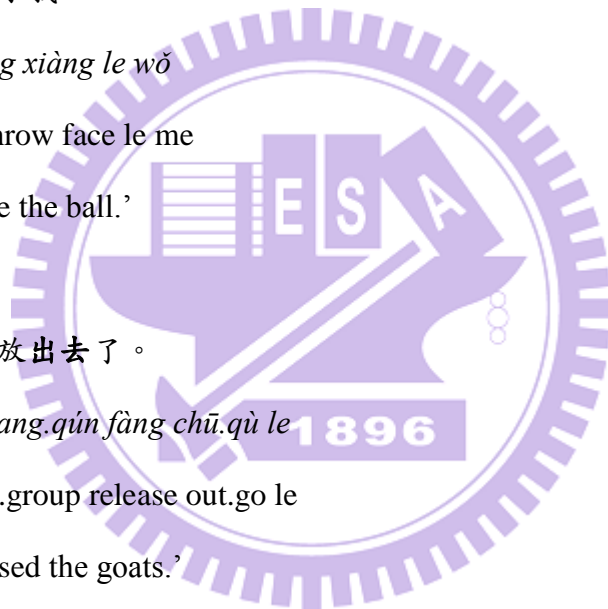
Based on Pan and Chang (2005), a typical caused-motion construction in Chinese may show various patterns when encoding a caused-motion event. It may be involved in either a causative sentence with non-predicate verb or a BA-construction with V-Preposition patterns (e.g., *tā bǎ chē kāi dào nánjīng le* 他把車開到南京了 'He drove the car to Nanjing') or V-Directional patterns (e.g., *tā bǎ mùtong tí shànglái le* 他把木桶提上來了 'He lifted up the buckets').

2.1.4 Proto-Motion Event Schema

Besides the notion of motion events proposed by Talmy (2000), Li (2007), and Goldberg (1995), Liu *et al.* (2013) also proposes a proto-motion event schema consisting of five essential semantic components: **Manner**, **Route**, **Direction**, **Endpoint**, and **Deictic** that pertain to a prototypical motion event. According to Liu (2013), a motion event may be conceptualized as the sequence of how a journey or motional contour is formed with the starting point of 'a chosen Manner, via a certain Route, in a given Direction, towards a targeted Endpoint and finally approaching the Destination (normally manifested as a Loc-NP). Optionally, a further specification of Deictic orientation can be added.' Given the semantic components pertaining to a proto-motion event and incorporating them in an iconic sequence of sub-motion events and morphemes, the following Proto-Motion Event Schema (PMS)[7] is being proposed:
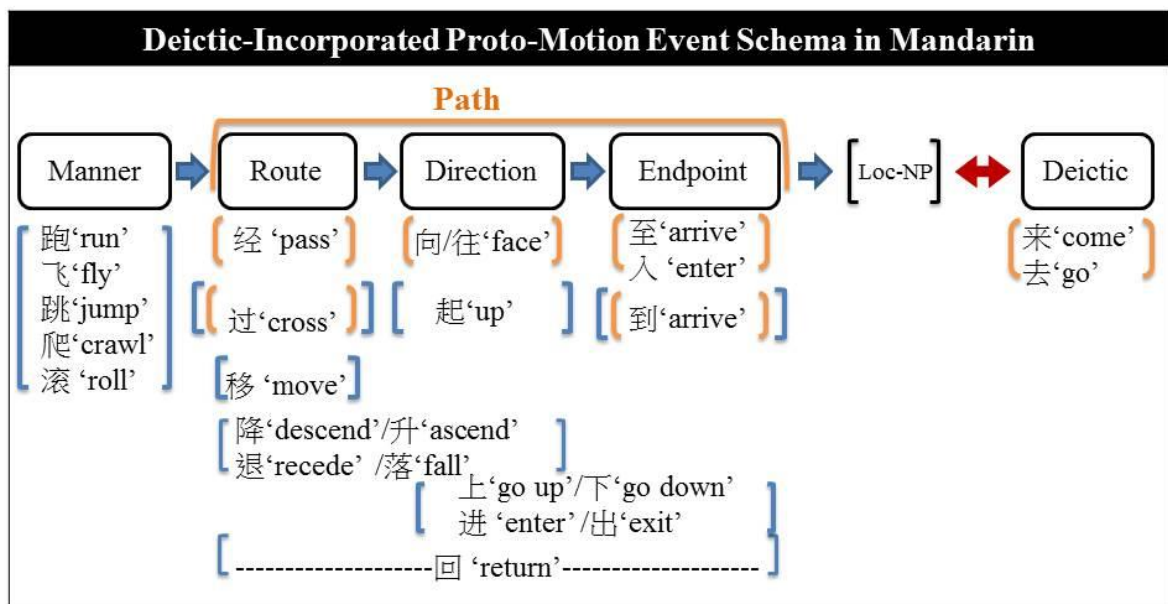
Figure 4: The Deictic-incorporated Proto-Motion Event Schema (Liu 2013: 19)

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[7] The double-arrowed head situated in between Locus-NP and Deictic represents the order of the two elements which can be used alternatively, that is to say, either the Deictic can be placed before or after the Loc-NP.

With the proposed PMS, every motion verb can be plotted under a sub-portion of the event schema. That is to say, every motion verb contains at least one semantic component that encodes a sub-portion of the schema and if there is found to be more than one component involved in a motion verb, the range of its meaning follows the left to right order of the components on the given schema with the default sequence of a serial motion event as illustrated in example 13 below:

(13) 球 [滾]Manner[落]Route[進]Direction[到]Endpoint 洞里[来]Deictic

　　qiú gǔn 　　　*luò* 　　*jìn* 　　　*dào* 　　　*dònglǐ lái*

　　ball roll 　　　fall 　　enter 　　　　arrive 　　　hole 　come

　　'The ball rolled and fell into the cave near me.'

By observing (13) above, the leftmost verb V$_1$ *gǔn* 滾 'roll' lexically encodes Manner; V$_2$ *luò* 落 'fall' encodes both Route and Direction; V$_3$ *jìn* 進 'enter' lexicalizes Direction and Endpoint, and the rightmost V$_4$ *dào* 到 'arrive' specifies Endpoint with an additional deictic marker *lái* 來 'come' (which is optional) to indicate the relative position to the speaker.

2.1.5 Intermin Summary

Based on Talmy's (2000) lexicalization patterns which distinguished motion-with-manner and motion-with-cause, Li (2007) further states that typical caused-motion concept involves two subevents (causing event and motion event) that are causally related to each other, and Goldberg (1995) specifies a caused-motion construction with the typical syntactic form of [SUBJ [V OBJ OBL]]. In view of these three studies, we can thus categorize *tuī* 推 'push' and *lā* 拉 'pull' as caused-motion verbs.

Based on Talmy (2000), *tuī* 推 'push' and *lā* 拉 'pull' are said to be motion verbs that are conflated with the co-event component **Cause**. Based on Li (2007), *tuī* 推 'push' and *lā* 拉 'pull,' as verbs pertaining to caused-motion, also consist the subevents of causing event and motion event where the former and the latter are causally related to each other. Moreover, based on Goldberg (1995), *tuī* 推 'push' and *lā* 拉 'pull' also appear in the typical caused-motion construction with the syntactic pattern of [SUBJ [V OBJ OBL]] as shown in figure 5 below with the incorporation of Talmy (2000), Goldberg (1995) and Li's (2007) frameworks:

Motion + Cause

[我 SUBJ[推/拉 V 一輛腳踏車　　　　＋　　　一輛腳踏車 OBJ 到屋裡 OBL]]

Causing event　　　　　　　　　　　　　　　Motion event
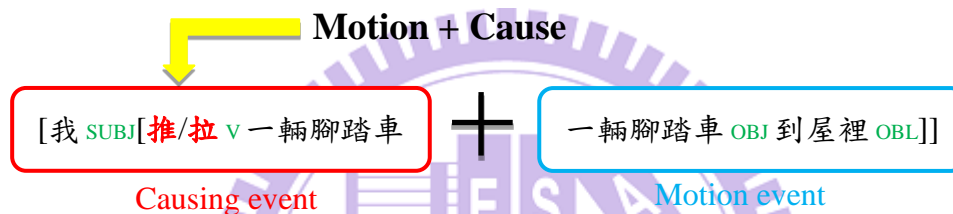
Figure 5: Typical Caused-motion concept of *Tuī* and *Lā*

With further incorporation of Liu *et al.*'s (2013) framework of the Proto-Motion Event Schema, *tuī* 推 'push' and *lā* 拉 'pull' can be defined as depicting a serial motion event with the further involvement of a causing event as illustrated below:

我推/拉他　　　＋　　　[跑]Manner[到]Endpoint[會議廳]Loc-NP[去]Deictic

Causing event　　　　　　　　　　　　　Motion event
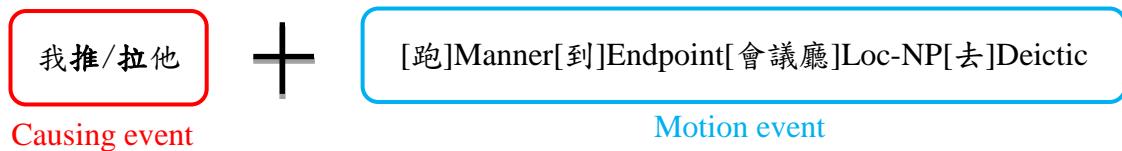
Figure 6: Serial Motion Event of *Tuī* and *Lā*

2.2 Previous Works on English *Push/Pull* verbs

2.2.1 Frame-based Approach

The FrameNet Project (http://framenet.icsi.berkeley.edu/), created by the Institute of California Berkeley, is an online lexical database that provides a frame-based analysis of English lexical items. FrameNet provides each frame with its essential frame-specific participant roles, known as Frame Elements (FEs), and the grammatical patterns expressing the frame elements. It aims to provide a frame-based analysis of English lexicon as well as the frame-to-frame relations among verbs. According to FrameNet, there are no specific frames listed for *push/pull* verbs. Verbs related to *push/pull* are listed under different frames as shown in figure (7) and a table (table 3) summarizing the *push/pull* verbs that occur in FrameNet:
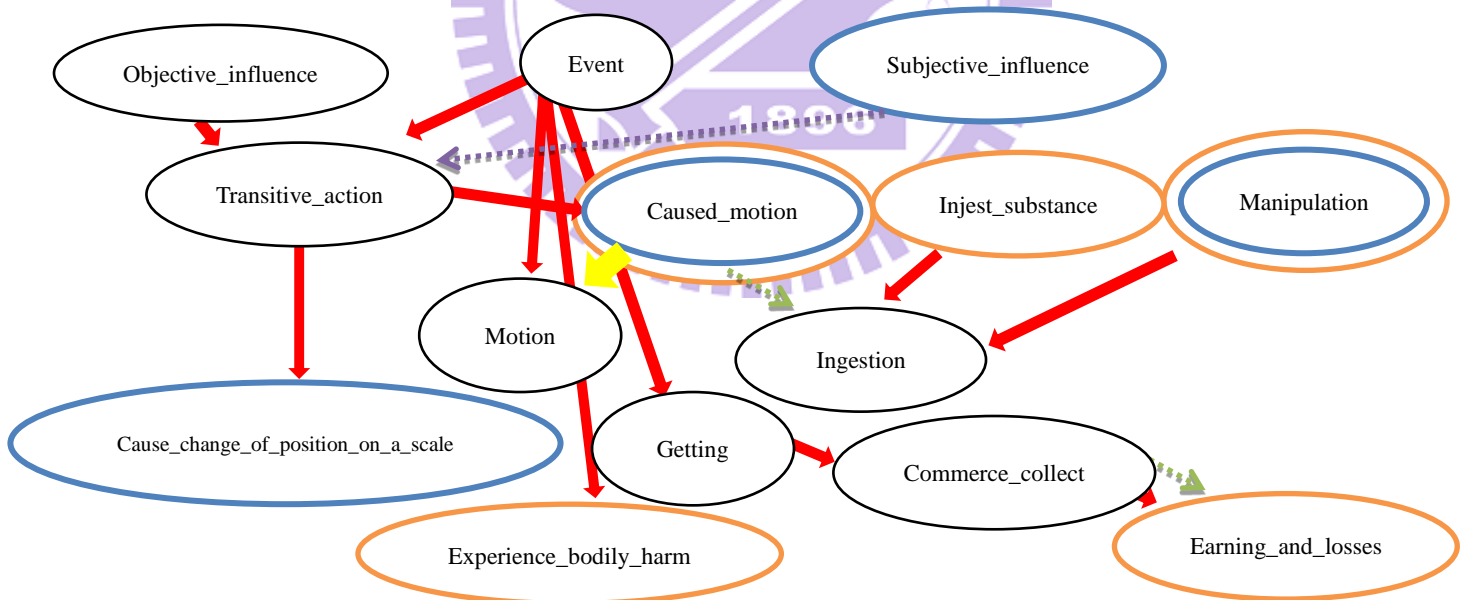
Figure 7: The frame relation of *Push/Pull* verbs in FrameNet[8]

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[8] Figure 7 is not the original FrameGrapher (which shows the connections of several frames, demonstrates the frame-to-frame relationships by different arrows representing respectively the relationships of Inheritance, Using, Precedes, Perspective_on, Inchoative_of, Causative_of, and See_also.) from FrameNet, this is a combined and merged version by the author of this paper with all the related frames for English *Push/Pull* verbs.

	Frame Name	Core Frame Elements	Lexical Units
	Subjective_influence	Action, Cognizer, Situation	push
	Cause_change_of_position_on_a_scale	Agent, Attribute, Cause, Item	push
PUSH **PULL**	Caused_Motion	Agent, Initial_time, Theme	push, pull
	Manipulation	Agent, Entity	push, pull
	Earning_and_losses	Earner, Earnings	push
	Experience_bodily_harm	Body_part, Experiencer	push
	Inject_substance	Delivery_device, Injester, Substance	push

Table 3: The summary of *Push/Pull* related frames in FrameNet

Observing FrameNet, *Push*/*Pull* verbs are defined in distinct specific frames, and the relations of *push*/*pull* verbs are scattered here and there under different frame-specific domains. We observe that the lemmas *push* and *pull* mostly occur in two frames: Caused_Motion and Manipulation. Based on FrameNet, other from the two frames, *push* and *pull* also occur in other multiple frames. The lemma *push* also occurs in the frames of Subjective_Influence and Cause_change_of_position_on_a_scale, and *pull* also appears in Earning_and_Losses, Experience_bodily_harm, and Inject_substance.

However, even though *push* and *pull* occur with many other frames, all of them still have an assumption in common of exerting physical force onto someone or something in order to move them towards or away from oneself. By observing FrameNet, we believe that the events of *tuī* 推 'push' and *lā* 拉 'pull,' its deictic relations between the Agent and the Moved entity and its fruitful multiplex metaphorical extensions could not be fully accounted since FrameNet based its analysis purely on English lexicon.

2.2.2 Alternation-based Approach

Other from analyzing English verbal semantics from the perspective of frame-based approach, Levin (1993) focuses on English verb classes and alternations through the perspective of alternation-based approach by investigating the expressions and interpretations of different argument realizations of verbs. Based on this approach, Levin (1990: 185) claimed that verbal behaviors provide the key evidence for the investigation of lexical realizations of verbs. According to Levin, *Push/Pull* verbs are classified into three subclasses[9]: *Carry Verbs*, *Push/Pull verbs,* and *Split verbs* as illustrated in the following table:

	Verb Classes	Comment	Examples
PUSH	Push/Pull Verbs	These verbs relate to the exertion of a force on an entity	Nora *pushed* the chair away from her. Nora *pulled* the chair towards her.
	Carry Verbs	Causation of accompanied motion	Amanda *pushed/pulled* the chair to the wall.
PULL	Split Verbs	A sense of "separate by V-ing"	I *pushed* the plates off the table. I *pulled* the wig and the hair apart.

Table 4: The summary of *Push/Pull* related verb classes in Levin (1993)

By observing table 4, it is found that English *push*/*pull* verbs are classified under three distinct verb classes based on the differences of verbal behaviors. According to Levin's classification, it illustrates clearly the syntactic distinctions without any further semantic characteristics of

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[9] Other from these three subclasses, *push* is also involved in the verb class of Funnel Verbs. However, we did not consider this verb class since we are more concerned with the verb classes that are shared by both class members of *push* and *pull*.

each verb classes.

Based on Levin's classification, we found that the first two verb classes correspond to our syntactic patterns in Chinese. The first verb class of *Push/Pull* verbs correspond to our syntactic pattern of [NP1 V NP2 PP] such as: *wǒ tuī/lā yí-liàng jiǎo-tà-chē dào wūlǐ* 我推／拉一輛腳踏車到屋裡 'I pushed/pulled a bicycle into the house' and the second verb class of *Carry* verbs correspond to our syntactic pattern of [NP1 V 著 NP2 VP] as in *chénglong tuī/lā zhe wǒ méi-mìng-dì pǎo* 成龍推／拉著我沒命地跑 'Jack Chen pushed/pulled me running madly.' However, by comparing the similar alternations as well as the semantic-to-syntactic relations, it might not be fully adequate to describe the events of *tuī* 推 'push' and *lā* 拉 'pull,' their deictic relations between the Agent and the Moved Entity and their multiplex extended senses, since it is found that Mandarin may display other alternation patterns that are distinct from those of English *push/pull* verbs, due to the typological variations between the structures of the two languages.

2.3 Previous Works on Chinese *Tuī* and *Lā*

2.3.1 Corpus-Based Lexical Semantic Study of *Lā*[10]

Based on corpus analysis, Liao (2003) manages to identify the semantic properties of Mandarin Force Compulsion verb *lā* 拉 'pull' through the examination of its grammatical functions and collocational distributions. According to its grammatical functions, Liao (2003) proposes that *lā* 拉 'pull' can take a direct object with *Ba*-construction. With further observation through collocational patterns, Liao (2003) observes that *lā* 拉 'pull' can take

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[10] This paper originally focuses on the identification of semantic properties of Mandarin Force Compulsion near-synonym set: *lā* 拉, *tuō* 拖, and 扯 *chě*; however, we only considered *lā* 拉 'pull' for it is more relevant to the present study.

both concrete ([+animate]) and abstract (time, duration and relationship) object NPs. In the [+animate] concrete object NP, *lā* 拉 'pull' may take either human entities or body parts (eg., hand). As for the [-animate] concrete object NPs, *lā* 拉 'pull' may take both small mass hand-manipulable objects (e.g., microphone) and large mass non-hand-manipulable objects (e.g., car). With further view into the post verbal-DE complement, it is found that *lā* 拉 'pull' often selects a path resultative with a descriptive complement, where it allows both vertical and horizontal directional compliment.

Incorporating Frame-based approach, Liao (2003) classifies *lā* 拉 'pull' under the frame of Force-Compulsion with the elements of Force (the notion of direction), Mass (the qualities of the objects) and Acceleration (the speed of the action). The notion of *lā* 拉 'pull' can be read as 'someone exerts the force on a target and causes a contact on the target.' In this frame, four participants are involved: **Force-Initiator**, **Acceptor**, (**Path**), and (**Goal**) where the roles of Path and Goal are optional. With this notion in mind, the core meaning of *lā* 拉 'pull' posits the sense of movement towards the direction of the force-initiator as in *tā lā wǒ qù tā jiālǐ* 他拉我去他家裡 'He pulled me to his house.'

Adopting the Force Schema Theory, Liao (2003) further illustrates the core meaning of *lā* 拉 'pull' as well as its extended meanings as illustrated in the following force schemas[11]:
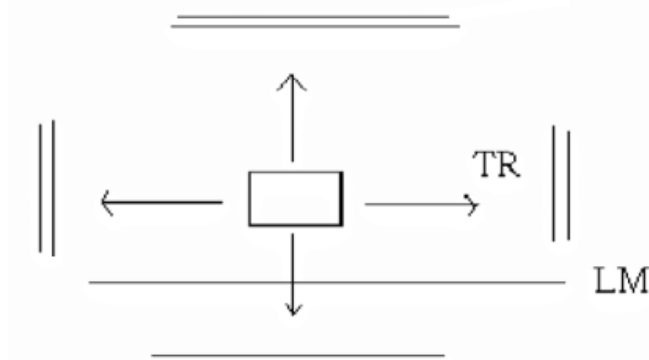
Figure 8: The core meaning of Lā 拉 (Liao 2003: 41)

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[11] In the force schemas, TR represents the Trajector and LM represents the Landmark which are generalizations of Figure and Ground in Langacker's (1986) concepts. The LM is understood as the ground, the TR as an entity and the arrows represent the directionality of PATH.
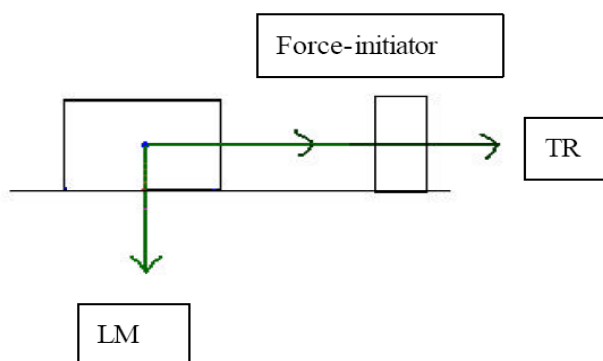
Figure 9: Extended meaning of Lā 拉 (Liao 2003: 42)

In the figures above, the force-initiator may either stay still as in *wǒ lā yǐzi guò lái* 我拉椅子過來 'I pulled the chair (to come over)' (figure 8) or moves along with the acceptor as in *sheng-dàn lǎogonggong hé rén bàn yǎn de xúnlù lā zhe sānlúnchē guàng xiào yuán* 聖誕老公公和人扮演的馴鹿拉著三輪車逛校園 'Santa Claus and a people disguised as a reindeer pulled a tricycle strolling through the campus' (figure 9). In figure 8, the lines pointing to the four different directions signal that the force-initiator does not undergo a translocational movement, while it is the acceptor that moves toward the force-initiator. In figure 9, the directionality of force is still towards the force-initiator, but at this time, it is the movement of both the force-initiator and the acceptor. According to Liao (2003), this extended meaning derives from the prototypical meaning of *lā* 拉 'pull.' A possible reason for such co-motion event might be that, based on Liao's explanation, the acceptor 'car,' for example, is semantically a moving object; therefore, the force-initiator would be affected by the acceptor and as a result, moves along with it.

Liao (2003) then adopts Lakoff's (1980) Metaphor Theory to explain the metaphorical extensions of *lā* 拉 'pull.' Liao divides the extensions into two types: one has to deal with human relations, while the other has to deal with time-lengthening. In the human relation, *lā* 拉 'pull' can extend to mean the distance of human relation as in *chéng zhǎng shǐ rén de jù lí yuè lā yuè yuǎn* 成長使人的距離愈拉愈遠 'Growth makes people's distances farther and farther,' or as a metonymical attraction sense as in *lā piào* 拉票 'attract the vote' or even the

sense of helping out as in *lā tā yī bǎ* 拉他一把 'Give him a hand.' Under time-lengthening, *lā* 拉 'pull' can mean to extend a temporal event as in *wèi le gong chéng jìn xíng shun lì shī gong qí xiàn bù dé bù lā cháng* 為使工程進行順利，施工期限不得不拉長 'In order to make the construction go smoothly, the deadline of the work cannot but lengthen for a period of time.'

2.3.2 Cross-linguistic Semantic Analysis of 推-拉 versus *Push-Pull*

Based on a cross-linguistic analysis, Chen (2012) manages to focus on the reversive verb pairs: *tuī-lā* 推-拉 and *Push-Pull* in Mandarin and English in order to compare and contrast the lexical-semantic relations of their semantic ranges in both literal and metaphorical senses.

Chen (2012) categorizes the antonymous verb pairs into three classes: 1) **personal**: actions done on one's body parts or mental processes, 2) **social**: actions on other people, and 3) **instrumental**: actions on inanimate objects and tools in order to distinguish the patient roles onto which the actions are imposed as shown in the following bar chart:
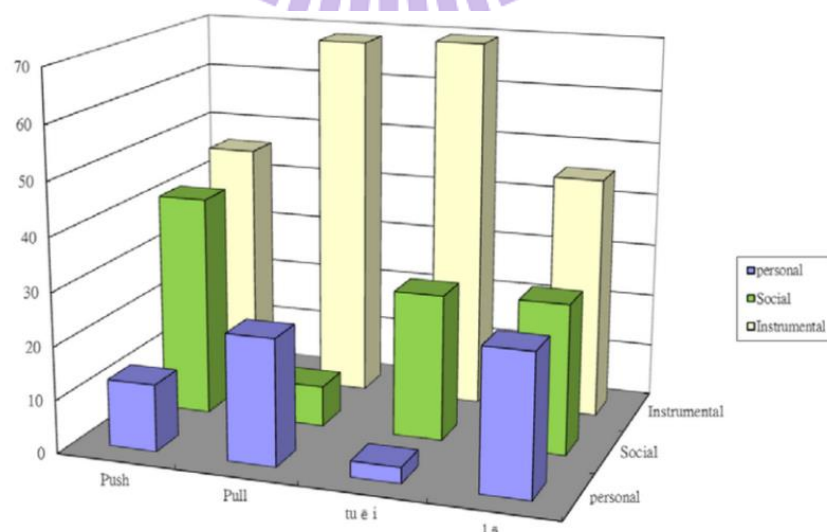
Figure 10: Distribution of Categories (Chen 2012:8)

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From the above chart, it shows that among the three categories, *tuī* 推—*lā* 拉 and *push-pull* frequently perform actions under the instrumental category, that is, on instruments, inanimate objects, and vehicles. Moreover, it is also shown that *tuī* 推 and *push*, compared to their counterparts *lā* 拉 and *pull*, barely perform actions under the personal category.

Zooming into the personal category, it is observed that *tuī* 推 and *push* barely apply actions on body parts except when it posits some surface contact as in *yòng nèi jiā zhǎng lì xiàng shēn qián xiǎo hé shàng bèi xīn yì tuī* 用內家掌力向身前小和尚背心一推 'Use one's internal energy delivered through the palm to push the little monk's back'. In contrast, *lā* 拉 and *pull* usually requires the fingerly action as in *shǒu lā shǒu* 手拉手 'holding onto one's hand(s).' Also, in both Chinese and English, *pulling a face* is being used metaphorically meaning unable to raise or lower one's social position relative to the addressee's as in *rán hòu zì jǐ yòu hěn ài miàn zǐ lā bú xià liǎn lái gēn tā dào qiàn* 然後自己又很愛面子，拉不下臉來跟他道歉 'Because I had too much for my self-esteem, I was not able to pull my face down for an apology.'

As for the social category, there are two types of movements: 1) Patient moving towards or away from Agent and 2) both Agent and Patient move together with a constant distance between them. In *lā* 拉 and *pull*, the actions usually involve an additional dimension on the Patient—that is, the degree of willingness or conformation to move. This then brings to the metaphorical extension of 'to attract' as in *wèi le lā xué sheng jūn yā dī jià qián* 為了拉學生，均壓低價錢 'In order to attract students, the price is pressed down.'

In the instrumental category, *tuī* 推 and *push* are often used with furniture (door, bed, chair) and vehicles (bike, trolley, wheelchair), while *lā* 拉 and *pull* are usually used with cloths (string, rope, curtain) and objects with a line (plug). Moreover, *tuī* 推 and *push* appear to provide a sense of multi-directional expansion which lead to the metaphorical extension of 'selling a product' as in *tí gong suǒ xū kè chéng ér fēi yìng tuī kè chéng chǎn pǐn* 提供所需課程，而非硬推課程、產品 'Supply demanded lessons but not pushing lessons and products.'

2.3.3 Intermin Summary

In the previous sections, Liao (2003) and Chen (2012) have analyzed the semantic properties and metaphorical extensions of *tuī* 推 'push' and *lā* 拉 'pull.' In Liao (2003), she has identified the semantic properties of *lā* 拉 'pull' through grammatical functions and collocational distributions and categorizes *lā* 拉 'pull' under Force Compulsion frame which further divides the metaphorical extensions into two types: 1) human relationship and 2) time-lengthening. On the other hand, Chen (2012) categorizes the metaphorical extensions of *tuī* 推 'push' and *lā* 拉 'pull' into three verb classes: 1) personal, 2) social, and 3) instrumental.

However, they did not clearly explain the process of such metaphorical transfers and the interrelationships among the diverse usages of *tuī* 推 'push' and *lā* 拉 'pull.' Moreover, they did not go in dept to consider the intimate deictic relations between *tuī* 推 'push' and *lā* 拉 'pull' with deictic *lái* 來 'come' and *qù* 去 'go' and the collocational constraints of *tuī* 推 'push' and *lā* 拉 'pull' with aspectual markers such as *zhe* 著. Therefore, this paper aims at classifying and categorizing *tuī* 推 'push' and *lā* 拉 'pull' under the frame of Caused_Motion and aims to provide a principled account to explain such diverse usages of *tuī* 推 'push' and *lā* 拉 'pull.'

Chapter 3

Database, Theoretical Framework and Methodology

3.1 Database

The main body of data collected and analyzed in the present study comes from real-occurring data in Academia Sinica Balanced Corpus of Mandarin Chinese (Sinica Corpus)[12] (http://dbo.sinica.edu.tw/SinicaCorpus/index.html/), which contains a total of ten million words, consisting of vast topics ranging from society, life, literature, philosophy, science and art along with computational tools for searching and making collocations developed by the CKIP group in Academia Sinica, Taiwan. Another database is the Chinese Word Sketch [13] (http://wordsketch.ling.sinica.edu.tw/), which contains grammatical co-occurrence statistics and various distributional patterns. In addition to the two main corpora above, other sources come from the FrameNet (http://framenet.icsi.berkeley.edu/), the Chinese Wordnet, (http://lope.linguistics.ntu.edu.tw/cwn/), and the most popular daily-updated search engine "Google Search" (http://www.google.com.tw/).

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[12] Sinica Corpus contains a total of 316 lexical entries of *tuī* 推 'push' and 538 lexical entries of *lā* 拉 'pull,' and all of the lexical entries of *tuī* 推 'push' and *lā* 拉 'pull' have been observed.

[13] Gigaword in Chinese Word Sketch (CWS) contains a total of 13501 lexical entries of *tuī* 推 'push' and 25376 lexical entries of *lā* 拉 'pull' where 687 entries of *tuī* 推 'push' and 475 entries of *lā* 拉 'pull' have been observed.

3.2 Theoretical Framework

There are four theoretical frameworks adopted in this study: 1) Frame Semantics (Fillmore and Atkins 1992), 2) Multi-layered Hierarchical Structure (Liu and Chiang 2008), 3) The Prototype Category Theory (Rosch 1973, 1977, 1978), and 4) Conceptual Metaphor Theory (Lakoff and Johnson 1980).

Frame Semantics and multi-layered hierarchical structure are adopted to establish a frame-based analysis to further classify and categorize *tuī* 推 'push' and *lā* 拉 'pull' under the frame of Caused_Motion with specific frame elements which are constructed under different levels of the hierarchical structures proposed by Liu and Chiang (2008). With the incorporation of Prototype Theory and Metaphor Theory, this paper further explores the process of metaphorical transfers from the core meaning of *tuī* 推 'push' and *lā* 拉 'pull' to other multiplex sense extensions and explains the interrelationships among such diverse usages of *tuī* 推 'push' and *lā* 拉 'pull.'

3.2.1 Frame Semantics: Fillmore and Atkins

Following a corpus-based approach, the present study adopts Frame Semantics (Fillmore and Atkins 1992) as the research approach. One of the most credited theoretical assumptions in Frame Semantics is that "…a word's meaning can be understood only with reference to a structured background of experience, beliefs, or practices, constituting a kind of conceptual prerequisite for understanding the meaning[14]." With this in view, "…words or word senses are not related to each other directly, but only by way of their links to common background

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[14] cf. Fillmore (1968) for the earliest notion of Frame Semantics.

frames and indication of the manner in which their meanings highlight particular elements of such frames" (Fillmore and Atkins 1992: 76-77). This means that the meanings of a word can be understood with the respective background frame which motivates the concept of a word.

In Frame Semantics, it is noted by Fillmore and Atkins that a word evokes a semantic frame where each of the frames contain core frame elements where word senses are then distinguished by their highlighting frame elements and thus, profiling different semantic components that maps to different syntactic realizations. Take the commercial transaction frame for example: Buyer, Seller, Goods, and Money are four essential semantic components in any commercial event scene where one person acquires control or possession of something from a second person. In this view, word senses can be distinguished by their highlighted frame elements and shared background knowledge. Thus, verbs of the same frame share the same semantic elements.

In light of Frame Semantics, the present study follows the procedure and examine Mandarin *tuī* 推 'push' and *lā* 拉 'pull' through the identification of syntactic patterns that mapped onto respective frame-specific components.

3.2.2 Multi-layered Hierarchical Structure

Following the assumption that the meaning of verb can only be defined in the specific semantic frames of profiled lexical elements (Fillmore and Atkins 1992, Goldberg 2005), this study adopts the framework of a frame-based hierarchical taxonomy proposed by Liu and Chiang (2008) to illustrate the relation between caused-motion and *tuī* 推 and *lā* 拉 and to further classify and categorize *tuī* 推 and *lā* 拉 with a multi-layered hierarchical structure classification of semantic frames. The framing system is as follows: Archiframe > Primary frame > Basic frame > Microframe. According to Liu and Chiang (2008), frames in the higher

level encode a broader scope of certain semantic domain that provides background frame information, while frames in the lower-layered are subframes of the higher-layered frames which inherit from the upper frames and provide frame-specific descriptions.

According to Liu and Chiang (2008), an **archiframe (AF)** illustrates a broad semantic domain that provides a maximal scope of background information for a unique event. Precisely speaking, an archiframe provides an overarching conceptual schema with a set of default participant roles (i.e. frame elements). A **primary frame (PF)** represents a sub-portion of the conceptual schema from the archiframe with a unique set of core frame elements. **Basic frames (BFs)** highlight particular participant roles or particular relations within the primary frames. In other words, basic frames are distinguished according to their particular constructions known as defining patterns that foreground or background certain participants. **Microframes (MFs)** making up the lowest level frame and is distinguished by role-internal specifications of frame elements such as collocational associations, semantic attributes and morphological make-ups. Each frame under the multi-layered hierarchical structure is presented with a definition, a unique set of frame elements, representative lemmas, defining patterns, and conceptual schema which will be illustrated in chapter 5.

3.2.3 The Prototype Category Theory: Rosch

From the perspective of Prototype Theory, Rosch (1973) claims that the way human conceptualize their thought is generally organized in terms of prototypes and basic-level structures which means that human categorize ideas not in the form of a hierarchical concept from the most general to the most specific; instead, ideas are organized and categorized in a basic cognitive way of being 'in the middle' of a general-to-specific hierarchy. It was Rosch who view categorization as one of the most crucial issues in cognition.

As mentioned by Lakoff (1987), Rosch and her associates made the most significant experimental contribution to the establishment of Prototype Theory and are generally recognized by cognitive psychologists as having revolutionized the study of categorization within experimental psychology. Rosch (1973) discovered that natural prototype members are not arbitrary; instead, they should be perceptually salient members where the most typical ones being the most prototypical ones. Normally, the prototypical members of a category share most attributes with other members and least attributes with members of other categories. This then forms a family resemblance in the internal structure of categories (Rosch & Mervis, 1975). In other words, the concept of prototypical theory is the notion that concepts are organized around family resemblances rather than features that are individually necessary and jointly sufficient for categorization (Mervis & Rosch, 1981, 1975; Rosch, 1975).

With the notion of Prototype Theory in mind, the present paper adopts this approach onto the causal events of Mandarin *tuī* 推 and *lā* 拉 to discover the most prototypical members since both of them have various multiplex sense extensions.

3.2.4 Conceptual Metaphor Theory: Lakoff and Johnson

According to Evans (2006), the conceptual metaphor theory was one of the most crucial and earliest theories adopting a cognitive semantic approach. Over the decades in the development of cognitive linguistics enterprise, it was one of the most dominant studies despite of its limitations (cf. Evans 2004; Haser 2005; Leezenberg 2001; Murphy1996; Stern 2000; Zinken, Hellsten, & Nerlich in press), it still remains a crucial issue.

Metaphor is an essential element that is categorized in our cognitive thinking process (Lakoff and Johnson 1980). According to Lakoff and Johnson (1980), metaphor is not simply a stylistic feature of language; instead, it is the mapping of conceptual structures across

conceptual domains that build our reasoning and everyday experience where some of these metaphors are due to pre-conceptual embodied experiences, while others are built on these experiences in order to form more complex concepts. For instance, we can think and talk about quality in terms of vertical elevation as in "She got a really high mark in the test."

Moreover, in recent developments of conceptual metaphor theory, metaphors are derived from more basic 'super-shematic' aspects of conceptual structures known as *primary metaphors* (Grady 1997, Lakoff & Johnson 1999). For instance, metaphors such as theories are buildings as in, "The theory needs more *support*," or "The argument is *shaky*."

Based on conceptual metaphor, the present study adopts this approach to conceptualize the various metaphorical extensions of Mandarin *tuī* 推 and *lā* 拉 and explain the process of metaphorical transfers from the prototypical meanings of *tuī* 推 and *lā* 拉 to other extended uses and as well as the interrelationships among such diverse usages of *tuī* 推 and *lā* 拉.

3.3 Methodology & Procedure

This study adopts a corpus-based approach to distinguish the syntactic behaviors and semantic properties of *tuī* 推 and *lā* 拉 and to further explain the interrelationships among such diverse usages of non-motional *tuī* 推 and *lā* 拉 through real-occurring Chinese data from Sinica corpus and Chinese Word Sketch (CWS) and daily updated Google Search Engine.

To fully capture and analyze the form-to-meaning pairings of Mandarin *tuī* 推 and *lā* 拉 and to provide a systematic and principled account for the core meaning of *tuī* 推 and *lā* 拉 along with their multiplex metaphorical extensions, the deictic relations between the Agent and the Moved Entity, and the aspectual interactions of *tuī* 推 and *lā* 拉 with aspectual *zhe* 著, four steps are utilized as follows:

Step 1: Collecting the corpus data

Adopting a corpus-based approach, the initial step of this paper is to collect as much data of *tuī* 推 and *lā* 拉 as possible from the selected corpus, Sinica Corpus and Word Sketch Engine as the two main databases. In addition, some of the data are extracted from Chinese Wordnet and Google Search Engine.

Step 2: Observing and examining the syntactic properties of *Tuī* and *Lā*

After data collection, the second step goes ahead with the observation of possible linguistic phenomenon revealed in the data, which usually concerns with the semantic and syntactic information such as: a) argument structures, b) participant roles, c) collocational patterns or lexicalization patterns of the verbs.

Step 3: Sorting out the semantic meanings of *Tuī* and *Lā*

With a single verb mapping onto various sense extension domains, the third step has to do with the sorting of possible metaphorical extensions through the observed and examined data set.

Step 4: Categorizing and Analyzing *Push/Pull* verb: *Tuī* and *Lā*

After sorting out the multiplex metaphorical extensions of *tuī* 推 and *lā* 拉, the final step is to classify the distinction of each extended senses by adopting a Frame-based approach. With the adopted approach, this study moves on to define and analyze the various meaning

extensions of *tuī* 推 and *lā* 拉 under one single frame-specific Caused_Motion verb and to explain the interrelationships among such diverse usages of these verbs.

With the four steps above, the following section provides some interesting findings observed from corpus data with a particular focus on the directed movement verbs: *tuī* 推 'push' and *lā* 拉 'pull.'

Chapter 4

Findings

This chapter aims to present some findings obtained from corpus observations. These findings are about to reveal both the syntactic realizations and semantic components presented in Mandarin *tuī* 推 and *lā* 拉 which will be presented in the following aspects: 1) grammatical and distributional frequencies, 2) semantic properties, and 3) collocational patterns. Section 4.1 presents the grammatical and distributional frequencies of *tuī* 推 'push' and *lā* 拉 'pull' with respect to the basic syntactic patterns and the semantic senses. Section 4.2 illustrates the semantic properties of motional *tuī* 推 'push' and *lā* 拉 'pull' in terms of their defining patterns, participant roles and semantic attributes. Section 4.3 explores the deictic collocational constraints of the occurrence of motional *tuī* 推 'push' and *lā* 拉 'pull' with deictic *lái* 來 'come' and *qù* 去 'go.' Section 4.4 illustrates the aspectual variations of both motional and non-motional uses of *tuī* 推 'push' and *lā* 拉 'pull.' Finally, section 4.5 displays the event types and section 4.6, the morphological make-ups pertaining to the non-motional uses of *tuī* 推 'push' and *lā* 拉 'pull.' With these findings, the classification and definition of the multiplex sense extensions of *tuī* 推 'push' and *lā* 拉 'pull' will be revealed and the detailed analysis will be given in chapter 5.

4.1 Grammatical and Distributional Frequency: Motional and Non-motional Events

As mentioned before, *tuī* 推 'push' and *lā* 拉 'pull' are transitive verbs that are found to bear several sense extensions. Based on Chinese Wordnet and with further observations from corpus data, it is found that *tuī* 推 'push' bears at least six, while *lā* 拉 'pull' bears at least

three that are repeated below for reference:

(14) **The multiplex sense extensions of *Tuī* 推 'push'**

   (a) Extension 1: to recommend someone or something to the outside world (*tuī-jiàn* 推薦 'recommend')

   兩院主動推代表。

   liǎng yuan zhǔdòng tuī dàibiǎo

   two   court   initiate push representative

   'The two courts are initiatively recommending representatives.'

   (b) Extension 2: to promote or advertise a product to the outside world (*tuī-xiāo* 推銷 'promote')

   他們也在本地推 ichon-Kun 周邊產品，

   tā-mén yězài běndì tuī ichon-Kun zhōu-biān shāngpǐn

   they   also   at   local push ichon-Kun surrounding product

   'They are also promoting ichon-Kun surrounding products at local places.'

   (c) Extension 3: to postpone a previously set temporal event (*tuī-yán* 推延 'postpone')

   占旭剛再度推婚期。

   zhànxùgāng zài-dù tuī hūn-qí

   zhànxùgāng again push wedding date

   'Zhang Xu-Gang is postponing the wedding date again.'

   (d) Extension 4: to evade or shrink responsibility or obligation (*tuī-xiè* 推卸 'refuse')

   雙方互推責任。

   shuāng fang hù tuī zérèn

two   sides mutual push responsibility

'The two sides are mutually shrinking off responsibilities.'

(e) Extension 5: to trim or shave hairy parts of body or surface (*tuī-diào* 推掉 'trim')

什麼年代了居然還有人規定要去推頭髮！

shéme nián-dài le jūrán hái yǒu rén guīding yào qù tuī tóu-fǎ

what   decade ASP surprisingly still have people require to go push hair

'What decade is today that still have some people requiring to go to trim their hair.'

(f) Extension 6: to reject an offer or invitation (*tuī-diào* 推掉 'reject')

林老師又再推邀請。

lín lǎo shī yòu zài tuī yāoqǐng

lin teacher again is push invitation

'Teacher Lin is pushing off invitations again.'

(15) **The multiplex sense extensions of *Lā* 拉 'pull'**

(a)   Extension 1: to extend or delay a time that is set previously (*lā-cháng* 拉長 'lengthen')

記者又在拉時間，

jìzhě yòu zài lā shíjiān

reporter again pull time

'The reporter is prolonging the time again.'

(b)   Extension 2: to increase voice (*lā-kāi* 拉開 'increase')

今晚心血來潮，突然很想拉嗓子！

jīn wǎn xīn-xiě-lái-cháo túrán hěn xiǎng lā sǎngzi

tonight heart-blood-come-wave suddenly really want pull   throat

'Tonight I suddenly have the feeling of increasing my voice.'

(c)   Extension 3: to persuade/attract/gain consumers from buying or joining an

organization or company (*lā-lǒng* 拉攏 'persuade/attract')

業者都在動腦筋拉客人。

yèzhě dōu zài dòng nǎojīn lā kèrén

industry all   is move brain pull consumer

'All industries are thinking of ways to attract consumers.'

Given the above multiplex sense extensions of *tuī* 推 'push' and *lā* 拉 'pull,' it then ponders us to wonder how these extended senses are interrelated to each other and how can we in all present the prototypical meaning of *tuī* 推 'push' and *lā* 拉 'pull?' That is to say, out of so many extended senses, which is the most predominant core sense of *tuī* 推 'push' and *lā* 拉 'pull?' To solve such issue, the following table presents the results of the findings on the grammatical and distributional frequencies of *tuī* 推 'push' and *lā* 拉 'pull' with respect to each extended senses along with its relative syntactic patterns:

Basic Syntactic Patterns							
Syntactic Patterns	**Meaning**	**Count**		**Total**	**Meaning**	**Count**		**Total**
NP₁<V<NP₂<Coverb+NP₃<(VP)	*Push*	280/1003	27.9%	**27.9%**	*Pull*	259/1013	25.8%	**25.8%**
	Recommend	30/1003	3%	7.5%	*Persuade*	84/1013	8.4%	8.4%
	Postpone	23/1003	2.3%					
	Promote	22/1003	2.2%					
NP₁<V<NP₂<VP	*Push*	174/1003	17.3%	17.3%	*Pull*	163/1013	16.3%	16.3%
	Recommend	41/1003	4.1%	4.1%	*Persuade*	54/1013	5.4%	5.4%
NP₁<V<NP₂	*Push*	72/1003	7.2%	7.2%	*Pull*	54/1013	5.4%	5.4%
	Promote	46/1003	4.5%	17.9%	*Persuade*	97/1013	9.7%	**25.4%**
	Blame	42/1003	4.2%					
	Postpone	33/1003	3.3%		*Stretch*	79/1013	7.9%	
	Recommend	31/1003	3.1%					
	Trim/Shave	16/1003	1.6%		*Prolong*	78/1013	7.8%	
	Reject	12/1003	1.2%					

Table 5: The distributional patterns of motional vs non-motional events of *Tuī* and *Lā*[15]

Table 5 above clearly illustrates the grammatical distributions of the basic syntactic patterns of both motional and non-motional events of *tuī* 推 'push' and *lā* 拉 'pull.' From table 5, it is revealed that the motional events of *tuī* 推 'push' and *lā* 拉 'pull' basically occur in three syntactic patterns: 1) [NP₁<推／拉<NP₂<Coverb[16]+NP₃<(VP)]; 2) [NP₁<推／拉 <NP₂<VP]; and 3) [NP₁<推／拉<NP₂]. Among them, the first pattern is the most salient and predominant one for it occurs most frequently with a total percentage of nearly 28% for *tuī* 推 'push' and around 26% for *lā* 拉 'pull,' while, the second and the third patterns occur less frequently with only approximately 17%—7% and 16%—5% respectively. As for non-motional *tuī* 推 'push' and *lā* 拉 'pull,' more than half of the total occurrences appear in the third pattern with a total of around 18% and 25% respectively.

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[15] The distributional frequencies are based on all the occurrences of *tuī* 推 'push' (316) and *lā* 拉 'pull' (538) from Sinica and first 687 instances of *tuī* 推 'push' and first 475 instances of *lā* 拉 'pull' from Gigaword in Chinese Word Sketch.

[16] The "coverbs" used in this study refer to the Path-verbs that are mentioned in Liu *et al* (2013) which include *dào* 到 'arrive,' *zhì* 至 'arrive,' *xiàng* 向 'face,' *wǎng* 往 go toward, *shàng* 上 'up,' *xià* 下 'down,' *jìn* 進 'into,' *chū* 出 'out,' *huí* 回 'return,' and the deictic verbs *lái* 來 'come' and *qù* 去 'go.'

Other from appearing in the above three basic syntactic patterns, these patterns may also be associated with several syntactic alternations as proposed by Pan and Chang (2005), where a Chinese caused-motion construction would commonly collocate with causative markers such as *bǎ* 把, *shǐ* 使, or *rang* 讓 as illustrated in the following table where both motion and non-motional uses of *tuī* 推 'push' and *lā* 拉 'pull' frequently associate with the syntactic alternation of Transitive-*BA*:

Syntactic Alternations									
Alternations	**Syntactic Patterns**	**Meaning**	**Count**		**Total**	**Meaning**	**Count**		**Total**
Transitive-*Bǎ*	NP₁<把<NP₂<V <Coverb+NP₃<(VP)	*Push*	89/1003	8.9%	**8.9%**	*Pull*	82/1013	8%	**8%**
		Promote	8/1003	0.8%		*Prolong*	12/1013	1.2%	**2%**
		Postpone	4/1003	0.4%	**1.5%**	*Persuade*	8/1013	0.8%	
		Blame	3/1003	0.3%					
Passive-*Bèi*	NP₂<被<NP₁<V<Coverb+NP₃<(VP)	*Push*	45/1003	4.5%	4.5%	*Pull*	13/1013	1%	1%
Causative-*Ràng*	NP₁<讓<NP₂<V<NP₃<Coverb+NP₃<VP	*Push*	17/1003	1.7%	1.7%	*Pull*	10/1013	1%	1%
Resultative-*De*	NP₁<把<NP₂<V<得<C	*Push*	7/1003	0.7%	0.7%	*Pull*	5/1013	0.5%	0.5%
		Promote	4/1003	0.4%	0.8%	*Prolong*	15/1013	1%	1%
		Blame	4/1003	0.4%					

Table 6: The Syntactic alternations of motional vs non-motional events of *Tuī* and *Lā*

Given the above grammatical and distributional frequencies of *tuī* 推 'push' and *lā* 拉 'pull,' in what follows, the distributional frequencies of the various senses of *tuī* 推 'push' and *lā* 拉 'pull' with their respective syntactic patterns are presented below:

Senses	Syntactic Patterns	Count		Total	Senses	Syntactic Patterns	Count		Total
Push	NP₁<V<NP₂<Coverb+NP₃<(VP)	280/1003	27.9%	68.2%	*Pull*	NP₁<V<NP₂<Coverb+NP₃<(VP)	259/1013	25.8%	58.3%
	NP₁<V<NP₂<VP	174/1003	17.3%			NP₁<V<NP₂<VP	163/1013	16.3%	
	NP₁<V<NP₂	72/1003	7.2%			NP₁<V<NP₂	54/1013	5.4%	
	Bǎ/Bèi/Ràng/De	158/1003	15.8%			*Bǎ/Bèi/Ràng/De*	110/1013	10.8%	
Recommend	NP₁<V<NP₂<Coverb+NP₃<(VP)	30/1003	3%	10.2%	*Persuade*	NP₁<V<NP₂<Coverb+NP₃<(VP)	84/1013	8.4%	24.3%
	NP₁<V<NP₂<VP	41/1003	4.1%			NP₁<V<NP₂<VP	54/1013	5.4%	
	NP₁<V<NP₂	31/1003	3.1%			NP₁<V<NP₂	97/1013	9.7%	
Postpone	NP₁<V<NP₂<Coverb+NP₃<(VP)	23/1003	2.3%	6%		*Bǎ* alternation	8/1013	0.8%	
	NP₁<V<NP₂	33/1003	3.3%		*Stretch*	NP₁<V<NP₂	79/1013	7.9%	7.9%
	Bǎ alternation	4/1003	0.4%		*Prolong*	NP₁<V<NP₂	78/1013	7.8%	10.4%
Promote	NP₁<V<NP₂<Coverb+NP₃<(VP)	22/1003	2.2%	7.9%		*Bǎ/De* alternations	27/1013	2.6%	
	NP₁<V<NP₂	46/1003	4.5%						
	Bǎ/De alternations	12/1003	1.2%						
Blame	NP₁<V<NP₂	42/1003	4.2%	4.9%					
	Bǎ/De alternations	7/1003	0.7%						
Trim/Shave	NP₁<V<NP₂	16/1003	1.6%	1.6%					
Reject	NP₁<V<NP₂	12/1003	1.2%						

Table 7: The Distributional Frequency of *Tuī* and *Lā* with Various Senses and Syntactic Patterns

By observing the distributional frequencies in table 7 above, it is noted that even though each sense is involved in more than one syntactic pattern, these senses are only predominant in one specific syntactic construction. Based on the distributional frequencies revealed by corpus observations, it is found that the predominant sense of *tuī* 推 and *lā* 拉 is *push* and *pull* for it demonstrates the highest frequency in the overall syntactic patterns and alternations. In the next section, the semantic properties of the predominant senses of *tuī* 推 'push' and *lā* 拉 'pull' will be presented in the following aspects: defining patterns, participant roles and semantic attributes.

4.2 Semantic Properties of *Tuī* and *Lā*

As mentioned above, *tuī* 推 and *lā* 拉 with the meaning of *push* and *pull* frequently appear in the caused-motion construction where the path of motion is spatially specified, whereas for the various senses of *tuī* 推 'push' and *lā* 拉 'pull,' these extended senses frequently appear in the serial verb construction and transitive-like patterns where the encoding of path is non-spatially specified. With the mapping of form and meaning, it is assumed that *tuī* 推 and *lā* 拉 with the sense of *push* and *pull* denote motion events, while the other extended senses denote non-motional events. In this section, the semantic properties of motional *tuī* 推 'push' and *lā* 拉 'pull' will be firstly presented and the non-motional uses of *tuī* 推 'push' and *lā* 拉 'pull' will be investigated in section 4.6.

4.2.1 *Tuī* and *Lā* as Caused-Motion Verbs: *Push* and *Pull*

As mentioned above, based on Talmy (2000), Li (2007) and Goldberg (1995), we can thus categorize *tuī* 推 'push' and *lā* 拉 'pull' as verbs pertaining to caused-motion which involves the conflation of the co-event components **Cause** and **Move** labeled under the two subevents of causing event and motion event respectively and further construct *tuī* 推 'push' and *lā* 拉 'pull' under a caused-motion construction with the form of [NP1 V NP2 PP]. In the following sections, the semantic and syntactic attributes of motional *tuī* 推 'push' and *lā* 拉 'pull' will be presented.

4.2.1.1 Defining Patterns and Alternations of motional *Tuī* and *Lā*

As mentioned in section 4.1, motional *tuī* 推 'push' and *lā* 拉 'pull' frequently occur in the caused-motion construction that is structurally realized as the examples below:

(16) Caused-motion Pattern: NP1<V<NP2<Coverb{到/至/入/往/上/下/進/出/回/來/去}+NP3

(a) [我/Agent][氣憤地/Manner]推/拉[一輛腳踏車/Moved Entity][到屋裡/Location]。

wǒ	*qìfèndì*	*tuī/lā*	*yí-liàng jiǎo-tà-chē*	*dào wūlǐ*
I	ADJ	push/pull	one bicycle	arrive home-in

'I angrily pushed/pulled a bicycle into the house.'

b) [我/Agent]推/拉[妹妹/Moved Entity][進房間/Location]。

wǒ	*tuī/lā*	*mèimei*	*jìn fángjiān*
I	push/pull	sister	enter room

'I pushed/pulled my sister into the room.'

As observed in the syntactic forms above, the motional events of *tuī* 推 'push' and *lā* 拉 'pull' follow the syntactic pattern of a prototypical caused-motion construction ([NP1 V NP2 PP VP]) with the notion of 'X CAUSES Y TO MOVE Z' (Goldberg 1995) where three argument roles are involved—Subject NP, Object NP, and Oblique PP. The Agent *wǒ* 我 'I' (16a-b) playing as the subject role, *tuī* 推 *push* or *lā* 拉 *pull* a Moved Entity *jiǎotàchē* 腳踏車 'bicycle' (16a) and *mèimei* 妹妹 'sister' (16b), acting as the Direct Object, to undergo a translocational movement and end up at a specific Location: *dào wūlǐ* 到屋裡 'into the house' (16a) and *jìn fang jiān* 進房間 'into the room' (16b) respectively with *dào* 到 'arrive' and *jìn* 進 'enter' as coverbs[17] occupying the PP position.

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[17] As mentioned above, the "coverbs" used in this study refer to the Path-verbs that are mentioned in Liu *et al*

Syntactically, NP1 is the external argument of *tuī* 推 'push' and *lā* 拉 'pull' (the Subject of the main predicate), NP2 is the internal argument (the Direct Object), and PP is a directional phrase designating the path of motion. Semantically, NP1 plays the role of an **Agent**, NP2 as the affected object which we called the **Moved Entity**, and PP acts as the delimiting Endpoint of a **Location**.

As illustrated above, we've presented the basic syntactic patterns that *tuī* 推 'push' and *lā* 拉 'pull' may be involved with. However, patterns as such may also have some variations as shown below:

(17) Pattern Variations:

(a) NP1<V<NP2<Coverb{來/去}+( )<VP

[他/Agent]會推/拉[祖母/Moved Entity][去/Deictic][投票/Target_Act]。

tā   huì tuī   zǔmǔ   qù   tóupiào

he   will push   grandmother   go   vote

'He will push grandmother to go to vote.'

(b) NP1<V<NP2<Coverb {到/至/入/往/上/下/進/出/回/來/去}+NP3<(VP)

[他/Agent]用[輪椅/Instrument]推[媽媽/Moved Entity][進客廳/Location]

tā yòng   lúnyǐ   tuī   māmā   jìn kètīng

he use   wheelchair   push   mother   into living room

'He used a wheelchair to push mother into the living room to do some

---

(2013) which include *dào* 到 'arrive,' *zhì* 至 'arrive,' *xiàng* 向 'face,' *wǎng* 往 go toward, *shàng* 上 'up,' *xià* 下 'down,' *jìn* 進 'into,' *chū* 出 'out,' *huí* 回 'return,' and the deictic verbs *lái* 來 'come' and *qù* 去 'go' that are usually be followed by an NP to specify a spatial goal (i.e. Location).

[活動/Target_Act] 。

 huódòng

 exercise

 exercise.'

(c) NP₁<V<NP2<( )+( )

 [清潔女工][出手/Means]推/拉[他/Moved Entity]。

  qīngjié nǚgōng chūshǒu tuī tā

  cleansing lady out-hand push he

  'The cleansing lady pushed him with her hands.'

(d) NP₁<V<NP2<(VP)<Coverb{到/至/入/往/上/下/進/出}+NP3< (Coverb{來/去})

 [我/Agent]推/拉[他/Moved Entity]跑[到會議廳/Location]去

  wǒ tuī/lā tā   pǎo dào huìyì tīng   qù

  I push/pull he   run arrive conference hall go

  'I pushed/pulled him by running to the conference hall.'

Other from occurring in the above syntactic patterns, the motional events of *tuī* 推 'push' and *lā* 拉 'pull' are also found to be associated with various syntactic alternations as listed below:

(18) Transitive-BA alternation: NP₁<把<NP2<V<Coverb+NP3<(VP)

 (a) 戰士們把他推/拉上岸,

  zhànshìmen bǎ tā tuī/lā shàng'àn,

  soldier-PL BA him push/pull up-shore

  'The soldiers pushed/pulled him ashore.'

(b) Active-Passive alternation: NP₂<被<NP₁<V<Coverb+NP₃<(VP)

他**被**老伴推/拉著來跳舞，

tā bèi lǎobàn   tuī/lā   zhe   lái   tiàowǔ

he BEI old-partner push/pull ASP come dance

'He was pulled/pushed over to dance by his wife.'

(c) Transitive-Causative alternation: NP₂<讓<NP₁<V<NP₃<Coverb+NP₃<(VP)

行動不便的老人就**讓**志工推/拉著他們在庭院散步，

xíngdòng bùbiàn de lǎorén jiù ràng zhìgōng   tuī/lā zhe tāmen zài tíngyuàn sànbù

move-not-capable DE old people JIU let volunteer push/pull ASP them at garden walk

'Let the volunteers push/pull the old people to walk around the garden.'

(d) Resultative DE alternation: NP₁<把<NP₂<V<得<C

小山把幾張書桌都推/拉**得**很擠，

xiǎoshān bǎ   jǐ zhāng shūzhuō dōu tuī/lā   dé   hěn jǐ

Xiao-Shan BA some   desks   all push/pull DE very sqeeze

'Xiao-Shan pushed/pulled some desks tightly together.'

4.2.1.2 The participant roles of *Tuī* and *Lā*

In the previous sections, we've given the basic syntactic patterns of motional *tuī* 推 'push' and *lā* 拉 'pull,' in what follows, it is crucial to observe how semantic roles may be mapped onto their respective syntactic forms in denoting a prototypical caused-motion event. Below are the list of core and non-core frame elements that are involved in the caused-motion events of *tuī* 推 'push' and *lā* 拉 'pull' along with representative examples:

4.2.1.2.1 Core Frame Elements in the causal events of *Tuī* and *Lā*

In prototypical events of *tuī* 推 'push' and *lā* 拉 'pull,' there are at least three major participant roles involved: **Agent**, **Moved Entity** and **Location** with the conceptualization of someone who exerts certain driving force onto the affected object and causing a certain contact on the affected object to result at a certain destination.

4.2.1.2.1.1 The Agent in the events of *Tuī* and *Lā*

Based on corpus observations, prototypically, in the events of *tuī* 推 'push' and *lā* 拉 'pull,' as verbs pertaining to caused-motion, the subject NPs must take an animate human entity as illustrated below with the definition of the role of Subject NP along with an example:

(19) **Agent [NP]**

Semantic Definition: a sentient being who exerts a driving force causing the movement

of an entity towards or away from the force initiator.

Syntactic Function: Typically surfaced as an NP in the subject position

Example:

[他/Agent]推/拉我去他家裡。

   tā　　　*tuī/lā*　　　*wǒ qù*　*tā*　*jiālǐ*

  he　pushed/pulled　me go　his house

 'He pushed/pulled me to go to his house.'

4.2.1.2.1.2 The Affected Entity in the events of *Tuī* and *Lā*

As verbs pertaining to caused-motion, the majority of the NP object complements in the causal events of *tuī* 推 'push' and *lā* 拉 'pull,' based on corpus observations, would normally take both an animate being or an inanimate concrete object acting as the affected object as shown below with the definition and an example:

(20) **Moved_Entity [NP]**

Semantic Definition: a human being or physical object undergoes a movement caused by

the force exertion initiated by the Agent.

Syntactic Function: Typically surfaced as an NP in the direct object position

Examples:

我氣憤地推/拉[一輛腳踏車/Moved Entity]到屋裡。

wǒ qìfèndì tuī/lā yí-liàng jiǎotàchē dào wū-lǐ

I push/pull one bicycle to house-inside

'I pushed/pulled a bicycle into the house.'

4.2.1.2.1.3 The Final Destination in the events of *Tuī* and *Lā*

The prepositional phrases in prototypical events of *tuī* 推 'push' and *lā* 拉 'pull' typically take an Endpoint marker such as *dào* 到 'arrive' to specify the final spatial destination of an event where the Moved Entity or the Agent along with the Moved Entity end up at as shown below with the definition of the PP role along with an example:

(21) **Location [NP]**

Semantic Definition: a spatial destination where the Agent and the Moved_Entity ends

up after a certain motional act.

Syntactic Function: Typically surfaced as a NP in the oblique PP position

Example:

我氣憤地推/拉一輛腳踏車[到屋裡/Location]。

wǒ qìfèndì tuī/lā   yí-liàng jiǎo-tà-chē dào wūlǐ

 I ADJ push/pull   one bicycle   arrive home-in

'I pushed/pulled a bicycle into the house.'

With all the core-participant roles listed above in the prototypical events of *tuī* 推 'push'

and *lā* 拉 'pull,' we can now summarize the core-participant roles under the table below with

the Agent role typically taking an animate human being, the Moved Entity as either an

animate human entity or an inanimate concrete object and with the Location normally

signaling a destinational path-delimiting endpoint where the Moved Entity alone or the Agent

along with the Moved Entity end up at.

Core Participant roles	
Agent [NP₁]	a sentient being who exerts a driving force causing the movement of an entity towards or away from the force initiator
Moved Entity [NP₂]	a human being or physical object undergoes a movement caused by the force exertion initiated by the Agent
Location [PP]	a spatial destination where the Agent and the Moved_Entity ends up after a certain motional act
[我/Agent]氣憤地推/拉[一輛腳踏車/Moved Entity][到屋裡/Location]。	

Table 8: Summary of the core-participant roles in the causal events of *Tuī* and *Lā*

4.2.1.2.2 Non-core Frame Elements in the causal events of *Tuī* and *Lā*

Other from the above core frame elements of **Agent**, **Moved Entity**, and **Location**, the events of *tuī* 推 'push' and *lā* 拉 'pull' also involve some non-core participant roles: **Target_Act**, **Instrument**, **Means**, **Manner**, and **Place** as presented below:

(22) **Target_Act [VP]**

Semantic Definition: the act that the Agent is about to do after one reached a certain physical destination (Endpoint).

Syntactic Function: Typically surfaced as the second VP in the verbal complement position

Examples:

父親常常拉母親往電影院[跑/Target_Act]。

fùqīn chángcháng lā mǔqīn wǎng diànyǐngyuàn pǎo

father ADV pull mother face cinema run

'Father often takes mother to go to the cinema.'

(23) **Manner [ADVP]**

Semantic Definition: the expression of the Moved_Entity during the process of force interaction between the Agent and the Moved_Entity.

Syntactic Function: Typically surfaced as an adjective describing how the action is being done.

Example:

我[氣憤地/Manner]推/拉一輛腳踏車到屋裡。

wǒ qìfèndì tuī/lā yí-liàng jiǎotàchē dào wūlǐ

I   ADJ   push/pull   one bicycle   arrive home-in

'I angrily pushed/pulled a bicycle into the house.'

(24) **Instrument [NP]**

Semantic Definition: a device (usually a body part or a handy tool) applied by the Agent

as a supportive tool for the transmission of force between Agent

and Moved Entity.

Syntactic Function: Typically surfaced as an NP which normally collocates with the

coverb such as *yòng* 用 or *yǐ* 以

Example:

他用[輪椅/Instrument]推媽媽到客廳活動。

tā yòng   lúnyǐ   tuī mama   dào   kètīng   huódòng

he   use wheelchair   push mother arrive living-room exercise

'He used a wheelchair to push mother to the living room to do some exercise.'

(25) **Means [VP]**

Semantic Definition: the way how an action was taken that result in the action of the

Moved_Entity

Syntactic Function: Typically surfaced as an VP

Example:

清潔女工[出手/Means]推死者。

qīngjié nǚgōng chūshǒu tuī sǐzhě

cleansing lady use-hand   push   dead

'The cleansing lady used her hands to push the dead.'

(26) **Place [NP]**

Semantic Definition: the spatial location or area where the force interaction takes place.

Syntactic Function: Typically surfaced as an NP which normally collocates with *zài* 在

Example:

老師與助教在[校園/Place] 拉著小朋友們圍成一個小圓，

lǎo-shī yǔzhù-lǐ zài xiàoyuánlā zhexiǎopéngyǒumen wéichéng yí-ge   xiǎoyuán

teacher and assistant at campus pull ASP   kids-PL round-make one small-circle

'The teacher and the assistant are pulling the little kids to make a little circle.'

4.2.1.3 Syntactic Patterns of the Verb with Participant roles

With regards to the syntactic realizations and semantic components of the events of *tuī* 推 'push' and *lā* 拉 'pull' as described above, it should be noted that the core participant roles for caused-motion *tuī* 推 'push' and *lā* 拉 'pull' typically involve: **Agent**, **Moved Entity**, and **Location**, since these are the only significant components that conceptualize the core sense of a caused-motion verb. Whereas semantic elements such as: **Target_Act**, **Means, Manner**, **Instrument**, and **Place** are the non-core frame elements that have no direct influence on the semantics of caused-motion *tuī* 推 'push' and *lā* 拉 'pull.'

With the defined participant roles and syntactic patterns of prototypical caused-motion events of *tuī* 推 'push' and *lā* 拉 'pull,' the mapping of the participant roles onto their respective syntactic patterns can be presented in the table below:

	Agent[NP]<(Manner[ADV])<*<Moved_Entity[NP]<PATH+Location[NP]
Caused-Motion	a.　[我/Agent]_{NP1} [氣憤地/Manner]推/拉[一輛腳踏車/Moved_Entity]_{NP2} [到屋裡/Location]_{PP}。 b.　[我/Agent]_{NP1} 推/拉[妹妹/Moved Entity]_{NP2} [進房間/Location]_{PP}。 c.　[他/Agent]_{NP1} 推/拉[我/Moved Entity]_{NP2} [去他家裡/ Location]_{PP}。
	Agent[NP]<(用 Instrument[NP])<*<Moved_Entity<PATH+Location[NP]<Target_Act[VP]
	a.　[他/Agent]_{NP1} 用[輪椅/Instrument]推[媽媽/Moved_Entity]_{NP2} [到客廳/Location]_{PP}[活動/Target_Act]_{VP}。 b.　[父親/Agent]_{NP1} 常常拉[母親/Moved_Entity]_{NP2} [往電影院/Location]_{PP} [跑/Target_Act]_{VP}。
	Agent[NP]<(在 Place[NP])<*<Moved_Entity[NP]<Target_Act[VP]
	a.　[老師與助教/Agent]_{NP1} 在[校園/Place]拉著[小朋友們/Moved_Entity]_{NP2} [圍成一個小圓/Target_Act]_{VP},
	Agent[NP]<(Means[VP]<*<Moved_Entity[NP]
	a.　[清潔女工/Agent]_{NP1} [出手/Means]推[死者/Moved_Entity]_{NP2}。 b.　[尼克/Agent]_{NP1} [伸手/Means]去拉[秀兒/Moved Entity]_{NP2}。

<div align="center">**Table 9: Syntactic patterns mapped onto semantic roles**</div>

4.2.1.4 Semantic Attributes on Participant Roles

In the previous sections, we've presented the core and non-core participant roles of motional *tuī* 推 and *lā* 拉. In what follows, the semantic attributes of the core participant roles will be given below.

Based on corpus observations, when the Causer/Agent (subject NP) of *tuī* 推 'push' is [+animate], it may be a human entity and if it is [-animate], it may be a vehicle[18] or a natural force. Whereas for *lā* 拉 'pull,' when the Causer/Agent is [+animate], it may be a human being or a body part.

As for the Moved Entity, when the object NPs with *tuī* 推 'push' and *lā* 拉 'pull' are [+animate], they may be human entities or body parts, and when the object NPs with *tuī* 推 'push' and *lā* 拉 'pull' are [-animate], they may be vehicles or concrete objects. Based on Chen's (2012) analysis, the object NP of *tuī* 推 'push' is hardly a body part, and if it is, it requires a surface for contact such as *bèi* 背 'back' and *túnbù* 臀部 buttock. As for *lā* 拉 'pull,' the action tends to be finer and normally requires a fingerly action on protruding parts of the body as in *lāshǒu/shǒu lā shǒu* 拉手/手拉手 'holding onto one's hand(s).' With this idea in mind, let's observe if this distinction is fulfilled in our examples below:

(27) (a) 三人就以手推她背部，

　　　 sān rén   jiù yǐ shǒu tuī tā bèibù

　　　 three people JIU use-hand push her back

　　　 'Three people used their hands to push her back.'

　(b) *三人就以手拉她背部，

　　　 sān rén   jiù yǐ shǒu lā   tā bèibù

　　　 three people JIU use-hand pull her back

　　　 'Three people used their hands to pull her back.'

---

[18] Vehicles are acting as supportive tools which are controlled by animate human entities, acting metonymically as the instrument used for initiating force onto an affected object.

(c) 大手拉小手一起去逛街。

   dàshǒu lā xiǎoshǒu   yīqǐ qù guàngjiē

   big-hand pull small-hand together go shopping

   'Big hands pull small hands to go shopping together.'

(d) *大手推小手一起去逛街。

   dàshǒu tuī xiǎoshǒu   yīqǐ qù guàngjiē

   big-hand push small-hand together go shopping

   'Big hands push small hands to go shopping together.'

Chen's (2012) analysis seems to go along with the above examples in (27); however, what about the following examples in (28)?

(28) (a) 他快睡著了，推他一下手。

   tā kuài shuìzhe le, tuī tā yī-xià shǒu

   he fast fall-asleep push he once hand

   'He is about to fall asleep, push his hands once.'

(b) 以前人們都是以牛拉車，

   yǐqián rénmen dōu shì yǐ niú lā chē

   before people all is use-cow pull car

   'People in the past normally use cows to pull cars.'

As shown above, it seems that Chen's (2012) analysis is inadequate to explain our examples in (28). Since in (28a), *tuī* 推 'push' does acts on body parts as the Moved Entity (object NP) and moreover, it is also shown that the body parts of *tuī* 推 'push' does not necessarily need

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to have a surface contact and it can also be finer objects such as *shǒu* 手 'hand' which is similar to the Moved Entities for *lā* 拉 'pull.' In (28b), the Moved Entity for *lā* 拉 'pull' does not obligatorily need to be a finer object that requires fingerly actions, since the Moved Entity can also be a large unmanipulable object such as *chē* 車 'car.'

In order to deal with such an issue, we aim to make a general assumption that the semantic features proposed by Chen (2012) are not relevant to the lexical meanings of *tuī* 推 'push' and *lā* 拉 'pull;' instead, those features can only describe the type of object NPs following the verb. From our perspective with regard to corpus findings, we propose that the body parts used by *tuī* 推 'push' and *lā* 拉 'pull' are actually the MEANS that semantically distinguish the two verbs. In other words, the semantic difference between *tuī* 推 'push' and *lā* 拉 'pull' lies in the different ways of applying different parts of the body (Means) to complete an event. Basically, *tuī* 推 'push' is more general in selecting a Means and allows other parts of the body, instead of only hand actions; whereas, *lā* 拉 'pull' is more specific in Means and obligatorily needs hands and especially fingers to complete the action.

Moreover, it is revealed that the object NPs of *tuī* 推 'push' and *lā* 拉 'pull' may be divided into two types—1) when human beings acting as a Mover, the object NPs of *tuī* 推 'push' and *lā* 拉 'pull' will follow the relative body parts as mentioned above, and 2) when it is a vehicle or other inanimate object as the Mover, where no bodily parts are involved, it only stresses on the direction of movement. This then leads us to the assumption that *tuī* 推 'push' and *lā* 拉 'pull' are two very distinct caused-motion verbs where prototypically, *tuī* 推 'push' and *lā* 拉 'pull' involve hand or finger actions. But *lā* 拉 'pull' is semantically more specific in that it allows only small mass objects that are manipulable or able to handle or grasp with the use of fingers, whereas, *tuī* 推 'push' is more general and productive in its semantic extensions in that it allows other bodily parts or even natural forces to be involved in the *pushing* event. Non-prototypically, *tuī* 推 'push' and *lā* 拉 'pull' would also involve objects used as instruments or supportive tools that the agent can use to *push* or *pull*.

As for the role of Location, it generally designates a spatial location to delimit the motional events of *tuī* 推 'push' and *lā* 拉 'pull.' The semantic features of the core participant roles are summarized below:

Semantic Roles	Semantic Features		*Tuī*	*Lā*
Agent	[+animate]	[+human]	他推/拉我去他家裡。	
		[+body parts]	N/A	大手拉小手，一起去逛街。
		[+vehicle]	推土機推土造田。	N/A
	[-animate]	[+natural force]	風把門推開.	N/A
Moved Entity	[+animate]	[+human]	他推/拉我去他家裡。	
		[+body parts]	他快睡著了，推他一下手。	大手拉小手，一起去逛街。
		[+vehicle]	小朋友推/拉小車到房間裡玩。	
	[-animate]	[+concrete]	爸爸推箱子進房間， 消防員把巨石推開。 推土機正在推土造田，	妹妹把椅子拉回房間了。 我拉風箏的線，慢慢地跑。 小西拉了一下媽媽的裙子，
Location	[+spatial]		我推/拉一輛腳踏車到屋裡，	

Table 10: The Semantic Features of the Roles of Motional *tuī* and *lā*

4.3 *Tuī* and *Lā* co-occurring with *Lái* and *Qù*

Based on the deictic distributional frequencies from corpus observations, there are two typical syntactic patterns that motional *tuī* 推 'push' and *lā* 拉 'pull' co-occur with Deictic *lái* 來 'come' and *qù* 去 'go:' 1) [V+NP+Deictic] which corresponds to our caused-motion pattern [NP1+NP2+Deictic+NP3] and 2) [V+Deictic] which corresponds to our transitive-like pattern [NP1+V+Deictic+NP2] as illustrated in the following table:

Types	Patterns	Tuī			Lā		
		Count	Frequency	Total	Count	Frequency	Total
Caused-motion	NP1>V>NP2>來/去<NP3	96/300	32%	**81%**	87/300	29%	**82%**
Serial Verb	NP1>V>NP2>來/去<VP	146/300	**49%**		158/300	**53%**	
Transitive	NP1>V+來>NP2	58/300	19%	19%	55/300	18%	18%
	NP1>V+去>NP2	0/300	0%		0/300	0%	

Table 11: The Distributional Frequency of Motional *tuī* and *lā* with Deictic *lái* and *qù*

By considering the above table, it is vividly shown that the pattern [V+NP+Deictic+(NP3/VP)] occurs most frequently with a total of 81% and 82% respectively. Out of the above patterns, serial verb construction has the highest frequency of instances in the form of [NP1+V+NP2+Deictic+VP] with a total of 49% for *tuī* 推 'push' and 53% for *lā* 拉 'pull,' while the typical caused-motion construction has the second highest frequency in the form of [NP1+V+NP2+Deictic+NP3+(VP)] as illustrated in the following examples:

(29) [V+NP+Deictic]

    (a)   我[推/拉]ᵥ[父親]ɴᴘ [來/去]ᴅᴇɪᴄᴛɪᴄ 紀念堂。

        wǒ tuī/lā   fùqīn   lái/qù   jìniàntang

        I   push/pull father come/go memorial hall

     'I pushed/pulled my dad to go/come to the memorial hall.'

    (b)   他也會[推/拉]ᵥ[祖母]ɴᴘ [來/去]ᴅᴇɪᴄᴛɪᴄ 投票。

        tā yě huì tuī/lā   zǔmǔ   lái/qù   tóupiào

        He also will push/pull grandma   come/go   vote

     'He will also pushed/pulled his grandma to go to vote.'

By observing the above examples of the pattern [V+NP+Deictic], it is noted that both *lái* 來 'come' and *qù* 去 'go' can be interchangeable where the choice of *lái* 來 'come' and *qù* 去 'go' would be greatly depended on the perspective of the speaker (Liu 2013).[19] However, there are other cases, as in our third transitive-like pattern [V+Deictic] having the form of [NP1+V+Deictic+NP2] where *lái* 來 'come' and *qù* 去 'go' in this case, based on corpus observations, are no longer interchangeable as the following examples demonstrate:

(30) [V+Deictic]

    (a)   民眾[推/拉]ᵥ[來]ᴅᴇɪᴄᴛɪᴄ 一車垃圾包,

        mínzhòng tuī/lā   lái   yī chē lèsèbāo

        people   push/pull   come   one car trash bag

        'People pushed/pulled over a pile of trash bags.'

    (b)   *民眾[推/拉]ᵥ[去]ᴅᴇɪᴄᴛɪᴄ 一車垃圾包。

        mín-zhòng tuī/lā   qù   yì-chē lèsèbāo

        people   push/pull go one car trash bag

      *'People pushed/pulled go a pile of trash bags.'

    (c)   工作人員[推/拉]ᵥ[來]ᴅᴇɪᴄᴛɪᴄ 滿滿一車廂花生,

        gōngzuò rényuán tuī/lā   lái mǎnmǎn yī chēxiāng huāshēng,

        work   staff   push/pull come   full   one-car   peanuts

        'The staff members pushed/pulled over a car full of peanuts.'

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[19] Note that the position of Deictic could be either before or after the Loc-NP, e.g., *huí qù xuéxiào* 回去學校 vs. *huí xuéxiào qù* 回學校去 'go back to school.'

(d) *工作人員[推/拉]ᵥ[去]ᴅᴇɪᴄᴛɪᴄ 滿滿一車廂花生，

　　gōngzuò rényuán tuī/lā　　qù mǎnmǎn yī chēxiāng huāshēng

　　work　　staff　　push/pull go　full　　one-car　　peanuts

　　*'The staff members pushed/pulled go a car full of peanuts.'

Regarding the above examples of the pattern [V+Deictic] where *lái* 來 'come' and *qù* 去 'go' immediately follow the main predicate, it is noted that *lái* 來 'come' and *qù* 去 'go' in this case are more restricted in their usages, since they are no longer interchangeable. By considering the above contrastive pairs (30a and b) and (30c and d) once again, it is worth-nothing that only *lái* 來 'come' is acceptable; however, if *qù* 去 'go' is to be applied onto such pattern of [V+Deictic], a clear and specific destinational goal must be present to play the role of a path-delimiting Endpoint and thus forming the pattern [V+Deictic+GOAL] as the following examples illustrate:

(31) [V+Deictic+GOAL]

　(a) 民眾[推/拉]ᵥ [去]ᴅᴇɪᴄᴛɪᴄ 一車垃圾包到**[垃圾場]ɢᴏᴀʟ**。

　　mín-zhòng tuī/lā　　qù yì-chē lèsèbāo　　dào lèsèchǎng

　　people　　push/pull go one car trash bag　　arrive wasteyard

　　'People pushed/pulled a pile of trash bags to the wasteyard.'

　(b) 工作人員[推/拉]ᵥ[去]ᴅᴇɪᴄᴛɪᴄ 滿滿一車廂花生到**[市場]ɢᴏᴀʟ**，

　　gōngzuò rényuán tuī/lā qù mǎnmǎn yī chēxiāng huāshēng dào shìchǎng

　　work　　staff　push/pull go full　　　one-car　　peanuts arrive market

　　'The staff members pushed/pulled a car full of peanuts to the market.'

With the comparison of the above example sets where a deictic is immediately followed by a main predicate ([V+Deictic]) (30) and the same as 30, but with an additional goal NP ([V+Deictic+Goal]) (31), we can vividly observe that under the circumstances of [V+Deictic], only *lái* 來 is acceptable; however, if a clear and specific destinational goal NP followed by an Endpoint marking verb such as *dào* 到 'arrive' is added to the deictic forming [V+Deictic+Goal], then *qù* 去 'go' can be applied and thus become grammatical since it has a clear and specific destinational goal acting as a path-delimiter for Endpoint reference[20].

What about [V+*zǒu*] which, like [V+*qù*], involves 'movement away from an original location' and has the same syntactic pattern as [推/拉+V]. However, why is it necessary to add a path-delimiting Endpoint for [V+*qù*], while [V+*zǒu*] is acceptable without a path, as illustrated in the following examples:

(32) [*Tuī/Lā+ zǒu*][21]

    (a) 工務單位出動推土機[V 推 V 走]巨石。

       gōngwù dānwèi chūdòng tuītǔjī   tuī   zǒu jùshí

       service   unit   set-out bulldozer push go huge-stone

       'The service unit set out bullozers to push away huge stones.'

    (b) 每天都有南方來的客商[V 拉 V 走]十幾車土豆,

       měitiān dū yǒu nánfāng   lái   de   kèshāng   lā zǒu shíjǐ   chē tǔdòu

       everyday all have southern come POSS merchants pull go ten more car potato

       'Southern merchants come everyday to pull away more than a dozen cars if potatoes.'

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[20] According to Liu *et al* (2013), Deictic may serve as a locational reference, which is probably why a Deictic may alternate with a Loc-NP in marking the delimiting point of motion.

[21] There are a very few number of instances for V+*zǒu*+NP. In Sinica there are zero occurrences of *tuī/lā+zǒu*+NP. In Gigaword, there are 5 instances of *tuī+zǒu*+NP and 10 instances for *lā+zǒu*+NP.

A preliminary assumption is that *zǒu* 走 'go' specifies a movement away from an original location and the sense of *away* inherently signals a path away from the mover; however, as for Deictic *qù* 去 'go,' which is only a speaker-oriented deictic marker, requires a path-delimiter as its Endpoint to complete the whole motion event, since it is ungrammatical when no goal or path-delimiter is present.

4.4 Aspectual Variations of *Tuī* and *Lā*

Previous studies have argued that the aspectual properties of verbs serve to convey the argument realization revealed in the type of events involved in a verb (Vendler 1957, 1967; Smith 1983, 1991, 1997; Van Voorst 1988; Levin & Rappaport 2005). In the causal events of *tuī* 推 'push' and *lā* 拉 'pull,' the aspectual properties are varied which thus, reveal that the causal events of *tuī* 推 'push' and *lā* 拉 'pull' may be classified into two major groups: motional and non-motional usages. The aspectual variations are listed below:

(33) Collocation with the PROGRESSIVE aspectual marker *zài* 在/ *zhèng zài* 正在

Motional

他在/正在推/拉車子進學校，

tā zài/zhèngzài tuī/lā chēzi jìn xuéxiào

he   ASP   push/pull car enter school

'He is pushing/pulling the car into school.'

Non-motional

(a)   林老師在/正在推邀請。

　　　lín lǎo shī zài/zhèngzài tuī yāoqǐng

lin teacher   ASP   push invitation

''Teacher Lin is rejecting the invitations.'

(b)   記者在/正在拉時間，

　　　jìzhě zài/zhèngzài lā shíjiān

　　　reporter ASP   pull time

　　　'The reporter is prolonging time.'

(34) Collocation with the PERFECTIVE aspectual marker 了 *le*

Motional

毛家三兄弟在蘇州橋上推/拉了小車，

máo jiā sān xiōngdì zài sūzhōuqiáoshàng tuī/lālexiǎochē

Mao house three brothers at Suzho bridge up push/pull ASP small-car

'The three Mao brothers pushed/pulled a small car while on Suzho Bridge.'

Non-motional

(a)   民主黨拉了許多票。

　　　mínzhǔdǎng lāle xǔduō piào

　　　democrats pull ASP many vote

　　　'The democrats won a lot of votes.'

(b)   他推了俊詳為領導者，

　　　tā tuīle jùnxiáng wèi lǐngdǎozhě

　　　he push ASP Junxiang as leader

　　　'He recommended Junxiang as the leader.'

(35) Collocation with the PERFECTIVE aspectual marker *guò* 過

Motional

毛家三兄弟在蘇州橋上推/拉過小車，

máo jiā sān xiōngdì zài sūzhōuqiáoshàng tuī/lā guò xiǎochē

Mao house three brothers at Suzho bridge up push/pull ASP small-car

'The three Mao brothers once pushed/pulled a small car while on Suzho Bridge.'

Non-motional

(a) 民主黨拉過許多票。

mínzhǔdǎng lāguò xǔduō piào

democrats pull ASP many vote

'The democrats once won a lot of votes.'

(b) 他推過俊詳為領導者，

tā tuīguòjùnxiáng wèi lǐngdǎozhě

he push ASP Junxiang as leader

'He once recommended Junxiang as the leader.'

(36) Collocation with the DURATIVE aspectual marker *zhe* 著

Motional

(a) 他推著輪椅進學校上課，

tā tuī zhe lúnyǐ jìn xuéxiào shàngkè

he push ASP wheelchair enter school class

'He pushed the wheelchair into school for classes.'

(b) 他們會拉著你到一個人少的角落，

    tāmen huì lā   zhe nǐ   dào yī-gè rén shǎo de jiǎoluò

    they   will pull ASP you arrive one people few DE corner

  'They will pull you to a corner where less people are around.'

(c) 母親推著小孩參觀美術館，

    mǔqīn tuī   zhe xiǎohái cānguān měishùguǎn

    mother push ASP child   visit   museum

  'Mother pushed the child to visit the museum.'

(d) 王叔叔拉著母親一起合照，

    wáng shūshu lā   zhe mǔqīn   yīqǐ   hézhào

    Wang uncle pull ASP mom together take-picture

  'Uncle Wang pulled mom to take a picture together.'

Non-motional

(a) *民主黨拉著許多票。

    mínzhǔdǎng lā zhexǔduō piào

    democrats pull ASP many vote

    'The democrats won a lot of votes.'

(b) *他推著俊詳為領導者，

    tā tuī   zhejùnxiáng wèi lǐngdǎozhě

    he push ASP Junxiang as leader

    'He recommended Junxiang as the leader.'

(c) *林老師推著邀請。

lín lǎo shī yòu zài tuī yāoqǐng

lin teacher again is push invitation

'Teacher Lin is pushing off invitations again.'

(d) *記者拉著時間，

jìzhělāzhe shíjiān

reporter pull ASP time

'The reporter prolonged the time.'

By considering the above examples from (33) to (36), it is observed that the events of *tuī* 推 'push' and *lā* 拉 'pull' do not have much variations in aspectual markings. Both motional and non-motional events of *tuī* 推 'push' and *lā* 拉 'pull' may collocate with aspectual markers such as *zài* 在/*zhèng zài* 正在 (33), *le* 了(34), and *guò* 過 (35). This illustrates that Mandarin *tuī* 推 'push' and *lā* 拉 'pull' belong to the event type of activity verbs (Liao 2003), since 'they generally signal the active participation and involvement of an animate subject in an event' (Li & Thompson 1981, 6:217). However, taking a closer look at examples (36) with the collocation of durative aspectual marker *zhe* 著, it is observed that there's an aspectual variation between the motional events of *tuī* 推 'push' and *lā* 拉 'pull' with the non-motional ones. This is because *zhe* 著 specifies a durative state that signals a certain 'manner of existence,' 'manner of movement,' or 'accompanying manner' (Yip & Rammington 2004) which we will explain in chapter 5.

Based on our aspectual distributional frequency below (table 12), we can vividly observe that other from the most frequently occurring form [V+∅] with *tuī* 推 'push' and *lā* 拉 'pull' used independently, we also found that 'push' and *lā* 拉 'pull' frequently collocate with durative aspectual marker *zhe* 著 as in the form [V+著] illustrated below:

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Verb	Tuī (1003)		Lā (1013)	
Aspectual Markers	Count	Frequency	Count	Frequency
V+∅	475	47.4%	473	46.7%
V+著	354	**35.3%**	365	**36.0%**
V+了	88	8.8%	97	9.6%
在/正在+ **V**	45	4.5%	48	4.7%
V+過	41	4.1%	30	3.0%

Table 12: The aspectual variations of *Tuī* and *Lā*

By observing table 12, it is shown that the form [V+著] is the second highest frequency (35.3% *tuī* 推 for and 36% for *lā* 拉); therefore, leading us to wonder if there are any semantic distinctions between 'push' and *lā* 拉 'pull' used independently and those that collocate with aspectual marker *zhe* 著? In order to explore this issue, let's move on to the mapping of aspectual marker *zhe* 著 with its respective syntactic forms presented in the following table:

Verb	Tuī (344)		Lā (355)	
Patterns	Count	Frequency	Count	Frequency
NP₁<V+著<NP₂<Coverb+NP₃<(VP)	205	60%	235	66%
NP₁<V+著<NP₂<VP	139	40%	120	34%

Table 13: The distributional frequency of *Tuī* and *Lā* with Aspectual *Zhe*

With regard to the above aspectual distributional frequencies (table 12 and 13), it is revealed that the events of *tuī* 推 'push' and *lā* 拉 'pull' with the caused-motion pattern of [NP1 V+著 NP2 PP (VP)] and the typical serial verb construction of [NP1 V+著 NP2 VP] may involve two subtypes: 1) those with the main predicate only ([V+∅]), that is, *tuī* 推 'push' and *lā* 拉 'pull' used independently and 2) those with the main predicate and the durative aspectual marker *zhe* 著 ([V+著]). This then leads us to the assumption that when *tuī* 推 'push' and *lā* 拉 'pull' used independently or when it occurs with aspectual marker *zhe* 著,

there will be some collocational constraints that results in the semantic distinctions between the two subtypes.

4.5 Morphological Make-ups

As mentioned in the previous section, aspectual properties serve to convey event types of sentences (Smith 1983, 1997; Vendler 1957, 1967; Van Voorst 1988; Levin & Rappaport 2005). Previous studies have shown that event types play a crucial role in the organization of the grammar of natural languages for it reveals the semantic representation of verbs and verb phrases that are involved in a sentence. With regards to event types, Vendler (1957; 1967) proposes a four-way classification of events including: states, activities, accomplishments, and achievements that are classified based on the aspectual properties of verbs.

In the previous sections we've illustrated significant syntactic and semantic properties of the events of *tuī* 推 'push' and *lā* 拉 'pull.' In this section, we further look into the morphological elements that are incorporated with the verbs of *tuī* 推 'push' and *lā* 拉 'pull' to form either verbal compounds (VV), verbal object compounds (VO), or verbal resultative patterns (VR) along with the aspectual variations and event types of the verbs.

		Types of compound	Collocation of aspectual markers	Event Type (Situation Type)
1	**推**	mono-syllabic V	了、著、過、在	Activity
2	推卸	V+V	了、過、在	Accomplishment
3	推動	V+R	了、過、在	Accomplishment
4	推銷	V+V	了、過、在	Accomplishment
5	推薦	V+O	了、過、在	Accomplishment
6	推舉	V+V	了、過、在	Accomplishment
7	推遲	V+V	了、在	Accomplishment
8	推長/遠/高	V+R	了	Accomplishment
9	推出	V+R	了、過、在	Accomplishment
1	**拉**	mono-syllabic V	了、著、過、在	Activity
2	拉攏	V+V	了、過、在	Accomplishment
3	拉車	V+O	了、在	Accomplishment
4	拉下	V+R	了	Accomplishment
5	拉長/遠/高	V+R	了	Accomplishment

Table 14: Morphological make-ups in the events of *Tuī* and *Lā*

Table 14 illustrates that when the mono-syllabic verbs *tuī* 推 'push' and *lā* 拉 'pull' combined with other suffix morphemes, it will result in a change of its semantic properties. As mentioned previously, the events of *tuī* 推 'push' and *lā* 拉 'pull' may be divided into two groups: motional and non-motional uses. From table 14, it is observed that the events of *tuī* 推 'push' and *lā* 拉 'pull,' be it motional or non-motional, are both involved with durative aspectual variations, that is, the collocational constraints with aspecutual marker *zhe* 著 which presents two major event types: Activity and Accomplishment. With the above corpus observations, it is revealed that the causal events of *tuī* 推 'push' and *lā* 拉 'pull' not only posit the prototypical motional usages of *to push* and *to pull* but they may also involve in other non-motional usages which we will discuss in the following section.

4.6 Non-motional uses of *Tuī* and *Lā*

As mentioned in Chapter 1, *tuī* 推 'push' and *lā* 拉 'pull' may either posit the typical caused-motion senses of *to push* and *to pull* forming the caused-motion pattern of [NP1 V NP2 PP (VP)] or they may, as suggested by Chinese Wordnet, also posit other non-motional usages. Incorporating Chinese Wordnet together with corpus observations, it is found that *tuī* 推 'push' and *lā* 拉 'pull' appear to bear several sense extensions. *Tuī* 推 'push' appears to bear at least six extensions, while *lā* 拉 'pull' appears to bear at least three extended senses that usually appear in the transitive-like pattern of [NP1 V NP2][22] as already presented in Chapter 1. In this section, the various categories of Moved Entities (object NPs) that non-motional *tuī* 推 'push' and *lā* 拉 'pull' may take can be summarized in the table below along with some representative examples:

Object NP Types	*Tuī*	*Lā*
Human beings	推召集人、推領導者、推代表、推主導人	拉客人
Body parts	推頭髮、推毛	拉嗓子
Inanimate objects	推菜單、推品牌、推現金卡、推產品、推雜草	拉票
Temporal objects	推婚期、推時間	拉時間
Abstract objects	推責任、推邀請	拉保險

Table 15: Various categories of Moved Entity in the events of *Tuī* and *Lā*

From table 15 and through the morphological make-ups in the previous section (table 14), it is revealed that *tuī* 推 'push' and *lā* 拉 'pull' not only posit the prototypical caused-motion

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[22] This study only considered the non-motional usages of *tuī* 推 'push' and *lā* 拉 'pull' occurring in the transitive-like pattern [NP1 V NP2] because the majority of the extended senses of *tuī* 推 'push' and *lā* 拉 'pull' appear in this pattern with an exception of only one extended sense of *lā* 拉 'pull' as in *lā bù xià liǎn* 拉不下臉 'unable to pull down one's face' which involves a non-motional path appearing in the pattern of [NP1 V NP2 Coverb NP3]. As suggested by Chen (2012), this expression in Chinese is metonymic with the face representing the entire person and his/her social position which means that one is unable to raise or lower one's social position relative to the addressee's.

notions of *pushing* or *pulling*, but they can also extend to multiplex sense extensions from physical spatial domains to other non-spatial domains such as temporal domains or abstract domains which we will explain in chapter 5.

Chapter 5

Analysis

This chapter aims to present a frame-based analysis of Mandarin *Push/Pull* verbs *tuī* 推 and *lā* 拉 in order to account for the above concerns regarding the following issues: 1) the distinction between prototypical caused-motion verbs such as *bān* 搬 and *yí* 移 which are equivalent to the English verb *move* with the comparision of *tuī* 推 'push' and *lā* 拉 'pull;' 2) the aspectual variations of *tuī* 推 'push' and *lā* 拉 'pull;' and 3) the metaphorical extensions of *tuī* 推 'push' and *lā* 拉 'pull.' Firstly, this chapter will provide a conceptual schema for the prototype of *tuī* 推 'push' and *lā* 拉 'pull' in section 5.1. Followed by section 5.2 with the distinction between *bān* 搬/*yí* 移 'move' and *tuī* 推 'push' and *lā* 拉 'pull.' In section 5.3, the aspectual correlations of *tuī* 推 'push' and *lā* 拉 'pull' will be given. Section 5.4 provides the collocational constraints of *tuī* 推 'push' and *lā* 拉 'pull' with deictic *lái* 來 'come' and *qù* 去 'go.' In section 5.5, the detailed analysis of the metaphorical extensions of *tuī* 推 'push' and *lā* 拉 'pull' will be presented. Finally, in section 5.6, a frame-based analysis of caused-motion *tuī* 推 'push' and *lā* 拉 'pull' will be given along with a summary of the overall analysis in section 5.7.

5.1 Conceptual Schema of the Prototype of *Tuī* and *Lā*

Based on Huang, Li and Li (2006), the human kind seems to have an innate ability for categorization; for instance, our brain divides the world into two primary types of entities: things that exist and situations that take place. Moreover, according to Rosch (1978:36), prototypes can be defined as the 'clearest cases of category membership defined operationally

by people's judgments of goodness of membership in the category.' Thus, a prototype of a category is then viewed as a salient exemplar of the overall categories. With the light of Prototype Theory, let's move on to observe the prototype of Mandarin *tuī*推 'push' and *lā*拉 'pull.'

As mentioned in Chapter 4, the most frequently occurring syntactic pattern in the events of *tuī* 推 'push' and *lā* 拉 'pull' is the form [NP1 V NP2 PP (VP)] which fulfills the prototypical caused-motion construction proposed by Goldberg (1995) with the involvement of three arguments—Subject NP, Object NP, and Oblique PP. With further consideration of Li's (2007) caused-motion concept where an Agent exerting an external force/cause and thus causing a translocational movement of the affected object (Theme/Patient), *tuī* 推 'push' and *lā* 拉 'pull' also posit similar semantic properties. Syntactically, NP1 is the external argument of *tuī* 推 'push' and *lā* 拉 'pull' (the Subject of the main predicate), NP2 is the internal argument (the Direct Object), and PP is a directional phrase designating the path of motion. Semantically, NP1 plays the role of an **Agent**, NP2 as the affected object which we called the **Moved Entity**, and PP acts as the delimiting Endpoint of a **Location** as the following examples illustrate (repeated from (16)):

(37) Caused-motion Pattern: NP1<V<NP2<Coverb{到/至/入/往/上/下/進/出/回/來/去}+NP3

    (a) [我/Agent][氣憤地/Manner]推/拉[一輛腳踏車/Moved Entity][到屋裡/Location]。

        wǒ   *qìfèndì*   *tuī/lā*   *yí-liàng jiǎo-tà-chē*   *dào wūlǐ*

        I   ADJ   push/pull   one bicycle   arrive home-in

        'I angrily pushed/pulled a bicycle into the house.'

    (b) [我/Agent]推/拉[妹妹/Moved Entity][進房間/Location]。

        wǒ   *tuī/lā*   *mèimei*   *jìn fángjiān*

I   push/pull   sister   enter   room

'I pushed/pulled my sister into the room.'

With the above thread of thinking, we can thus categorize *tuī* 推 'push' and *lā* 拉 'pull' as prototypical caused-motion verbs with the involvement of at least three major participant roles: **Agent**, **Moved Entity**, and **Location** constructed under the caused-motion construction of the form [NP1 V NP2 PP (Coverb+NP3)[23]] with the conceptualization of someone exerting a certain driving force onto an affected object and thus causing a certain contact on the affected object to result at a certain destination. The conceptual schema of the prototype of *tuī* 推 'push' and *lā* 拉 'pull' can thus be presented in the following sections along with the involved syntactic patterns and core semantic components.

5.1.1 The Prototype of *Tuī*

As mentioned above, Mandarin *tuī* 推 'push' can extend up to six sense-specific metaphorical extensions. Regarding to all the metaphorical extensions of *tuī* 推 'push,' we propose that the most core sense of *tuī* 推 'push' is equivalent to the English verb *push*. In the events of *tuī* 推 'push,' three participants are usually involved within the conceptual basis: a pushing entity playing the role of an **Agent** (Causer) and a pushed entity as a **Moved Entity** (Causee) that ended up at a pushed destination as **Location** (Goal). Moreover, according to FrameNet, the verb *push* is labeled under the Caused_Motion frame with the notion of an Agent causing a Theme (Moved Entity) to undergo translational motion whereby an Agent

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[23] As mentioned previously, in the syntactic form of [NP1 V NP2 PP (Coverb+Loc-NP)] the PPs in Chinese are usually expressed by non-predicate Path-verbs, which we called coverbs plus Loc-NPs as in *wǒ tuī/lā yí liàng jiǎo tà chē dào wūlǐ* 我推/拉一輛腳踏車到屋裡 'I *pushed/pulled* a bicycle into the house' where *dào* 到 'arrive' acts as the coverb plus the Loc-NP of *wūlǐ* 屋裡 'the house.'

exerts force on someone or something (Moved Entity) in order to move them away from oneself (Agent) as already demonstrated in (37) above.

With this definition in mind, we can then conceptualize an image schema for the prototypical sense of Mandarin *tuī* 推 'push,' which is therefore, a causal event that is undergone in a physical spatial domain:
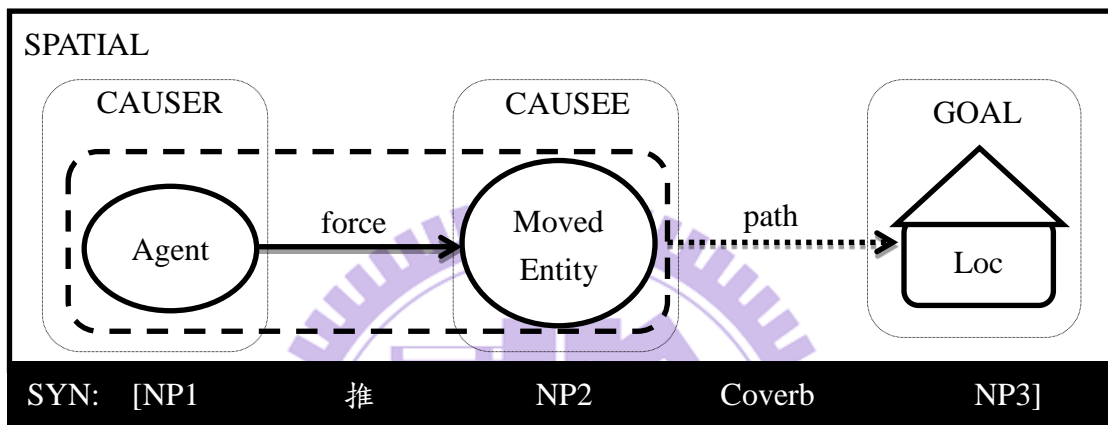

Figure 11: The prototypical sense schema of Mandarin *tuī*

In the above schema, the arrows signal the directionality of a causal movement whereby an **Agent** exerts a driving force onto a **Moved Entity** (shown by the bold arrow) causing the Moved Entity to undergo a locational change from the source of physical force to the target **Location**[24] along a physical path through a period of time by means of asymmetrical unidirectional energy transfer (shown by the dotted arrows). Specifically, the Agent, volitionally and directly, manipulates an INSTRUMENT ((e.g., hand(s)) although not always expressed) in order to exert force onto the Moved Entity so that it subsequently moves according to the direction it was being forced.

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[24] Conceptually, the Agent plays the role of a Causer, the Moved Entity as a Causee, and the Location as a spatial Goal.

5.1.2 The Prototype of *Lā*

Lā 拉 'pull' in Mandarin, as mentioned before, posits at least three sense-specific metaphorical extensions. With the three extended senses of *lā* 拉 'pull,' we propose that the most prototypical sense is translated as *pull* in English. In the same vein of *tuī* 推 'push,' *lā* 拉 'pull' may also involve three participants: a pulling entity playing the role of an **Agent** (Causer) and a pulled entity as a **Moved Entity** (Causee) that ended up at a pulled destination as **Location** (Goal). According to FrameNet, the verb *pull* is labeled under the Caused_Motion frame with the notion of an Agent causing a Theme (Moved Entity) to undergo a translational motion whereby an Agent exerts force on someone or something (Moved Entity) in order to move them towards oneself (Agent) or away from the origin of the force as already demonstrated in (37) above.

Following the above notion, the conceptualized image schema for the prototypical sense of Mandarin *lā* 拉 'pull' may be presented below which is also a causal event that is undergone in a physical spatial domain:
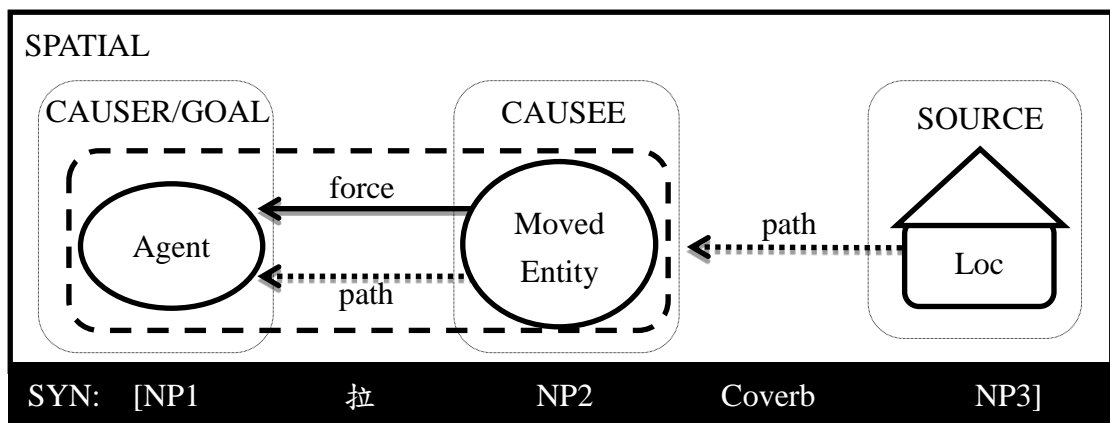

Figure 12: The prototypical sense schema of Mandarin *lā*

In the above schema, the arrows signal the directionality of a causal movement whereby an **Agent** exerts a driving force onto a **Moved Entity** (shown by the bold arrow) causing the Moved Entity to undergo a locational change towards the Agent (shown by the dotted arrow) and moving away from its original source (Location). The Agent is thus conceptually conceived as the Goal and the Loc-NP as the original Source of the Moved Entity's movement. Specifically, the Agent, volitionally and directly manipulates an INSTRUMENT ((e.g., finger(s)) although not always expressed) in order to exert force onto the Moved Entity so that it subsequently moves toward the force-initiator (Agent)[25].

5.1.3 The Semantic and Syntactic Attributes of Prototype *Tuī* and *Lā*

Based on the above schemas along with the representative examples in (37), it is observed that the **Agent** (Causer) occurs in the subject position and is profiled as the primary prominent semantic element of an interactional causal event. The Agents (Causers) in (37) are core frame elements and are ususally animate human entities, thus indicating that they must occur volitionally in order to exert physical force onto another physical concrete entity to cause the Moved Entity to move towards or away from the Agent.

The **Moved Entity** is profiled as the second prominent semantic role in a causal event, occupying as the direct object position and acting as the affected object. Moved Entities are usually physical concrete objects that are able to undergo a locational change. These direct objects play the role of a Manipulated_Moved Entity,[26] since it undergoes an exertion from the force initiator (Agent) who causes locational changes of the Moved Entity over a certain

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[25] Note that the Agent's body parts (e.g., hand(s)), in the causal events of *lā* 拉 'pull,' function as an INSTRUMENT for grasping and pulling the Moved Entity.

[26] The term "Manipulation" is adopted from FrameNet in the sense that Agents occurring in this frame causes or influences the Moved Entity through some kind of force exertion.

period of time.

The **Location** is the third semantic role in the events of *tuī* 推 'push' and *lā* 拉 'pull' occupying the PP position and acts as the Goal of the Moved Entity's movement for *tuī* 推 'push' and as the Source of the Moved Entity's movement for *lā* 拉 'pull.' The Location in a prototypical caused-motion event would typically take a spatial destination/location such as *dào wūlǐ* (37a) and *jìn fángjiān* (37b).

5.2 *Tuī* and *Lā* versus *Bān* and *Yí*

As mentioned above, Mandarin *Push/Pull* verbs *tuī* 推 and *lā* 拉, as verbs pertaining to caused-motion, do posit the semantic and syntactic properties of a typical caused-motion verb, that is, an Agent causing a Moved Entity to move towards or away from oneself (Agent) under the syntactic form of [NP1 V NP2 PP (Coverb+NP3)]. However, if the events are so similar to each other, how can we distinguish between the events of *tuī* 推 'push' and *lā* 拉 'pull' with those of prototypical caused-motion verbs such as *bān* 搬/*yí* 移 'move' as illustrated in the contrastive pairs below:

(38) (a) Proto-caused-motion events:

[我/Agent]NP1[搬/移]V[一箱蘋果/Moved Entity]NP2[到/Coverb+屋裡/Location]PP。

wǒ   *bān/yí*   *yì-xiāng píngguǒ*   *dào wūlǐ*

I   move   one-box apple   arrive house-inside

'I moved a box of apples into the house.'

(b) Events of *tuī* and *lā*:

[我/Agent]NP1 [推/拉]V [一輛腳踏車/Moved Entity]NP2 [到/Coverb+屋裡/Location]PP。

wǒ	*tuī/lā*	*yí-liàng jiǎotàchē*	*dào wū-lǐ*
I	push/pull	one bicycle	arrive house-inside

'I pushed/pulled a bicycle into the house.'

As observed in (38), both the prototypical caused-motion events (38a) and the events of *tuī* 推 'push' and *lā* 拉 'pull' (38b) posit similar syntactic pattern of [NP1 V NP2 PP (Coverb+NP3)] with the semantic components of **Agent**, **Moved Entity**, and **Location**. In order to distinguish between the two causal events, we adopted Li's (2007) analysis of caused-motion event.

As mentioned in Chapter 2, Li (2007) defines that a typical caused-motion event consists of a series of subevents: the causing event and the motion event, where the two entities or subevents have a causal relation with one causing the other to undergo a translocational change, that is, the motion is initiated and controlled by an external causer. Based on Li's analysis, we propose that the verbs in a prototypical caused-motion construction, that is, caused-motion verbs such as *bān* 搬/*yí* 移 'move' (38a) typically profiles the motion event which focuses on the physical translocation of the Moved Entity as in *yì-xiāng píngguǒ dào wū-lǐ* 一箱蘋果到屋裡 'the box of apples into the house.' Whereas in the events of *tuī* 推 'push' and *lā* 拉 'pull,' the verbs can either profile the causing event that is, the force interaction between the Agent and the Moved Entity as in *wǒ tuī/lā yí-liàng jiǎotàchē* 我推/拉 一輛腳踏車 'I pushed/pulled a bicycle' or the motion event, that is, the translocation of the Moved Entity as in *yí-liàng jiǎotàchē dào wū-lǐ* 一輛腳踏車到屋裡 'a bicycle into the house.' The contrastive pairs may be illustrated in the following image schemas with figure 13 presenting the prototypical caused-motion events and figure 14, the events of *tuī* 推 'push' and *lā* 拉 'pull.'
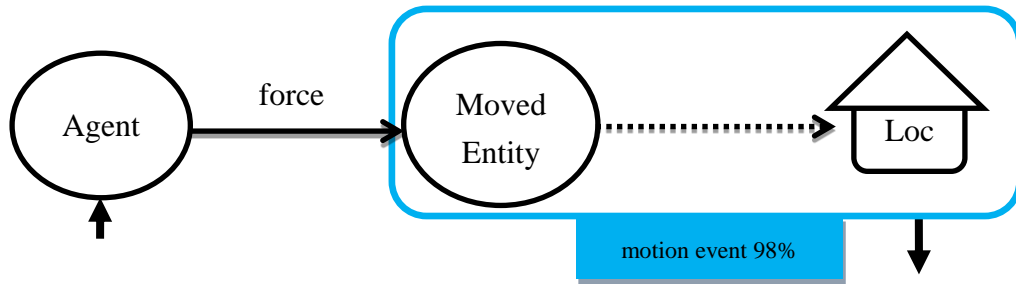
Figure 13: The prototypical caused-motion conceptual schema
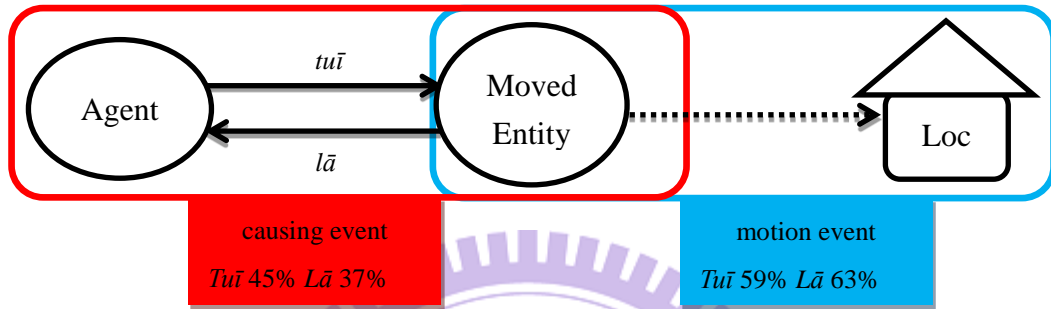

Figure 14: The prototypical causal event of *Tuī* and *Lā*

In view of the above schemas, it is observed that the majority of the instances of prototypical caused-motion verbs such as *bān* 搬/*yí* 移 'move' emphasize more on the motion event with a high percentage of 98%. Whereas in the events of *tuī* 推 'push' and *lā* 拉 'pull,' it is not so restricted, since it can either focus on the causing event (*tuī* 45% and *lā* 37%) or the motion event (*tuī* 59% and *lā* 63%). The contrastive pairs are once again demonstrated below with their profiled events.

(39) Proto-caused-motion events:

[我/Agent]NP1 [搬/移]V [一箱蘋果/Moved Entity]NP2 [到/Coverb＋屋裡/Location]PP。

wǒ   bān/yí   yì-xiāng píngguǒ   dào wūlǐ

I   move   one-box apple   arrive house-inside

'I moved a box of apples into the house.'

我搬/移 ┌─────────────┐
        │ 一箱蘋果到屋裡 │
        └─────────────┘
        motion event

Figure 15: The profiled event of prototypical caused-motion verb

(40) Causal events of *tuī* and *lā*:

(a) [我/Agent]NP1 [推/拉]V [一輛腳踏車/Moved Entity]NP2 [到/Coverb+屋裡/Location]PP。

　　　wǒ　　　*tuī/lā*　　　*yí-liàng jiǎotàchē*　　　*dào wū-lǐ*

　　　I　　　push/pull　　　one-bicycle　　　arrive house-inside

　　　'I pushed/pulled a bicycle into the house.'

(b) [小蜜/Agent]，不要[推/拉]V[牠/Moved Entity]。

　Xiǎo mì bùyào tuī/lā   tā

　Little honey no push/pull him

　'Little honey, don't push/pull him.'

我推/拉 ┌─────────────┐
        │ 一輛腳踏車到屋裡 │
        └─────────────┘
        motion event

┌─────────────┐
│ 小蜜推/拉牠 │
└─────────────┘
causing event

Figure 16: The profiled events of *tuī* and *lā*

With the above distributional percentages of the profiled events along with the representation of image schemas, it thus revealed that the distinction between a prototypical caused-motion verb such as *bān* 搬/*yí* 移 'move' from those of *tuī* 推 'push' and *lā* 拉 'pull' is that the former profiles a physical goal which focuses on where the Moved Entity ends up at after a motional act, while in the latter; the goal could be unspecified for it stresses more on the intimate force interaction between the Agent and the Moved Entity. That is to say, when

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bān 搬 or *yí* 移 'move' occurs with a Moved Entity, the Moved Entity MUST be moved from point A to point B; however, when *tuī* 推 'push' or *lā* 拉 'pull' occurs with a Moved Entity, the Moved Entity does not necessarily need to be moved as illustrated in the following constrastive pairs:

(41) (a) *我搬/移椅子，但它沒有動。

　　　　 wǒ bān/yí yǐzi dàn tā méi yǒu dòng

　　　　　 I move chair but it　　no　　move

　　　　 '*I moved the chair but it didn't move.'

　　(b) 我推/拉他，但他沒有動。

　　　　 wǒ　 tuī lā　　tā dàn tā méi yǒu dòng

　　　　　 I push/pull he but he　　no　　move

　　　　 'I pushed/pulled him but he didn't move.'

5.3 *Tuī* and *Lā* with Aspectual *Zhe*

Other from positing similar semantic and syntactic properties of a caused-motion verb, we also discovered that, based on corpus distribution, the majority of *tuī* 推 'push' and *lā* 拉 'pull' frequently collocate with aspectual marker *zhe* 著 as already shown in the distributional frequency above (table 12). The examples are repeated below from example (36) for reference:

(42) [V + ASP]

　　(a) 他推著輪椅進學校上課，

tā tuī   zhe   lúnyǐ   jìn xuéxiào shàngkè

he push ASP wheelchair enter school class

'He pushed the wheelchair into school for classes.'

(b) 他們會拉著你到一個人少的角落，

tāmen huìlā   zhe nǐ   dào yī-gè rén shǎo de jiǎoluò

they   will pull ASP you arrive one people few DE corner

'They will pull you to a corner where less people are around.'

(c) 母親推著小孩參觀美術館，

mǔqīn tuī   zhe xiǎohái cānguān měishùguǎn

mother push ASP child   visit   museum

'Mother pushed the child to visit the museum.'

(d) 王叔叔拉著母親一起合照，

wáng shūshu lā   zhe mǔqīn   yīqǐ   hézhào

Wang uncle pull ASP mom together take-picture

'Uncle Wang pulled mom to take a picture together.'

In order to distinguish between the usages of the events of *tuī* 推 'push' and *lā* 拉 'pull' with the occurrence of aspectual marker *zhe* 著 and those without, we incorporated Li's (2007) analysis on caused-motion events together with Talmy's (2007) analysis on the relation of co-event conflations.

Talmy (2000) once distinguished motion-with-manner and motion-with-cause which thus revealed that the translational motion event can be divided into two groups: self-motion event with the semantic components of [Move+Manner] and [Move+Cause] for the caused-motion

events. Based on Talmy (2000), *tuī* 推 'push' and *lā* 拉 'pull' are said to be motion verbs that are further conflated with the co-event components of **[Move+Cause]** as illustrated below:

(43) **[Move+Cause]**

我推/拉一輛腳踏車到屋裡。

wǒ tuī/lā yí-liàng jiǎo-tà-chē dào wūlǐ

I   push/pull one   bicycle arrive house

'I pushed/pulled a bicycle into the house.'

With further incorporation of Li's (2007) caused-motion events, *tuī* 推 'push' and *lā* 拉 'pull,' as verbs pertaining to caused-motion, involves two subevents—causing event and motion event—where the former and the latter are causally related to each other as shown in the following figure:
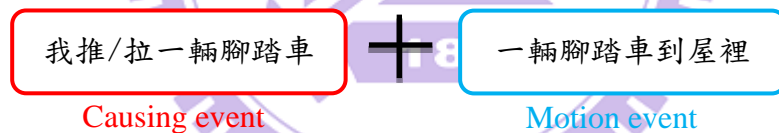

Figure 17: The profiled events of *tuī* and *lā*

Based on the two incorporated approaches above, the events of *tuī* 推 'push' and *lā* 拉 'pull,' as prototypical caused-motion verbs, typically profiles more on the causing event. That is, the force interaction between the Agent and the Moved Entity which stresses on the way how the Moved Entity is being caused by the external force-initiator (Agent) as illustrated in the schema below along with representative examples:
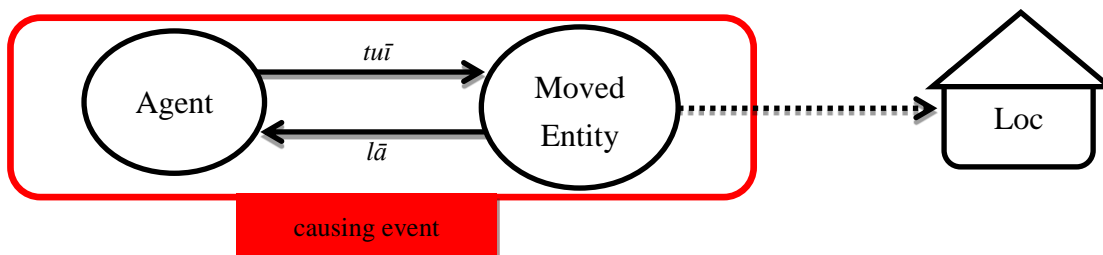
Figure 18: The image schema of [V+∅]

(44) (a) 清潔女工出手**推**死者，

　　　qīng-jié nǚ-gong chū-shǒu tuī　sǐzhě

　　　clean　　lady　use-hand push dead

　　　'The cleansing lady pushed the dead.'

(b) 尼克伸手去**拉**秀兒。

　　nǐkè shēn-shǒu qù lā xiùér

　　Nick use-hand go pull Xiuer

　　'Nick used his hands to go to pull Xiuer.'

By observing the above examples, it is vividly seen that the type of Means applied, that is, *chū-shǒu* 出手 (a) and *shēn-shǒu* 伸手 (b) are crucial when profiling the causing event of *tuī* 推 'push' and *lā* 拉 'pull' which describes the way how the action is being takened.

However, when the causing event of *tuī* 推 'push' and *lā* 拉 'pull' is transformed to just demonstrating a kind of Manner, there is ususally a motion event added as observed from examples (42 a-d) along with the distributional patterns in table 12. Under circumstances of *tuī* 推 'push' and *lā* 拉 'pull' plus aspectual marker *zhe* 著, a destinational goal/endpoint (PP) or a purposful act (VP)[27] is frequently involved.

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[27] Based on the aspectual distributional frequency on table 12, we found that *tuī* 推 'push' and *lā* 拉 'pull' collocating with aspectual marker *zhe* 著 are mostly found in two syntactic patterns: 1) caused-motion

Based on Talmy's (2000) analysis of co-event relations, as mentioned above, we can thus view the occurrence of *tuī* 推 'push' and *lā* 拉 'pull' plus aspectual marker *zhe* 著, that is [V+ASP], as demonstrating a kind of motion-with-manner since, based on Yip & Rammington (2004), V+著 denotes a durative state that signals a certain 'manner of existence,' 'manner of movement,' or 'accompanying manner' as shown in the schema below:
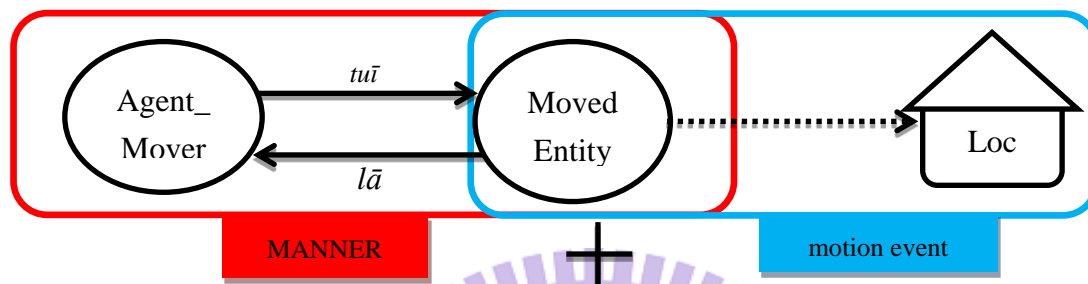

Figure 19: The image schema of [V+ZHE]

Under such special circumstances when the causing event of *tuī* 推 'push' and *lā* 拉 'pull' is just demonstrating a kind of Manner, it will emphasize on the durative state of a motion event, which at the same time, based on Yip & Rammington (2004), brings out the implicature that the Agent moves along with the Moved Entity. Thus, under [V+ZHE], the Agent role becomes Agent_Mover since it signals a kind of co-movement.

In sum, from the above analysis, it is noted that under the circumstances of [V+∅], the causal events of *tuī* 推 'push' and *lā* 拉 'pull' profiles more on the cause of the event which brings out that the event signals a prototypical caused-motion event. Whereas, under cases of [V+ASP], it demonstrates a non-prototypical caused-motion event for it only demonstrates a kind of Manner which stresses on the durative state of a motion event. From here we can observe that the events of *tuī* 推 'push' and *lā* 拉 'pull' can be transformed from a prototypical caused-motion event to an event that only profiles the manner-of-motion.

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pattern ([NP1 V NP2 PP (VP)]) and 2) serial verb construction ([NP1 V NP2 VP]), where Moved Entities are being translocated to a certain goal/endpoint to do a certain purposeful act.

5.4 *Tuī* and *Lā* with Deictic *Lái* and *Qù*

As mentioned above, the events of *tuī* 推 'push' and *lā* 拉 'pull' not only profile a typical caused-motion event, but they also posit intimate deictic relations between the Agent and the Moved Entity with an emphasis on the force interaction between the two entities as illustrated below (repeated below from (29) above):

(45) [V+NP+Deictic]

    (a) 我[推/拉]ᵥ[父親]ₙₚ[來/去]ᴅᴇɪᴄᴛɪᴄ 紀念堂。

        wǒ tuī/lā   fùqīn lái/qù   jìniàntang

        I   push/pull father come/go   memorial hall

        'I pushed/pulled my dad to go/come to the memorial hall.'

    (b) 他也會[推/拉]ᵥ[祖母]ₙₚ[來/去]ᴅᴇɪᴄᴛɪᴄ 投票。

        tā yě huì tuī/lā   zǔmǔ   lái/qù   tóupiào

        He also will push/pull grandma come/go   vote

        'He will also pushed/pulled his grandma to go to vote.'

By observing (45) above with the pattern of [V+NP+Deictic], it is noted that both *lái* 來 'come' and *qù* 去 'go' are interchangeable where the choice of *lái* 來 'come' and *qù* 去 'go' would be greatly depended on the perspective of the speaker (Liu 2013).[28] However, there are other cases where a deictic is immediately followed by the main predicate forming [V+Deictic]. In this case, *lái* 來 'come' and *qù* 去 'go' are no longer interchangeable as the

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[28] As mentioned before, note that the position of Deictic could be either before or after the Loc-NP, e.g., *huí qù xuéxiào* 回去學校 vs. *huí xuéxiào qù* 回學校去 'go back to school'.

examples below illustrate (repeated from (30) above):

(46) [V+Deictic]

   a. 民眾[推/拉]ᵥ[來]ᴅᴇɪᴄᴛɪᴄ 一車垃圾包，

     mínzhòng   tuī/lā   lái   yī chē lèsèbāo

     people   push/pull come one car trash bag

    'People pushed/pulled over a pile of trash bags.'

   b. *民眾[推/拉]ᵥ[去]ᴅᴇɪᴄᴛɪᴄ 一車垃圾包。

     mín-zhòng tuī/lā   qù   yī-chē lèsèbāo

     people   push/pull go one car trash bag

    *'People pushed/pulled go a pile of trash bags.'

   c. 工作人員[推/拉]ᵥ[來]ᴅᴇɪᴄᴛɪᴄ 滿滿一車廂花生，

     gōngzuò rényuán tuī/lā   lái   mǎnmǎn yī chēxiāng huāshēng,

     work   staff push/pull come full   one-car   peanuts

    'The staff members pushed/pulled over a car full of peanuts.'

   d. *工作人員[推/拉]ᵥ[去]ᴅᴇɪᴄᴛɪᴄ 滿滿一車廂花生，

     gōngzuò rényuán tuī/lā   qù mǎnmǎn yī chēxiāng huāshēng

     work   staff push/pull go full one-car   peanuts

    *'The staff members pushed/pulled go a car full of peanuts.'

By considering the above contrastive pairs ((46a-b) and (46c-d)) once again, as observed above, only *lái* 來 'come' is acceptable under circumstances where the deictic is immediately followed by the main predicate; however, *qù* 去 'go' in this case would be totally

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unacceptable. Why is this the case and how can we deal with such collocational constraints?

A possible explanation for the cases where *tuī* 推 'push' and *lā* 拉 'pull' are immediately followed by a deictic *lái* 來 'come' and *qù* 去 'go' forming [V+Deictic] is that we should flashback to the core sense of *tuī* 推 'push' and *lā* 拉 'pull' as caused-motion verbs. As noted above, we mentioned that *tuī* 推 'push' and *lā* 拉 'pull' focus on the direction of movement, which means that the action will take a certain direction to reach a certain Endpoint.

Along the vein, under circumstances of [V+Deictic], only *lái* 來 'come' is acceptable, since *lái* 來 'come' basically implicates movement towards speaker, which at the same time, fulfils the requirements of the whole motion event where the Moved Entity usually moves to a certain Endpoint. Therefore, under such examples of (46a) and (46c), the sentences are grammatical since the SPEAKER had taken over the role of the GOAL. That is to say, being verbs of directed movements where actions usually take a certain direction and a certain path, *tuī* 推 'push' and *lā* 拉 'pull' plus *lái* 來 'come' present a clear and specific Endpoint where the speaker takes over the role of the Goal acting as a path-delimiter as demonstrated in the schema below:
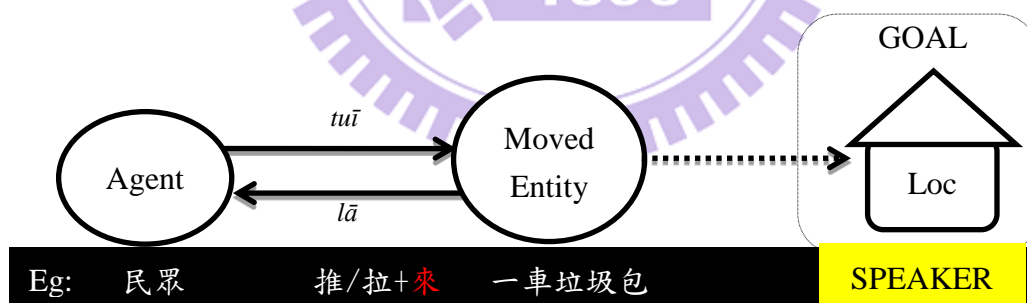

Figure 20: Speaker as Goal ([V+*Lái*])

As for [V+*Qù*], it becomes unacceptable because *qù* 去 'go' basically implicates movement away from speaker; however, it did not indicate where the Moved Entity moves to or end up at and the Endpoint is being unspecified. That is to say, as verbs pertaining to directed movements, there must be a path; however, for *qù* 去 'go,' we observe that there's a path, but the path does not have a path-delimiter, thus making the sentences in (46b) and (46d)

unacceptable. The schema below thus illustrates the unclear path-delimiting Endpoint where we use a 'question mark' to represent the untakened Goal position.
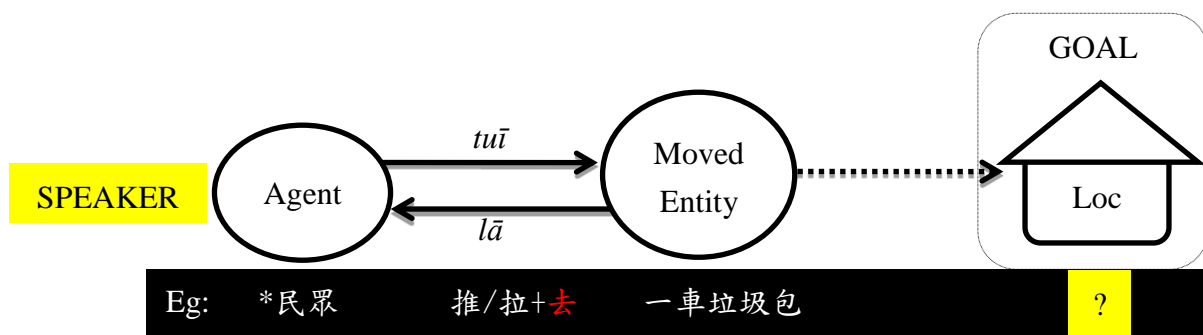

Figure 21: Goal = unclear ([V+*Qù*])

However, as mentioned above, if and when *qù* 去 'go' is to be applied under the pattern of [V+Deictic], there must be a clear and specific destinational goal acting as its path-delimiting Endpoint, thus, forming the pattern of [V+Deictic+GOAL] as the following examples illustrate:

(47) [V+Deictic+GOAL]

　a.民眾[推/拉]ᵥ [去]ᴅᴇɪᴄᴛɪᴄ 一車垃圾包到**[垃圾場]**ɢᴏᴀʟ。

　mín-zhòng tuī/lā qù   yì-chē lèsèbāo   dào lèsèchǎng

　　people   push/pull go one car trash bag   arrive wasteyard

　　'People pushed/pulled a pile of trash bags to the wasteyard.'

　b. 工作人員[推/拉]ᵥ[去]ᴅᴇɪᴄᴛɪᴄ 滿滿一車廂花生到**[市場]**ɢᴏᴀʟ，

　gōngzuò rényuán tuī/lā qù mǎnmǎn yī chēxiāng huāshēng dào shìchǎng

　　work   staff push/pull   go   full   one-car   peanuts   arrive market

　　'The staff members pushed/pulled a car full of peanuts to the market.'

With the comparison of the above example sets where a deictic is immediately followed by a main predicate forming [V+Deictic] (46) and where a deictic is also immediately followed by a main predicate, but with an additional goal NP forming [V+Deictic+Goal] (47), we can vividly observe that under the circumstances of [V+Deictic], only *lái* 來 'come' is acceptable. However, if a clear and specific destinational goal acting as path-delimiting Endpoint is added to the deictic forming [V+Deictic+Goal], then *qù* 去'go' can be applied and thus become grammatical as the schema below demonstrates:
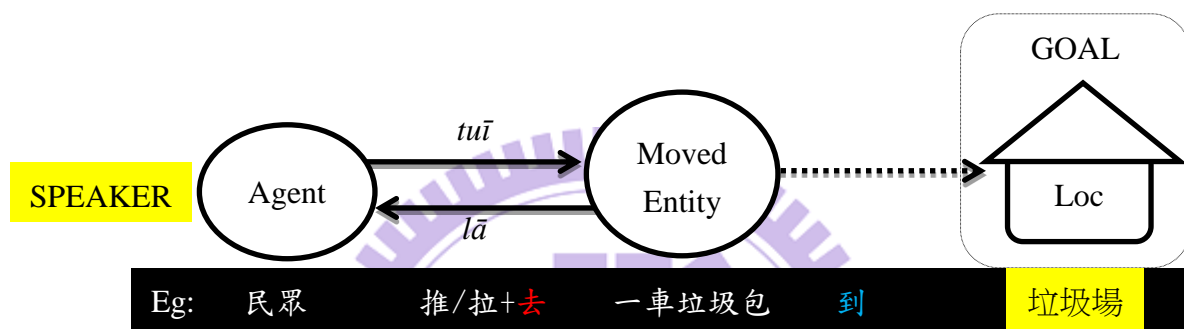

Figure 22: Destination as Goal ([V+*Qù*+Goal])

By observing figure 22 as compared to figure 21, it is shown that the role of the Goal position in figure 22 has been occupied by a clear and specific spatial destinational Goal acting as a path-delimiting Endpoint, that is *lèsè chǎng* 垃圾場 'waste yard' in this case which is being marked by an Endpoint marker *dào* 到] 'arrive.' Therefore, the examples in (47) are grammatical since adding on a Goal means having a clear and specific path-delimiting Endpoint.

Moreover, as mentioned above, based on corpus observations, there are other cases such as [V+*Zǒu*], which is similar to [V+*Qù*], for it also posits the meaning of 'movement away from an original location' and occur in the same syntactic pattern of [V(*tuī*/*lā* 推/拉 'push/pull') +V(*qù* 去/*zǒu* 走 'go')]. However, they behave differently in that under [V+*Qù*], a path-delimiter is needed to act as its Endpoint reference, while [V+*Zǒu*] is acceptable without a path, as illustrated in the following examples:

(48) [*Tuī/Lā+ zǒu*]

    (a) 工務單位出動推土機[V 推 V 走]巨石。

        gōngwù dānwèi chūdòng tuītǔjī   tuī   zǒu jùshí

        service   unit   set-out bulldozer push go huge-stone

        'The service unit set out bullozers to push away huge stones.'

    (b) 每天都有南方來的客商[V 拉 V 走]十幾車土豆，

        měitiān dōu yǒu nánfāng   lái   de   kèshāng   lā zǒu shíjǐ   chē tǔdòu

        everyday all have southern come POSS merchants pull go ten more car potato

        'Southern merchants come everyday to pull away more than a dozen cars if potatoes.'

Based on corpus observations, *zǒu* 走 'go' is found to be immediately followed by the main predicate *tuī* 推 'push' and *lā* 拉 'pull.' Following our analysis, [*tuī*/*lā* 推/拉 'push/pull' + *zǒu* 走 'go'] is acceptable because *zǒu* 走 'go' lexically specifies the movement of an entity away from its original location, where the sense of 'away' is already implied verb-internally. However, as for the Deictic *qù* 去 'go,' as mentioned before, is only a speaker-oriented deictic marker; therefore, it requires the presence of a path-delimiter as its Endpoint to complete the whole motion event since it is ungrammatical when no goal or path-delimiter is present.

5.5 Metaphorical Extensions of *Tuī* and *Lā*

As mentioned above, Mandarin *Push/Pull* verbs *tuī* 推 and *lā* 拉, as verbs pertaining to caused-motion, may posit multiplex metaphorical extensions other from the prototypical caused-motion senses of *to push* or *to pull*. As observed above, *tuī* 推 'push' may bear at least six other metaphorical extensions such as *to recommend/extend, to promote/advertise*, *to*

evade/shrink, *to trim/shave*, *to postpone/delay*, and *to reject/refuse*, while *lā* 拉 'pull' may bear at least three other senses such as *to prolong/lengthen, to stretch-out*, and *to gain/attract/persuade*. From here on, it is vividly observed that *tuī* 推 'push' and *lā* 拉 'pull' involve various semantic domains from prototypical spatial domains to physical, temporal and abstract domains that are done both spatially and non-spatially.

In what follows, based on Frame Semantics (Fillmore and Atkins 1992) and Conceptual Metaphor Theory (Lakoff and Johnson 1980, Langacker 1987), we aim to investigate the extended metaphorical senses of *tuī* 推 'push' and *lā* 拉 'pull' [29] to explain the interrelationship among such diverse usages and how these metaphorical extensions derived from the prototypical caused-motion meaning of *to push* and *to pull*.

5.5.1 Metaphorical Extensions of *Tuī*

As mentioned above, according to the definition from FrameNet, the core sense of *tuī* 推 'push' involves an Agent causing a Theme (Moved Entity) to undergo translational motion whereby an Agent exerts force on someone or something (Moved Entity) in order to move them away from oneself (Agent). In this section, we aim to explain the metaphorical extensions of *tuī* 推 'push' in terms of semantic domains where these extensions are characterized in relation to the core sense and by following the idea of Conceptual Metaphor Theory (Lakoff and Johnson 1980, Langacker 1987) that abstract concepts are understood and expressed metaphorically in spatial terms.

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[29] It is crucial to note that we conceptualize both spatial and non-spatial senses of *tuī* 推 'push' and *lā* 拉 'pull' under one single frame-specific domain with multiple extended senses that share frame-related elements.

5.5.1.1 Extension 1, 2 and 3: *to trim/shave, to recommend/extend, to promote/advertise*

5.5.1.1.1 *Tuī* is a NON-SPATIAL EVENT of TRIMING/SHAVING

Mandarin *tuī* 推 'push' has undergone a process of metaphorical transfer from the prototypical spatial *pushing* to physically *trimming or shaving* a physical body part under a non-spatial event with the following notion from FrameNet[30]: An Agent causes a Moved Entity to move away from a source of location by removing something, particularly hairy body parts, from a surface using an Instrument that is underspecified as the example below shows along with a conceptual schema illustrating the process.

(49) Extension 1: to trim or shave hairy parts of body or surface

什麼年代了居然還有人規定要去推頭髮！

shéme nián-dài le jūrán hái yǒu rén guīding yào qù tuī tóufǎ

what   decade ASP surprisingly still have people require to go push hair

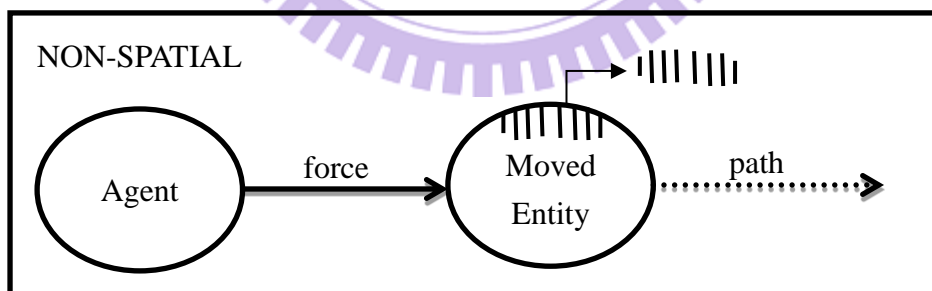'What decade is today that still have some people requiring to go to trim their hair.'

Figure 23: The metaphorical extension of 'to trim/shave'

From (49), it is observed that the non-spatial event of *to trim/shave* usually involves a physical activity done by an animate human entity, who exerts some physical force upon the surface of a human being or animal body part, particularly hair, fur and mustache, usually by

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[30] The definition of "*to shave*" is taken from FrameNet under the semantic frame name: Removing.

means of a physical tool (Instrument). Moreover, with figure 23, it illustrates that an Agent (could be a barber or the Agent self) has caused the rough surfaces to *move away* (推掉) from the Agent with an underspecified Instrument (a razor).

5.5.1.1.2 *Tuī* is a NON-SPATIAL EVENT of RECOMMENDING/PROMOTING

Mandarin *tuī* 推 'push' has switched from the prototypical physical *pushing* to one of *recommending* a human entity or *promoting* a concrete object or an activity in a non-spatial event. Under such non-spatial event an Agent would express through language and thought to elect an outstanding entity to take on a specific social role or affects the position of an item on some scale. That is to say, it involves the price value of an item being increased or decreased by the Agent in order to attract the attention of consumers as the following examples demonstrate along with a conceptual schema illustrating the process.

(50) Extension 2: to recommend someone or something to the outside world

兩院主動推代表。

liǎng yuàn zhǔdòng tuī dàibiǎo

two   court   initiate push represent

'The two courts are initiatively recommending representatives.'

(51) Extension 3: to promote or advertise a product to the outside world

他們也在本地推 ichon-Kun 周邊產品，

tā-mén yězài běndì tuī ichon-Kun zhōu-biān shāngpǐn

they   also   at   local push ichon-Kun surrounding product

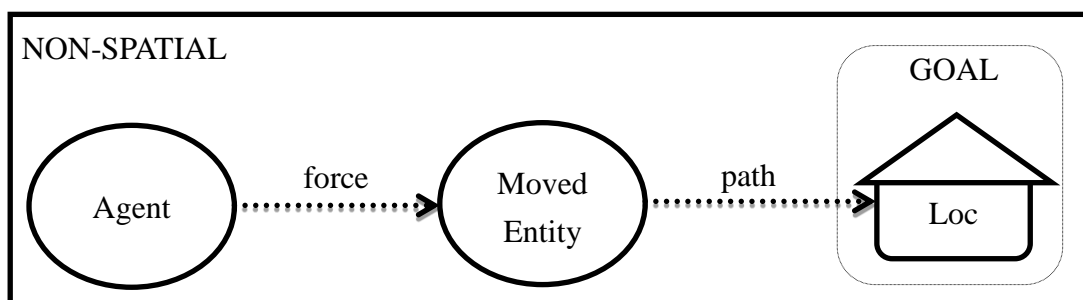'They are also promoting ichon-Kun surrounding products at local places.'

Figure 24: The metaphorical extension of 'to recommend/promote'

Figure 24 involves an Agent being a speaker, who recommends a Moved Entity by emphasizing the characteristics of the entity or moving an item, through some kind of promotion or advertisement and as a result, the entity would therefore physically *moves out of a container* (推出) to be known by everyone.

With the conceptual schemas above (figure 23 and 24), we observe that *tuī* 推 'push' has undergone a metaphorical transfer from prototypical physical-volitional spatial domain to non-spatial domains as illustrated below:
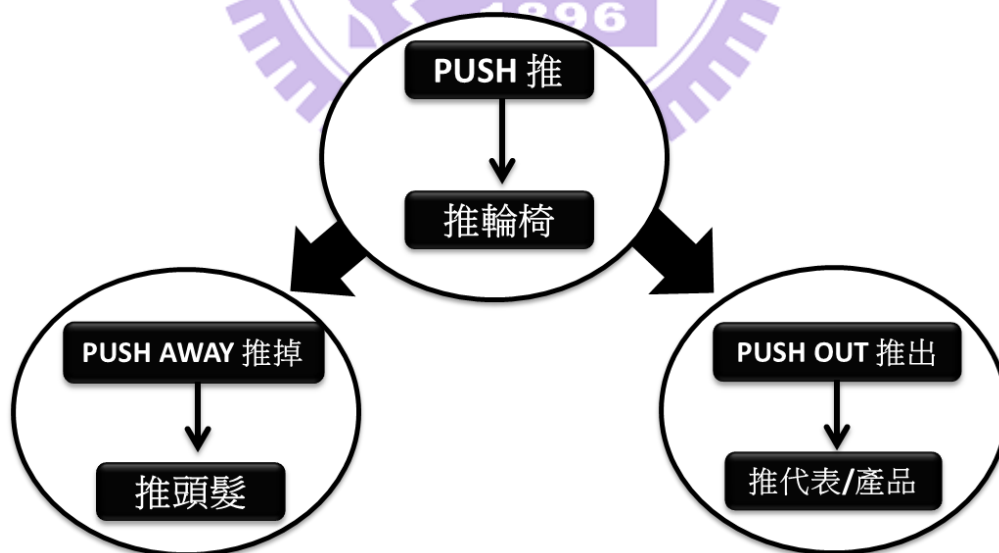

Figure 25: Metaphorical Transfer from spatial domain to non-spatial domain

5.5.1.2 Extension 4: *Tuī* is a TEMPORAL EVENT of POSTPONING/DELAYING

Mandarin *tuī* 推 'push' has gone through a metaphorical transfer from prototypical spatial *pushing* to *postponing* a temporal event. According to FrameNet[31], the definition of "*to postpone*" involves an Agent or Cause that changes the timing of an Event. The Event would then take place at the Destination_time which can be done by certain Means, in a certain Manner or to a certain Degree. Such causal event is usually conceptualized under a temporal domain where an Agent temporarily *pushing off* (推延) an event (lengthened or delayed) to a time frame or temporal goal as illustrated in the example below along with a conceptual schema illustrating the process.

(52) Extension 4: to postpone a temporal event that was already sent previously

占旭剛再度推婚期。

zhànxùgāng zài-dù tuī hūn-qí

zhànxùgāng again push wedding date

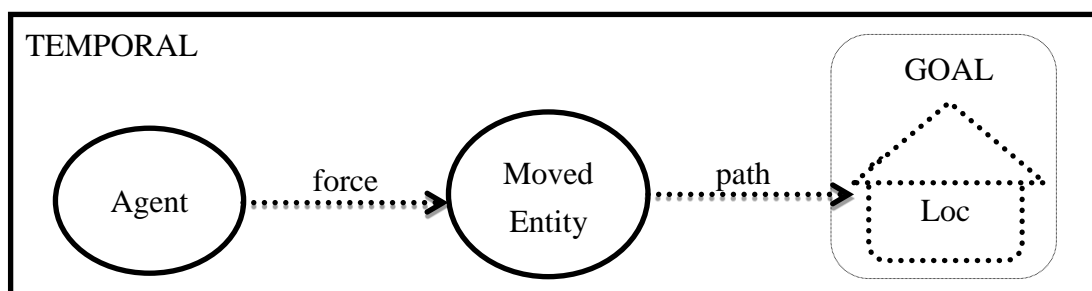'Zhang Xu-Gang is postponing the wedding date again.'

Figure 26: The metaphorical extension of 'to postpone'

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[31] The definition of "*to postpone*" is extracted from FrameNet under the semantic frame: Change_event_time.

Figure 26 involves a temporal event whereby an Agent temporarily exerts non-spatial force to cause changes on a specific-event in order to temporarily move from an initial time to a further destinational time. From here, we can examine a metaphorical transfer from a prototypical spatial-volitional domain to a temporal domain as shown in the figure below:
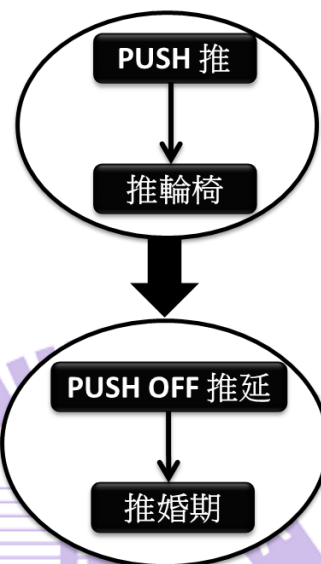

Figure 27: Temporal events of 'postponing' conceptualized as a physical object

5.5.1.3 Extension 5 & 6: *Tuī* is a NON-SPATIAL EVENT of SHRINKING /REJECTING

Mandarin *tuī* 推 'push' has undergone a metaphorical process from the prototypical spatial *pushing* to *shrinking off a responsibility or rejecting an invitation* in a non-spatial event. The extended sense of 'evading or shrinking off a responsibility' exhibits a non-physical concept in a non-spatial domain with the definition of "*to blame*" adopted from FrameNet,[32] where an Agent expresses the assignment of responsibility for a wrong-doing or rejecting an invitational request as the examples below demonstrate along with a conceptual schema illustrating the process.

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[32] The definition of "*to blame*" is adopted from FrameNet under the semantic frame name: Judgement_communication.

(53) Extension 5: to evade or shrink responsibility or obligation

雙方互**推**責任。

shuāng fang hù tuī zérèn

two   sides mutual push responsibility

'The two sides are mutually shrinking off responsibilities.'

(54) Extension 6: to reject an offer or invitation

林老師又再**推**邀請。

lín lǎo shī yòu zài tuī yāoqǐng

lin teacher again is push invitation
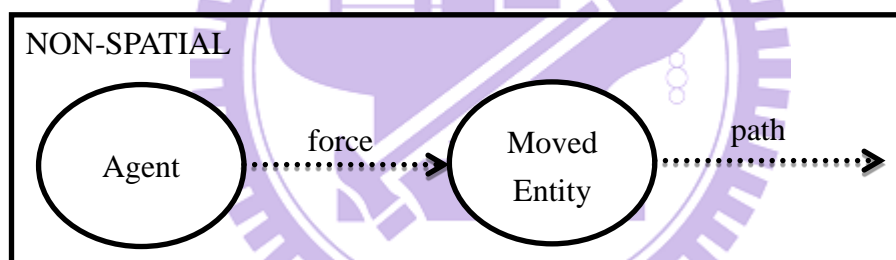
'Teacher Lin is pushing off invitations again.'

Figure 28: The metaphorical extension of 'to evade/reject'

Figure 28 involves a non-spatial event whereby an Agent exerts non-spatial force to cause the Moved Entity, usually a responsibility or unwanted invitation, to *move away* (推掉) from the Agent.

    With all the above extended meanings, we observed a metaphorical transfer from a prototypical spatial-volitional caused-motion verb, meaning *to push* to other extended non-spatial domains. Based on our categorization above, we may divide the metaphorical extensions of *tuī* 推 into three semantic categories: 1) *Push Away* (推掉): involving the extended meanings '*to trim/shave*, *to evade/shrink* and *to reject/refuse*' which signal that the

Moved Entities are being *pushed away* from the Agent; 2) *Push Out* (推出): involving the senses '*to promote/advertise*' and '*to recommend/extend*' which specify that the Moved Entities are being *pushed out* of a container to the outside; and 3) *Push Off* (推延): involving the extended meaning '*to postpone*' which deals with *pushing off* Moved Entity to a later destinaitonal time.

With the above metaphorical extensions, we can thus represent these extended senses in an extended conceptual schema with regard to the core schema of *tuī* 推 'push,' where different metaphorical extensions may profile different parts of the core schema with a gestalt effect, as illustrated below:
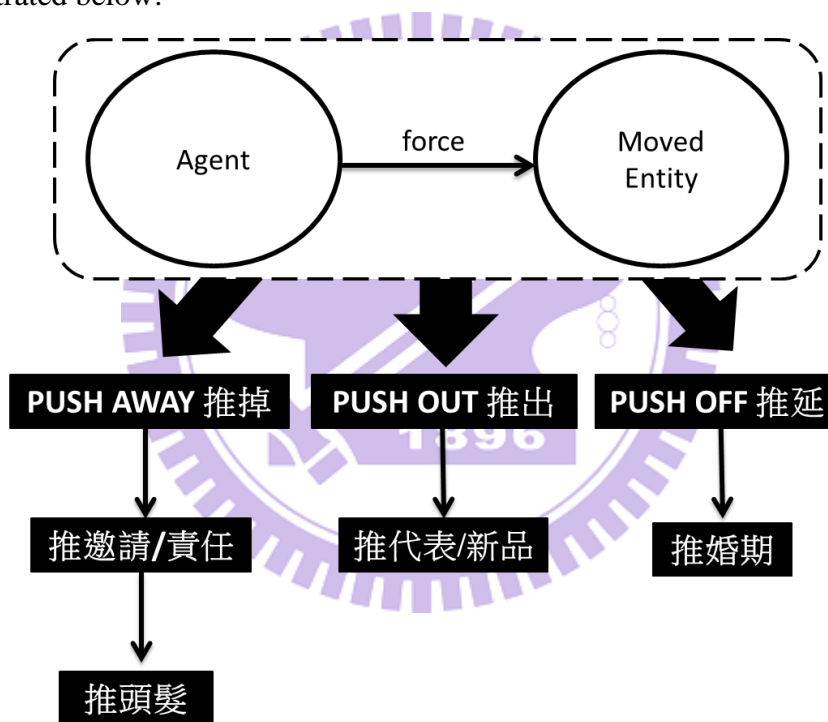

Figure 29: The Gestalt Conceptual Schema of Metaphorical Extensions of *Tuī*

5.5.2 Metaphorical Extensions of *Lā*

As mentioned above, according to the definition from FrameNet, the core sense of *lā* 拉 'pull' involves an Agent causing a Theme (Moved Entity) to undergo translational motion

whereby the Agent exerts force on someone or something (Moved Entity) in order to move them towards oneself (Agent) or away from its original source of location. In this section, like the semantic analysis of *tuī* 推 'push,' we will explain the metaphorical extensions of *lā* 拉 'pull' in terms of semantic domains where these extensions are characterized in relation to the core sense of *lā* 拉 'pull.'

5.5.2.1 Extension 1 and 2: *to stretch-out* and *to gain/attract/persuade*

5.5.2.1.1 *Lā* is a NON-SPATIAL EVENT of STRETCHING

Mandarin *lā* 拉 'pull' has undergone a metaphorical transfer from the prototypical spatial *pulling* to physically *stretching* a bodily part, particularly one's vocal cords, under a non-spatial event where an Agent physically causes the Moved Entity to move away from a source of location, that is, the original location of the vocal cords. This can be done by stretching the vocal cords as the example below shows along with a conceptual schema illustrating the process.

(55) Extension 1: to increase voice

今晚心血來潮，突然很想**拉**嗓子！

jīn wǎn xīn-xiě-lái-cháo túrán hěn xiǎng lā sǎngzi

tonight heart-blood-come-wave suddenly really want pull   throat

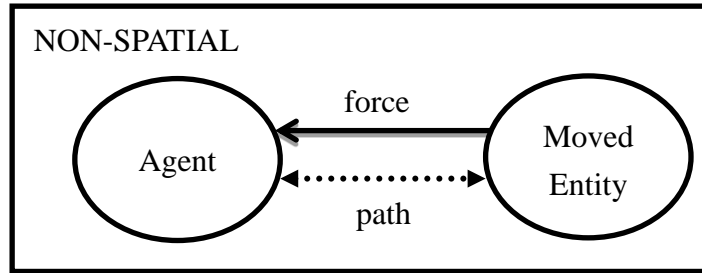'Tonight I suddenly have the feeling of increasing my voice.'

Figure 30: The metaphorical extension of 'to increase voicing'

Figure 30 involves a repetitive force interaction between the Agent (muscles) and the Moved Entity (vocal cords), where the vocal cords are being stretched-out or *pulled apart (*拉遠*)* by the muscles.

5.5.2.1.2 *Lā* is a NON-SPATIAL EVENT of PERSUADING

Lā 拉 'pull' in Mandarin, has transferred from the prototypical spatial *pushing* to *persuading/attracting* consumers to join a group or organization that undergoes a non-spatial domain. According to FrameNet, the notion of *persuading/attracting*[33] involves an Agent who draws or brings in Moved Entity(s) by offering something of interest or advantage in order to win popularity or make profit as the following example demonstrates along with a conceptual schema illustrating the process.

(56) Extension 2: to persuade/attract consumers from buying/joining an organization

業者都在動腦筋拉客人。

yèzhě dōu zài dòng nǎojīn lā kèrén

industry all　is move brain pull consumer

'All industries are thinking of ways to attract consumers.'

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[33] The definition of "*to persuade/attract*" is extracted from FrameNet under the semantic frame name: Caused_Motion.
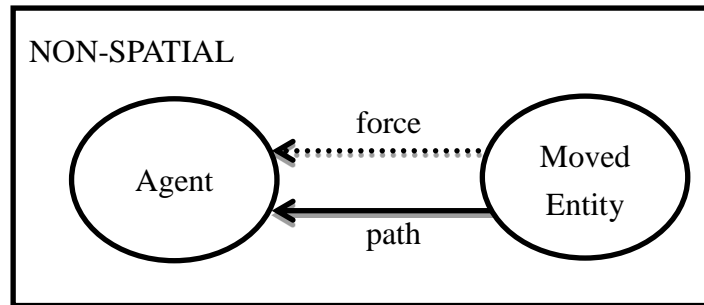
Figure 31: The metaphorical extension of 'to persuade/attract'

Figure 31 above illustrates that the Agent *persuades/attracts* the Moved Entities (consumers) in order to draw them closer (拉攏) to the Agent's organization or group.

With the conceptual schemas above (figure 30 and 31), we observe that the event of *lā* 拉 'pull' has undergone a metaphorical extension from a prototypical physical-volitional spatial domain to non-spatial domains as illustrated below:
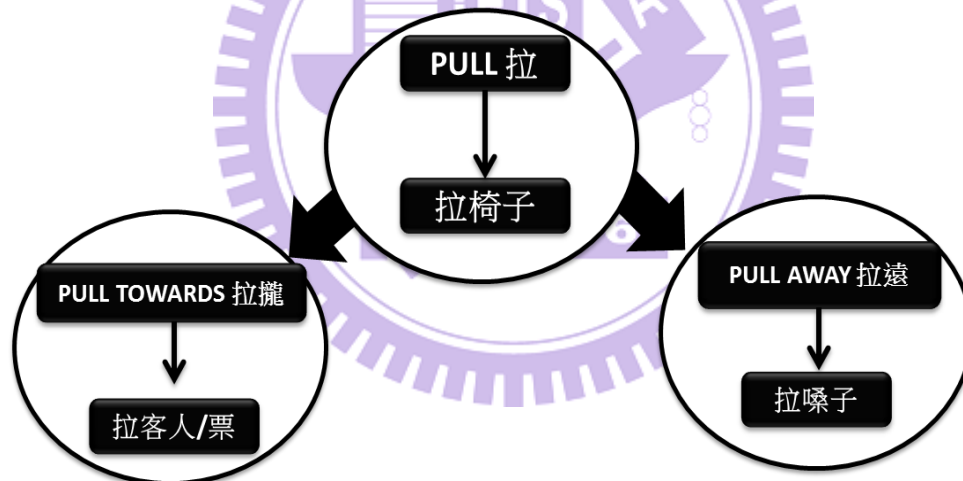

Figure 32: Metaphorical Transfer of "*to increase voice* and *to persuade/attract*"

5.5.2.2 Extension 3: *Lā* is a TEMPORAL EVENT of PROLONGING

Mandarin *lā* 拉 'pull' has transferred from the prototypical spatial *pulling* to *prolonging* or *extending* the duration of a temporal event. According to FrameNet[34], the definition of "*to*

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[34] The definition of "*to postpone*" is extracted from FrameNet under the semantic frame name: Change_event_duration.

prolong" involves an Agent or Cause that changes the duration of an Event where the Event takes place for a New_duration, rather than the Initial_duration. Such causal event is usually conceptualized under the temporal domain where an Agent temporarily pushing an event (lengthen the duration) to another temporal goal as illustrated in the example below along with a conceptual schema illustrating the process.

(57) Extension 3: to extend or delay a time that is set previously

記者又在拉時間，

jìzhě yòu zài lā shíjiān

reporter again pull time

'The reporter is prolonging time again.'
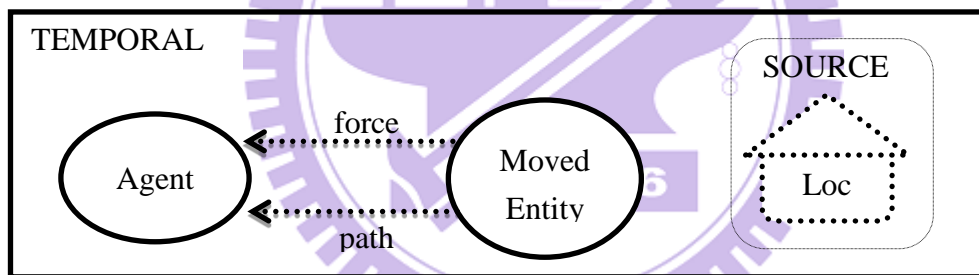

Figure 33: The metaphorical extension of 'to prolong'

Figure 33 involves an Agent temporarily prolonging a non-spatial event (拉遠) to cause a temporal change of the Moved Entity to move from an initial duration to a new duration. From here, we can examine a metaphorical transfer from a prototypical spatial-volitional domain to a temporal domain shown in the figure below:
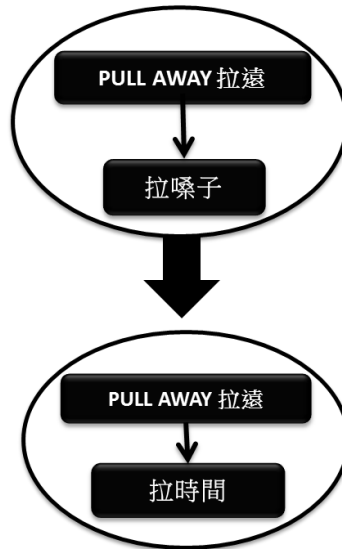
Figure 34: Temporal events of 'postponing' conceptualized as a physical object

5.5.2.3 Extension 4: *Lā* is a NON-SPATIAL EVENT of GAINING

Mandarin *lā* 拉 'pull' has been transferred from the prototypical spatial *pulling* to *gaining* from consumers to join a group or organization that undergoes a non-spatial event. According to FrameNet, the notion of *gaining*[35] involves an Agent who draws or brings in (拉攏) Moved Entity(s) by offering something of advantage in order to gain profits as the following example demonstrates along with a conceptual schema illustrating the process.

(58) Extension 4: to gain consumers from joining an organization or company

業者都在動腦筋拉客人。

yèzhě dōu zài dòng nǎojīn lā kèrén

industry all   is move brain pull consumer

'All industries are thinking of ways to attract consumers.'

---

[35] The definition of "*to gain*" is extracted from FrameNet under the semantic frame name: Change_of_quantity_of_possession.
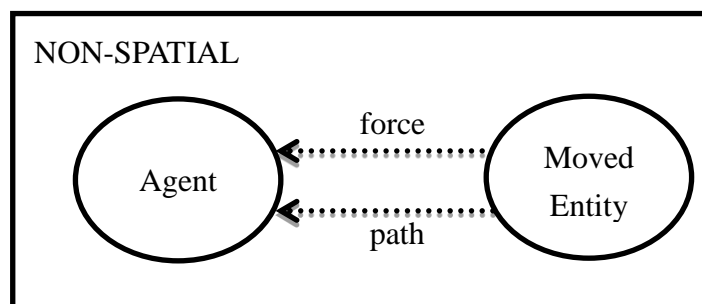
Figure 35: The metaphorical extension of 'to persuade/attract'

Such causal event in figure 35 above are usually conceptualized in the non-spatial domain, since it involves pulling the Moved Entity(s) towards the Agent which is usually an organization or group in order to gain popularity or make profit.

With all the above extended senses, we've observed a metaphorical transfer from a prototypical spatial caused-motion verb, meaning *to pull*, to other extended non-spatial domains. Based on the categorization above, we may divide the metaphorical extensions of *lā* 拉 'pull' into two semantic categories: 1) *Pull Towards* (拉攏): involving the extended meanings '*to attract/persuade*' and '*to gain*' where the extended events signal that the Moved Entity is being *pulled towards* the Agent (organization or group); and 2) *Pull Away* (拉遠): involving the sense '*to stretch-out*' and '*to prolonging*' which specifies that the Moved Entity is being *pulled apart* from its source of location to reach a new locational or temporal goal.

These metaphorical extensions can thus be conceptualized into a gestalt-type of conceptual schema with regard to the core schema of *lā* 拉 'pull' where different extended senses may profile different parts of the schema with a gestalt effect, as illustrated below:

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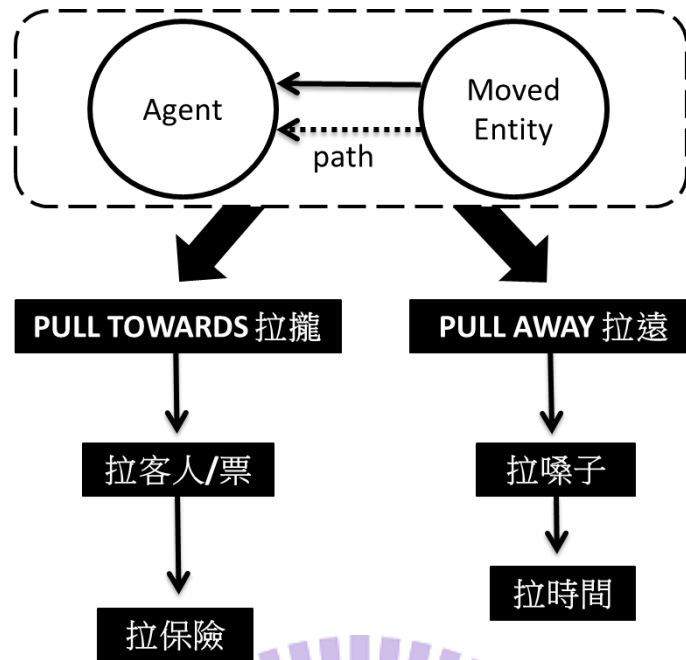
Figure 36: The Gestalt Conceptual Schema of Metaphorical Extensions of *Lā*

5.6 Frame-based Analysis of Caused-motion *Tuī* and *Lā*

Mandarin Caused-motion verbs, based on corpus observations, can be categorized into specific frames which will be analyzed into a frame-based hierarchical structure (Liu and Chiang 2008) including the following: conceptual schema, definitions, participant roles, defining patterns, and representative lemmas. Section 5.6.1 introduces the archiframe of Caused-motion. Section 5.6.2 presents frames under the Caused-motion frame in a hierarchical structure with a focus on the primary frame of *Directed Movements*. Section 5.6.3 provides an overview of the frames and the frame categorization. A Summary of this chapter will be given in Section 5.7.

5.6.1 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 role participants, 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 subframes. Conceptually, according to Liu *et al.* (2013), a motion event involves a motional contour undergoing in a certain Manner, passing through a Route, in a given Direction, towards a chosen Endpoint, and finally approaching the Destination with an optional Deictic to help locate a Speaker-oriented endpoint. Based on Liu *et al.*'s (2013) concept of motion event, this section aims to provide a conceptual schema for the concept of caused-motion event as illustrated in the figure below:
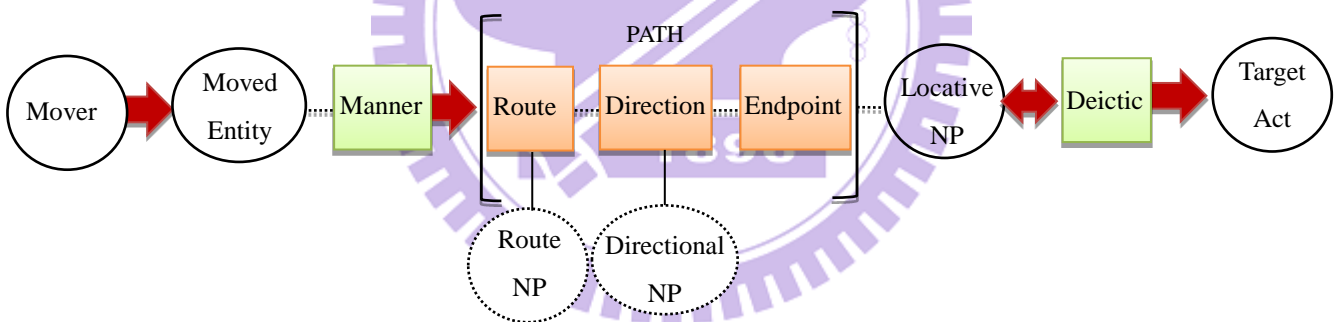
Figure 37: The Conceptual Schema of Caused-motion

In the above conceptual schema, the causing entity (Mover) volitionally causes the caused entity (Moved Entity) through a particular way of movement (Manner). With a certain manner-of-motion, the Moving Entity decides on the motional contour in which it may pass an immediate point (Route NP) towards a location (Directional NP) and reaches its final destination (Locative NP) to do a purposeful activity (Target Act). The speaker-oriented center (Deictic) is independently specified in schematizing the motion event which serves as an optional marker indicating the spatial orientation in relation to the deictic center, the Speaker.

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5.6.2 The Hierarchical Structure of the Frame

Following the assumption that the meanings of a verb is relatively defined in semantic frames of lexically-profiled semantic components (Fillmore and Atkins 1992, Goldberg 2005), Mandarin caused-motion events of *tuī* 推 'push' and *lā* 拉 'pull' may be classified and categorized under a frame-based hierarchical taxonomy establised by Liu and Chiang (2008) which involves a multi-layered structured classificational scheme consisting of four semantic frames: Archiframe > Primary frame > Basic frame > Microframe. Note that frames in the higher level are said to indicate a broader scope of certain semantic domain, while frames in the lower level inherit from upper frames to provide frame-specific descriptions. Based on the findings in previous chapters, Mandarin caused-motion verbs *tuī* 推 'push' and *lā* 拉 'pull' can be categorized into various specific frames under different layers as presented in the hierarchical structure below:
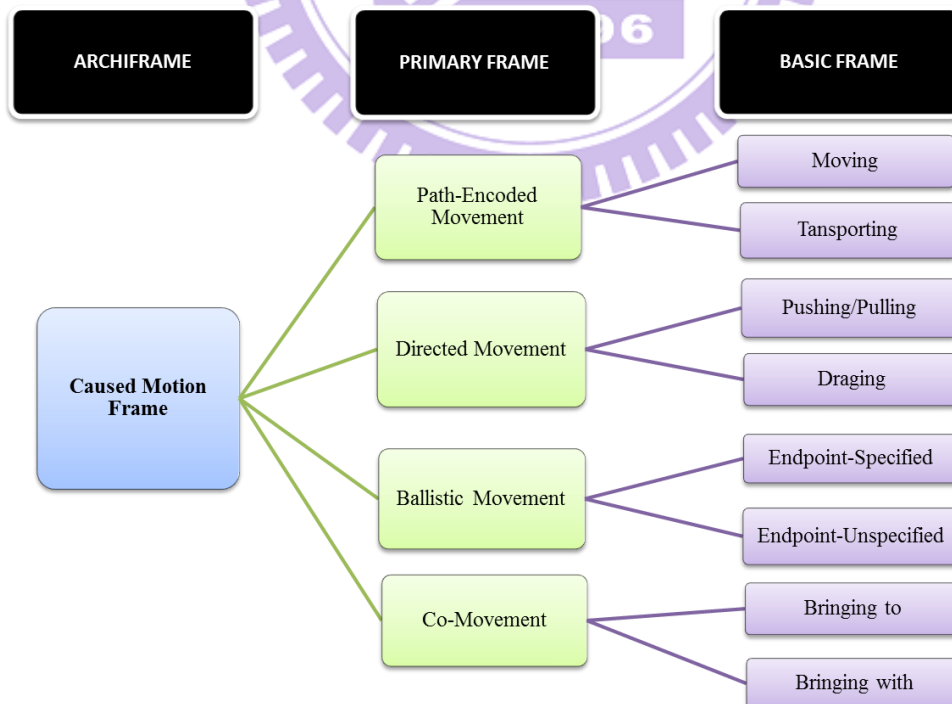

Figure 38: The Hierarchical Structure of the Frames

Based on the findings and analysis given in the previous sections, it is observed that *tuī* 推 'push' and *lā* 拉 'pull' are caused-motion verbs that only highlight on the directed movement of the Mover and the Moved entity which is much different from other Mandarin caused-motion verbs, such as the path-encoded caused-motion verbs *bān* 搬 'move,' *yùn* 運 'transport', *yí* 移 'move,' and etc; co-movement caused-motion verbs such as *dài* 帶 'bring,' *ling* 領 'lead', *xī* 攜 'carry', *dàiling* 帶領 'lead' and etc.; and ballistic caused-motion verbs tóu 投, zhí 擲, diū 丟, rēng 扔 which all equivalent to the English verb 'throw' and etc. Therefore, we propose that *tuī* 推 'push' and *lā* 拉 'pull' belong to the Primary Frame of Directed Movements. In what follows, we will first introduce the Archiframe of Caused-motion in section 5.6.2.1. Followed by section 5.6.2.2, primary frames will be displayed with a focus on the frame of Directed Movements. In section 5.6.2.3, basic frames will be presented which, based on corpus observations, may be classfied into two basic subframes: *Pushing/Pulling* frame and *Dragging* frame. Lastly, in section 5.6.3, a summary of the overall frames will be given.

5.6.2.1 Layer 1: Arciframe (Caused-motion Frame)

According to Liu and Chiang (2008), an **Archiframe (AF)** is relatively the highest frame in the hierarchical framing structure. It provides an overarching conceptual schema as the semantic prerequisite for the individual frames within the relatively large and independent domain of an event, that is, the Caused-motion event. The schematic representation can show and characterize the congnitive basis for a specific frame and the interrelations between its subframes. The information regarding the Archiframe of Caused-motion is given 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) to do a purposeful activity (Target Act) with an optional marking of speaker-oriented center (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', *xī* 攜 'carry', *dàiling* 帶領 'lead', *ling* 領 'lead', *tóu* 投 'throw', *zhí* 擲 'throw', *diū* 丟 'throw', *rēng* 扔 'throw', *chōng* 沖 'flush', *chuī* 吹 'blow', *shè* 射 'shoot', *shuāi* 摔 'fall', *pēn* 噴 'spray', *yā* 壓 'press', *pāi* 拍 'tap'

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

Conceptual Schema:
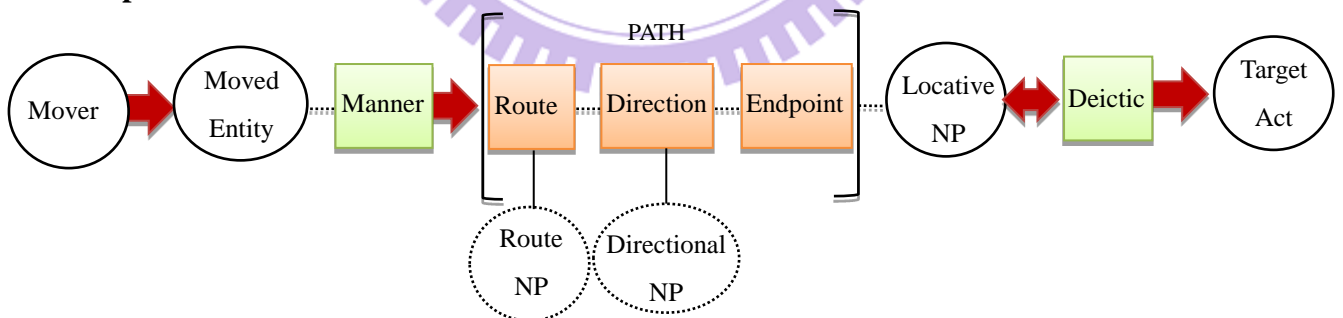
Defining Patterns:

a. **Mover[NP]<*<Moved_Entity[NP]<{Coverb}+Location [NP]**

[周俊三/Mover]投[球/Moved_Entity][進/Direction+Endpoint][籃/Location]

zhōu jùn sān   tóu   qiú   jìn   lán

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Zhou, Jun-san throw   ball   enter   basket

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

b. **Mover[NP]<*<Moved_Entity[NP]<Manner<{Coverb}+Location[NP]<Deictic[VP]**

[我/Mover]帶[學生/Moved_Entity][跑/Manner][到/Endpoint][校外/Location][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]<Location[NP]**

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

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]<{Coverb}+Location[NP]<Deictic[VP]**

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

mā mā	*tuī*	*jùn-hàn*	*dào*	*xuéxiào*	*qù*
Mother	push	Jun-han	arrive	school	go

'Mother pushes Jun-han to the school.'

5.6.2.2 Layer 2: Primary Frame

As defined by Liu and Chiang (2008), **Primary frames (PFs)** are subframes under the Archiframe with a given portion of the conceptual schema profiled or highlighted. Each

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primary frame is distinguised from the other by a set of unique core frame elements (FEs) and syntactic representations. Based on the findings in previous chapters, four primary frames are presented: **Path-encoded movement**, **Directed movement**, **Ballistic movement**, and **Co-movement**. The path-encoded movement frame focuses on the saliency of the Path of motion contour during the movement. The directed movement frame, where *tuī* 推 'push' and *lā* 拉 'pull' belong, emphasize on the directions of force-interaction movements. The ballistic movement frame stresses on the ballistic motion contour of the moving entity towards an endpoint. The last is co-movement which specifies the co-motion of the Mover and the Moved entity during the entire process of movement. The four primary frames under the Archiframe of Caused-motion may be summerized in the hierarchical structure below:
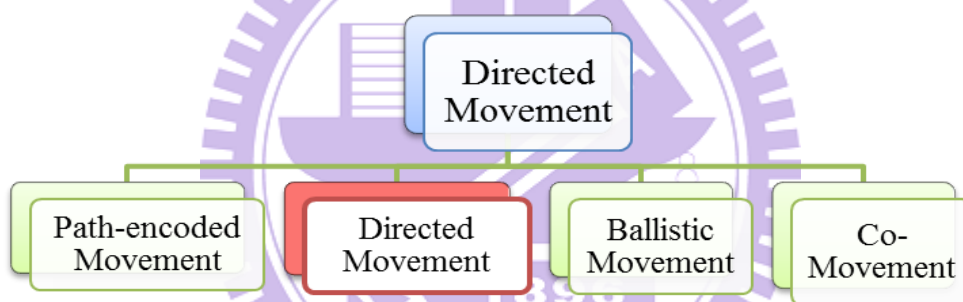
Figure 39: Primary Frames under Caused-motion Archiframe

With the above findings and analysis, in what follows, we will focus on the discussion of Directed Movement Frame only, since the other three primary frames Path-encoded Movement, Ballistic Movement[36], and Co-Movement[37] are not the main concern of this study, they will not be further discussed.

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[36] Please refer to Lee (2014) for detailed analysis on Ballistic Movement Frame.
[37] Please refer to Hu (2014) for detailed analysis on Co-Movement Frame.

5.6.2.2.1 Layer 2: Directed Movement Primary Frame

Definition: It is a caused-motion event in which the Agent (Mover) causes the Theme (Moved Entity) to move towards a spatial orientation (Directional NP) to reach a final destination (Locative NP) with an optional marking of speaker-oriented center (Deictic).

Representative Lemmas: *tuī* 推 'push', *lā* 拉 'pull', *qiān* 牽 'hold', *tuō* 拖 'drag'

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

Conceptual Schema:

Defining Patterns:

a.   Mover[NP]<*<Moved_Entity[NP]<{Coverb}+Location[NP]

[我/Agent]推/拉[一輛腳踏車/Moved Entity]到[屋裡/Location]。

  wǒ   tuī/lā   yí-liàng jiǎo-tà-chē   dào wūlǐ

  I   push/pull   one bicycle   arrive home-in

  'I angrily pushed/pulled a bicycle into the house.'

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

[牠/Mover]拖著[鍊子/Moved Entity][一直跑/Target_Act]，

  Tā   tuōzhe   liànzi   yīzhí pǎo

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he   drag ASP   chain   continue-run

'He dragged the chain while running.'

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

[他/Mover]在街上牽了[四條大型狗/Moved Entity]！

tā zài jiē shàng qiānle sìtiáo dà-xíng-gǒu

he is street-on pull ASP four big-size-dog

'On the streets there were four big-sized dogs led by him!'

5.6.2.3 Layer 3: Basic Frame

According to Liu and Chiang (2008:10), basic frames are sets of semantically more restricted frames under each primary frame. 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 more specific, basic frames are defined by a set of highlighted frame elements inheriting from primary frames as well as distinctic syntactic behaviours. That is to say, different basic frames highlights different frame elements with distinctive syntactic representations and the basic frames inherit the defining patterns from the primary frame but develop some unique syntactic patterns of their own which thus distinguishes them from one another. In what follows, two basic frames: *Pushing/Pulling* **Frame** and *Dragging* **Frame** will be introduced.

5.6.2.3.1 Layer 3: Pushing/Pulling Basic Frame

Definition: It is a caused-motion event in which the Agent (Mover) causes the Theme (Moved Entity) to move towards or away from a spatial orientation (Directional NP) to reach a final destination (Locative NP) with an optional marking of speaker-oriented center (Deictic).

Representative Lemmas: *tuī* 推 'push', *lā* 拉 'pull'

Frame Elements: Mover, Moved Entity, Locative NP, Deictic
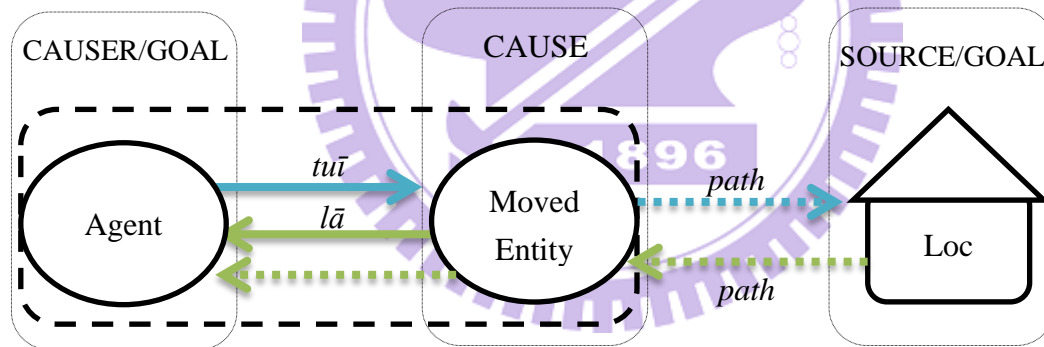
Conceptual Schema:

Defining Patterns:

a. Mover[NP]<*<Moved_Entity[NP]<{Coverb}+Location[NP]

[我/Agent]推/拉[一輛腳踏車/Moved Entity]到[屋裡/Location]。

    wǒ   tuī/lā   yí-liàng jiǎo-tà-chē   dào wūlǐ

    I   push/pull   one bicycle   arrive home-in

    'I angrily pushed/pulled a bicycle into the house.'

b. Mover[NP]<*<Moved_Entity[NP]<{Coverb}+Location[NP]<Target_Act[VP]

[他/Agent]推/拉[母親/Moved Entity]上[台/Location][表演/Target_Act] ，

tā	*tuī/lā*	*mǔqīn*	*shàng*	*tái*	*biǎoyǎn*
he	push/pull	mother	up	stage	perform

'He pulled mother up to the stage to perform.'

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

[他/Agent]推/拉[我/Moved Entity][去/Deictic][他家裡/Location]。

tā	*tuī/lā*	*wǒ*	*qù*	*tā jiālǐ*
he	push/pull	me	go	his house

'He pushed/pulled me to go to his house.'

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

[老師與助教/Agent]推/拉著[小朋友們/Moved Entity] [圍成一個小圓/Target_Act]，

lǎo-shī yǔ zhù-lǐ	*tuī/lā zhe*	*xiǎo-péng-yǒu-men*	*wéi chéng yí-ge xiǎo yuán*
teacher and assistant	push/pull ASP	kids PL	round-make one small circle

'The teacher and the assistant are pulling the little kids to make a little circle.'

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

[尼克/Agent]伸手去推/拉[秀兒/Moved Entity]。

| *níkè*	*shēn-shǒu qù tuī/lā*	*xiùer*
Nick	out-hand go-push/pull	Xiuer

'Nick pushed out his hands to go and pull Xiuer.'

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5.6.2.3.2 Layer 3: Dragging Basic Frame

Definition: It is a caused-motion event in which the Agent (Mover) causes the Theme (Moved Entity) to move along a surface towards a spatial orientation (Directional NP) to reach a final destination (Locative NP).

Representative Lemmas: *qiān* 牽 'hold', *tuō* 拖 'drag'

Frame Elements: Mover, Moved Entity, Locative NP

Conceptual Schema:
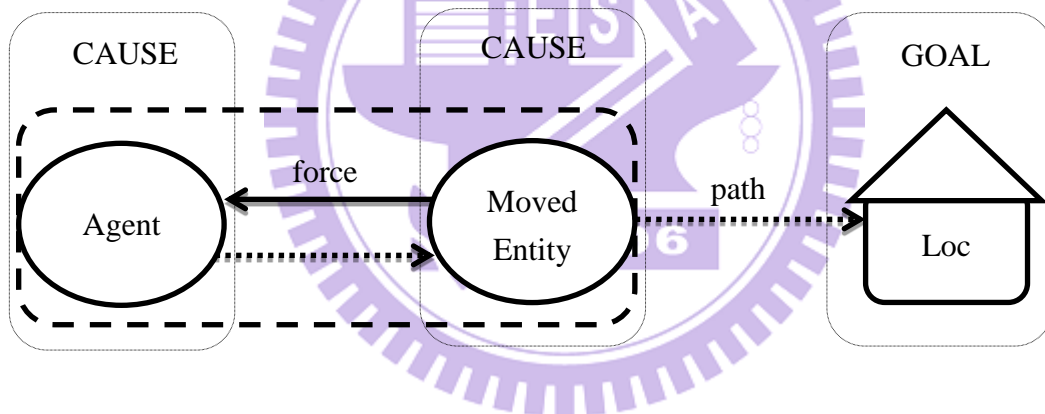
Defining Patterns:

a. Mover[NP]<*<Moved_Entity[NP]<Target_Act[VP]

[牠/Mover]拖著[鍊子/Moved Entity][一直跑/Target_Act]，

    tā   tuō zhe   liànzi   yīzhí pǎo

    he   drag ASP   chain   continue-run

  'He dragged the chain while running.'

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

[他/Mover]在街上牽了[四條大型狗/Moved Entity]！

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tā zài jiē shàng qiānle sìtiáo dà-xíng-gǒu

he is street-on pull ASP four big-size-dog

'On the streets there were four big-sized dogs led by him!'

5.6.3 Overview of the Frames

This section summarizes the overall frames introduced in the previous sections that are presented in the table below:

Frame	Frame Elements	Representative Lemmas	Defining Patterns
Archiframe: *Caused Motion*	Mover, Moved Entity, Manner, Route NP, Directional NP, Location NP, Deictic	*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', *chōng* 沖 'flush', *chuī* 吹 'blow', *shè* 射 'shoot', shuāi 摔 'fall', *pēn* 噴 'spray', *yā* 壓 'press', *pāi* 拍 'tap'	a. **Mover[NP]<*<Moved_Entity[NP]<{Coverb}+Location[NP]** [周俊三/Mover]投[球/Moved_Entity][進/Direction+Endpoint][籃/Location] b. **Mover[NP]<*<Moved_Entity[NP]<Manner<{Coverb}+Location[NP]<Deictic[VP]** [我/Mover]帶[學生/Moved_Entity][跑/Manner][到/Endpoint][校外/Location[去/Deictic] c. **Mover[NP]<*<Moved_Entity[NP]<Deictic[VP]<Location[NP]** [他/Mover]拉[我/Moved_Entity][去/Deictic][他家/Location] d. **Mover[NP]<*<Moved_Entity[NP]<{Path}+Location[NP]<Deictic[VP]** [媽媽/Mover]推[俊和/Moved_Entity][到/Endpoint][學校/Location][去/Deictic]
Primary Frame: *Directed Movement*	Mover, Moved Entity, Directional NP, Location NP, Deictic	*tuī* 推 'push', *lā* 拉 'pull', *qiān* 牽 'hold', *tuō* 拖 'drag'	a. **Mover[NP]<*<Moved_Entity[NP]<{Coverb}+Location[NP]** [我/Agent]推/拉[一輛腳踏車/Moved Entity]到[屋裡/Location]。 b. **Mover [NP]<*<Moved_Entity[NP]<Target_Act[VP]** [牠/Mover]拖著[錬子/Moved Entity][一直跑/Target_Act]，

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			c. Mover [NP]< * <Moved_Entity[NP] [他/Mover]在街上牽了[四條大型狗/Moved Entity]！
Basic Frame 1: *Pushing/Pulling*	Mover, Moved Entity, Locative NP, Deictic	*tuī* 推 'push', *lā* 拉 'pull'	**a. Mover[NP]<*<Moved_Entity[NP]<{Coverb}+Locative[NP]** [我/Agent]推/拉[一輛腳踏車/Moved Entity]到[屋裡/Location]。 **b. Mover[NP]<*<Moved_Entity[NP]<{Coverb}+Location[NP]<Target_Act[VP]** [他/Agent]推/拉[母親/Moved Entity]上[台/Location][表演/Target_Act]， **c. Mover[NP]<*<Moved_Entity[NP]<Deictic[VP]<Location[NP]** [他/Agent]推/拉[我/Moved Entity][去/Deictic] [他家裡/Location]。 **d. Mover[NP]<*<Moved_Entity[NP]<Target_Act[VP]** [老師與助教/Agent]推/拉著[小朋友們/Moved Entity] [圍成一個小圓/Target_Act]， **e. Mover[NP]<*<Moved_Entity[NP]** [尼克/Agent]伸手去推/拉[秀兒/Moved Entity]。
Basic Frame 2: *Dragging*	Mover, Moved Entity, Locative NP	*qiān* 牽 'hold', *tuō* 拖 'drag'	**a. Mover [NP]< * <Moved_Entity[NP]<Target_Act [VP]** [牠/Mover]拖著[鍊子/Moved Entity][一直跑/Target_Act]， **b. Mover [NP]< * <Moved_Entity[NP]** [他/Mover]在街上牽了[四條大型狗/Moved Entity]！

Table 16: Summary of the Overall Frames

5.7 Summary

Chapter 5 has illustrated that *tuī* 推 'push' and *lā* 拉 'pull' bear several metaphorical extensions where the meaning of *to push* and *to pull* match the prototypial usages, while the other usages are extended senses that are trasferred via metaphorical or metonymical processes. With the analysis and discussion above, this chapter has provided a frame-based taxonomy (Liu and Chiang (2008)) to categorize Mandarin Caused-motion verbs into multi-layered frames with frame-specific semantic components. Caused-motion verbs such as *tuī* 推 'push,' *lā* 拉 'pull,' *qiān* 牽 'hold,' and *tuō* 拖 'drag' are listed under the archiframe of Caused-motion with a particular focus on verbs under the primary frame of Directed Movements. Based on corpus observations, these four verbs may then be categorized into two basic frames, namely: *Pushing/Pulling* frame and *Dragging* frame. By adopting the classificational scheme proposed by Liu and Chiang (2008), this chapter has presented a multi-layered hierarchical structure of Caused-motion verbs which are inherited from the primary frame of Directed Movements.

Chapter 6

Conclusion

6.1 Conclusion

This thesis has probed into the investigation of three issues: 1) to distinguish and explain the distinct semantic and syntactic differences between a prototypical caused-motion verb with those of directed motion verbs *tuī* 推 'push' and *lā* 拉 'pull;' 2) to discuss the collocational constraints of *tuī* 推 'push' and *lā* 拉 'pull' with or without aspectual marker *zhe* 著 and the deictic relation between the Agent and the Moved Entity; and 3) to explain the multiplex metaphorical extensions of *tuī* 推 'push' and *lā* 拉 'pull.'

By adopting Li's (2007) analysis of typical caused-motion concept, we've distinguished and explained the distinct semantic and syntactic differences between a prototypical caused-motion verb such as *bān* 搬/*yí* 移 'move' with those of the causal events of *tuī* 推 'push' and *lā* 拉 'pull,' where the former profiles the motion event focusing on the physical translocation of the Moved Entity, while the latter profiles the causing event stressing on the force interaction between the Agent and the Moved Entity.

By incorporating Li's (2007) analysis of typical caused-motion concept with Talmy's (2000) analysis of co-event conflation, we've presented the distinction of *tuī* 推 'push' and *lā* 拉 'pull' with or without the co-occurrence of aspectual marker *zhe* 著 by explaining that *tuī* 推 'push' and *lā* 拉 'pull' without aspectual markers typically profiles more on the causing event. However, when the causing event is just demonstrating a kind of Manner, based on Talmy (2000) and Yip & Rammington (2004), we can thus view [*tuī/lā+zhe*] as demonstrating a kind of motion-with-manner which implicates that the Agent moves along with the Moved

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Entity.

Under a corpus-based approach, we've found that *tuī* 推 'push' and *lā* 拉 'pull' not only profiles a typical caused-motion event, but they also posit intimate deictic relations between the Agent and the Moved Entity. Basically, when *tuī* 推 'push' and *lā* 拉 'pull' co-occur with *lái* 來 'come'and *qù* 去 'go,' they ususally appear in the pattern of [V+NP+Deictic]. However, under circumstances of [V+Deictic] only *lái* 來 'come' may be grammatical, since it basically implicates movement towards the speaker, where the SPEAKER takes over the position of the role of GOAL acting as a path-delimiting Endpoint. Whereas, *qù* 去 'go' only implicates movement away from speaker, but, the Goal is unspecified; therefore, having no path-delimiter. If *qù* 去 'go' is to be applied under the pattern of [V+Deictic], there must be a clear and specific destinational goal, thus, forming the pattern of [V+Deictic+GOAL], where adding a Goal is better, since it now has a path-delimiting Endpoint for reference.

In order to explain the multiplex metaphorical extensions under such diverse usages of *tuī* 推 'push' and *lā* 拉 'pull,' we've incorporated Frame Semantics (Fillmore and Atkins 1992), Prototype Theory (Rosch 1973) and Conceptual Metaphor Theory (Lakoff and Johnson 1980, Langacker 1987), to examine the semantic-to-syntactic correlations between the various senses of *tuī* 推 'push' and *lā* 拉 'pull.' Moreover, *tuī* 推 'push' and *lā* 拉 'pull' are further analyzed with one single core meaning that maps onto multiple sense domains that are yet conceptualized as related cognitive-frame elements. In our analysis of metaphorical extensions, *tuī* 推 'push' is being divided into three semantic categories: *tuī-diào* 推掉 'push away', *tuī-chū* 推出 'push out,' and *tuī-yán* 推延 'push off' and *lā* 拉 'pull' into two semantic categories: *lā-lǒng* 拉攏 'pull towards' and *lā-kāi* 拉開 'pull away from source.' With the above analysis, the exploration of cognitive-semantic motivations of the multiplex metaphorical extensions of *tuī* 推 'push' and *lā* 拉 'pull' and the examination the semantic-to-syntactic correlations between the various extended senses of *tuī* 推 'push' and

lā 拉 'pull' has been presented.

On the basis of frame-based verbal semantic approach, this paper has presented a conceptual schema to depict the interrelationship of the multiple senses of *tuī* 推 'push' and *lā* 拉 'pull' that are constructed under one single verb sense. Moreover, this thesis has provided a systematic and principled analysis of conceptualizing these multiplex metaphorical extensions with related cognitive-frame elements.

In light of a cognitive-semantic approach of lexical semantics, this study has illustrated a systematic and unified framework in analyzing and representing verbal semantics and further representing a clear case study that shows different languages have different manipulations of lexical senses; therefore, reflecting the multiple senses of lexical extension.

6.2 Future Research

Although this study strives to take all the perspectives into consideration, there are still some potential issues worth exploring in the future for theoretical implications. Firstly, this thesis have tackled the issues of the contrastive caused-motion pairs of *tuī* 推 'push' and *lā* 拉 'pull' which usually involve the opposite direction of force manipulation; however, what about other caused-motion verbs such as the synonym sets of *tuō* 拖, *qiān* 牽 and *chě* 扯 which corresponds to the English verb *pull*. What would be the semantic and syntactic distinctions among these three caused-motion synonymous verbs? Secondly, based on our analysis of metaphorical extensions, are we able to apply this same method in dealing with other metaphorical extensions of Mandarin caused-motion verbs? Lastly, what's the semantic and syntactic distinctions between the contrastive pairs of *tuī* 推 'push' and *lā* 拉 'pull' with other Mandarin caused-motion verbs such as *jǔ* 舉 'lift' and *tái* 抬 'lift,' which verb-internally, implicates an upward directional movement.

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Website Resources

Academic Sinica Balanced Corpus of Modern Chinese.

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

Chinese Word Sketch

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

Chinese Wordnet

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

FrameNet

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

Mandarin Verbnet

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