Sample chapter: Chapter 1 + References

Chapter 1 Introduction

Movement through space is one of the most basic human activities, but the many languages of the world do not express motion events in the same way. Hence, studies investigating the linguistic expressions of motion events can contribute to a better understanding of how form and meaning are related, or of how language and cognition are related. This book explores the encoding of motion events in Modern Mandarin Chinese (also *pŭtōnghuà* 'common language', hereafter "Chinese"), with a particular focus on the distributions of verbal morphemes that lexicalize motion information.

1.1 The notion of motion event in this study

In this study, a motion event refers to an event in which an object moves and changes its location with respect to another object. As illustrated in (1), the cat moved with respect to the kitchen, changing its location from the outside of the kitchen to the inside.

(1) The cat ran into the kitchen.

Such an event is termed as a "translational motion event" by Talmy (2000: 35, cf. Bohnemeyer et al. 2007). Talmy (2000: 25) identifies four "internal" components of a motion event:

(2) Figure: the moving objectGround: the reference object with respect to which the figure movesMotion: the presence of motionPath: the course/route along which the figure moves with respect to the ground

For instance, (1), repeated in (3), describes an event in which the "figure" (the cat) carries out its "motion" (ran) along a "path" (into) with respect to the "ground" (the kitchen).

(3) The cat	ran	into	the kitchen.
Figure	Motion	Path	Ground

In addition to the internal components, a motion event can also have an "external" coevent (Talmy 2000: 26). One important and widely discussed co-event is the manner of motion, that is, how a figure moves. For instance, the verb *ran* in (1) specifies that the motion was carried out in a manner of running.

According to Talmy (2000: 27-28), translational motion events are classified into three types depending on the agentivity of the figure. The first type is the agentive motion, in which the movement of a figure is caused by some explicit external cause and the figure has no control over its motion, like *the keg* in (4), which was caused to move by I.

(4) I slid the keg into the storeroom. (Talmy 2000:28, (5f))

The second type is the nonagentive motion, in which the motion of a figure occurs without an obvious cause, and the figure has no control over its motion, such as *the* rock in (5).

(5) The rock slid down the hill. (Talmy 2000: 28, (5c))

The third type is the self-agentive motion, in which a figure has control over its motion. (6) describes such an event.

(6) I ran down the stairs. (Talmy 2000: 28, 5(h))

This study focuses mainly on motion expressions that describe self-agentive motion and nonagentive motion. Agentive motion will only be mentioned when necessary because it is structurally different from the other two types in both English and Chinese. For instance, in expressions describing agentive motion, the figure is usually expressed as the object, like *the keg* in (4), whereas the figure in expressions of self-agentive and nonagentive motion is usually expressed as the subject, like *the rock* in (5) and *I* in (6).

Note that besides translational motion events, Talmy also treats a situation in which an object is located with respect to another object as a type of motion, as in *The pencil lay on the table* (Talmy 2000: 26, (26)). As such motion does not involve movement in space, it will not be discussed in-depth in this study. Translational motion events are also distinguished from "self-contained motion events" such as rotation, oscillation, dilation, and wiggle in that the former involve the motion of the entire figure from one point to another in space, whereas in the latter, the figure remains in its basic location in space (Talmy 2000: 35-36). Such motion is not treated as a motion event in this study either.

1.2 Research questions and major proposals

Ever since Talmy's (1975, 1985, 2000) pioneering cross-linguistic study of the relationship between meaning (semantics) and linguistic representation (syntax, or surface expression), motion verbs and the motion constructions have intrigued a substantial number of studies in various languages. Of these studies, the question that has received the most amount of attention is probably whether the path (and ground) information of a motion event is characteristically encoded in the main verb or in the satellite (nonverbal elements such as particles or verb affixes). Consequently, languages have been classified into three major categories, namely, verb-framed, satellite-framed, and equipollently-framed (see studies such as Talmy 1985, 2000, Choi and Bowerman 1991, Ameka and Essegbey 2001, Slobin 2004, Zlatev and Yangklang 2004, Nakazawa 2006, Filipović 2007, among many others, cf. Beavers et al. 2010, Croft et al. 2010). Verb-framed languages (e.g., Spanish, Turkish, Japanese) tend to use verbs for encoding path information, satellite-framed languages (e.g., English, Russian, German) tend to express path information via satellites to the verbs (e.g., affixes and particles), and equipollently-framed languages tend to express path and manner by equivalent grammatical forms (e.g., both manner and path are expressed in verbs, or in non-verbs). For Standard Mandarin Chinese and Chinese dialects too, the typology of event integration has been extensively discussed (see studies such as Talmy 2000, 2009, Lamarre 2003, 2008, Tai 2003, Peyraube 2006, Ma 2008, Chen and Guo 2009, Shi and

Wu 2014, Yiu 2014, Shi 2015, among others) and it is generally agreed upon that Modern Mandarin Chinese is primarily a satellite-framed language.

However, unlike most previous studies of Chinese motion events, this book pays particular attention to the lexicalization patterns, specifically the meanings that can be lexicalized in the verbal morphemes of Chinese, and whether these verbal morphemes are distributed in relation to what they lexicalize when encoding motion events. Before I introduce the research questions and major proposals of this study, it is worth noting that this study adopts the term "motion morpheme" to refer to any verbal morpheme lexicalizing motion information in Chinese, including both free and bound morphemes. While the term "motion verb" is mainly used for the motion verbs in other languages, when it is used for Chinese motion expressions, it only refers to the free motion morphemes, that is, morphemes that can stand alone as verbs. There are two major reasons for this study to adopt the relatively more neutral term "motion morpheme". First, sometimes the boundaries between a free morpheme (a motion verb) and a bound morpheme are not clear-cut. Second, previous studies, especially studies on the typology of event integration (e.g., Tai 2003, Lamarre 2003, Talmy 2000, 2009, among others), take different viewpoints with respect to the grammatical status of some motion morphemes in Chinese. For example, for motion expressions consisting of a mannerof-motion morpheme and a path morpheme, e.g., 飞过英吉利海峡 fēi-guò yīngjílìhǎixiá fly-pass English-channel 'pass the English Channel by flying', Talmy (2000, 2009) points out that the first morpheme (i.e. the manner-of-motion morpheme 飞 fēi 'fly') is the main verb (i.e. a free morpheme), whereas Tai (2003) argues that 过 guò 'pass' is the center of predication in the verb compound 飞过 fēi-guò fly-pass, i.e. the main verb and the free morpheme. Because it is not the focus of this study to clearly distinguish between free and bound morphemes, or between main verbs and verbal complements, this study adopts the relatively more neutral term of "motion morphemes".

In terms of glossing, the verbal meanings of these motion morphemes are provided. For instance, 飞回 *fēi-huí* and 跑进 *pǎo-jìn* are glossed as fly-return and run-enter respectively, rather than fly-back and run-into as in some previous studies. In those studies, 飞 *fēi* and 跑 *pǎo* are treated differently from 回 *huí* and 进 *jìn* with regard to their grammatical status, i.e. 飞 *fēi* and 跑 *pǎo* as main verbs and glossed as 'fly' and 'run' respectively, whereas 回 *huí* and 进 *jìn* as verbal complements and glossed as 'back' and 'into' respectively.

1.2.1 Research questions

Where the relationship between the semantic element and the surface element is concerned, Talmy (1975, 1985, 2000) proposes that there is no one-to-one correspondence between a meaning and a surface form. He identifies three major lexicalization patterns of motion verbs (roots): verbs conflating motion and manner/cause (e.g., *roll*), verbs conflating motion and path (e.g., *descend*), and verbs conflating motion and figure (e.g., *rain*). In studies of self-agentive and nonagentive motion events, Talmy's three-way classification is often simplified into a two-way classification, that is, manner-conflation verbs and path-conflation verbs. Cause-conflation verbs and figure-conflation events, whereas the latter is very rare or only exist as a common pattern in very few languages. Therefore, in the majority of studies on motion events, manner-conflating verbs and path-conflating verbs are the most widely

cited, and are often referred to as "manner-of-motion verbs" (or "manner verbs" in short) and "path verbs" respectively in literature. Talmy's classification has been extensively adopted in the subsequent studies, but there are also some studies that argue for the existence of a third lexicalization pattern, that is, verbs that conflate motion, manner, and path (see studies such as Slobin 2004, Zlatev and Yangklang 2004, among others).

Nonetheless, one common issue in previous studies is that the definitions of "manner" and "path" are unclear. Additionally, there is a lack of systematic criteria or tests to determine the motion information that a particular motion verb lexicalizes. Therefore, the categorization of motion verbs in these previous studies is mainly based on the linguists' intuition, resulting in inconsistent classifications among these studies. For instance, the motion morpheme $\frac{1}{2}$ *diào* 'fall' in Chinese is analyzed as a manner-of-motion morpheme in Chen and Guo (2009), a path morpheme in Lamarre (2008), and a morpheme denoting both manner and path in Hsiao (2009).

In addition, Chinese allows two or more verbal morphemes to co-occur in a motion construction, so motion events in Chinese are also commonly expressed through multimorphemic expressions. For instance, both the motion expressions in (7) consist of two motion morphemes: $\Re g u n$ 'roll' and lu o 'fall' in (7a) and lu o 'fall' and lu o 'fall' in (7b).

(7) a. 石块继续滚落,有时互相撞在一起。 *shíkuài jìxù gǔn-luò, yǒushí hùxiāng zhuàng-zài yīqǐ* stone continue roll-fall sometimes each.other hit-at together 'The stones continue rolling down, sometimes hitting at each other.' (BCC)
b. 忽然一块石子落进了水里。

 $h\bar{u}r\dot{a}n$ $y\bar{l}$ $h\mu cl j R \pm 0$ $h\bar{u}r\dot{a}n$ $y\bar{l}$ $ku\dot{a}i$ shizi $lu\dot{o}-j\dot{l}n-le$ $shu\check{l}$ suddenly one CLF pebble fall-enter-PFV water-inside 'Suddenly, a pebble fell into the water.' (BCC)¹

However, the generalization of the relative word orders of these co-occurring motion morphemes seems to be a challenging task. For instance, \ddot{R} *luò* 'fall' must follow \ddot{R} *gŭn* 'roll' in (7a) but must precede \nexists *jìn* 'enter' in (7b). Although it is very common in Chinese where a manner-of-motion morpheme (\ddot{R} *gŭn* 'roll') occurs before a path morpheme (\ddot{R} *luò* 'fall'), it is intriguing to find out why the path morpheme \ddot{R} *luò* 'fall' must occur before the other path morpheme \nexists *jìn* 'enter' when the two co-occur.

Even more intriguing is how the morphemes are sometimes allowed to occur in two different orders. That is, the position of the first and second morphemes can be reversed and still remain acceptable in Chinese, as As illustrated by the manner-of-motion morpheme $\hat{\pi}$ *liú* 'flow' and the path morpheme \square *huí* 'return' in (8). Such

¹ There are two types of \vec{J} -*le* in Chinese: the one occurring after (or suffixed to) a verb functions as a perfective marker, whereas the one in a sentence or clause final position signals a "currently relevant state" (Li and Thompson 1981: 240, among others). A detailed discussion of \vec{J} -*le* can be found in Li and Thompson (1981) and Huang and Shi (2016), among others. This book adopts the following convention for the glossing of \vec{J} -*le*: all instances of \vec{J} -*le* at clause or sentence final are glossed as CRS (i.e. currently relevant state), and all other \vec{J} - *le* that occur immediately after a verb are glossed as PFV (i.e. perfective marker). The CRS \vec{J} -*le* is treated as an independent word, whereas the PFV \vec{J} -*le* is a suffix and connected to its preceding verb by a hyphen.

examples also suggest that it is not always true that a manner-of-motion morpheme must precede a path morpheme.

(8) a. 被净化后的水再**流回**河里。 bèi jìnghuà hòu de shuĭ zài liú-huí hé-lĭ purify after NOM water again flow-return PASS river-inside 'The purified water then flows back into the river.' (BCC) b. 有助于血流快速地往心脏回流。 yŏuzhùyú xuè-liú kuàisù de huí-liú wǎng xīnzàng helpful.to blood-flow fast ADV toward heart return-flow '[It] helps the blood flow back toward the heart quickly.' (BCC)

(9) shows examples consisting of path morphemes only, i.e. \underline{R} luò 'fall' and $\underline{\Box}$ huí 'return', and these two morphemes are also found in both of the two possible word orders. Thus, it is interesting to explore what types of motion morphemes are allowed to occur with the two orders and whether there are any linguistic differences, be it syntactic, semantic, or even beyond, between the two orders.

(9) a.	闷响过后,	周围的碎石	土渣重新 落回 步	也面。		
	mēn-xiǎng	guòhòu,	zhōuwéi	de	suìshí	tŭzhā
	dull-sound	after	surrounding	NOM	gravel	dust
	chóngxīn	luò-huí di	ìmiàn			
	again	fall-return gi	round			
	'After a dull sound, the surrounding gravel and dust fell back to the ground'					
	(BCC)					_
b.	这时候, 烤	暴炸的声响早	1己停止,浓烟	也在渐	渐散去,	尘埃也开始 回
	落。					
	zhè shíhòu,	bàozhà de	e shēngxiăn	g ză	oyĭ ti	íngzhĭ,
	this time explosion NOM sound already stop					
	nóngyān	yě za	ài jiànjiàn	sàn-gi	ì, c	hén'āi yĕ
	heavy.smol	ke also PI	ROG gradually	scatter	-thither d	ust also
	kāishĭ huí -	-luò	c ·			
	start retu	rn-fall				
	'At this moment, the sounds of the explosion had long ceased, the heavy					
	smoke was gradually dispersing, and dust began to settle.' (BCC)					

Therefore, the following major questions about encoding motion events in Chinese arise: What meaning components can a motion morpheme lexicalize? How to identify their lexicalized meanings? Is the ordering of motion morphemes generalizable when these morphemes co-occur in one motion expression? If yes, what motivates the generalization?

1.2.2 Major proposals and contribution

To answer the above questions, this study takes a cognitive functional perspective and adopts a scale-structure-based analysis (or scalar analysis, Hay et al. 1999, Kennedy 2001, Rappaport Hovav 2008, Rappaport Hovav and Levin 2010, among others) of Chinese motion morphemes. In the following, I list the major proposals about Chinese

motion morphemes and the motion construction; these proposals will be justified in the different chapters of the book.²

- (10) a. Chinese motion morphemes exhibit a tendency of "manner/result (path) complementarity" (Rappaport Hovav and Levin 2010) in that a motion morpheme typically either lexicalizes manner-of-motion information or path information, but not manner and path simultaneously. Therefore, Chinese tends not to adopt the lexicalization pattern where a motion morpheme conflates motion, manner, and path at the same time.
 - b. The traditional two-way classification of motion morphemes into manner-of-motion morphemes and path morphemes (Talmy 1975, 1985, 2000), while being the basic components of motion events conceptually, can be expanded into a four-way classification based on the scale lexicalized by the motion morphemes, with three of the four types being a further classification of path morphemes. The meaning components of the four types of motion morphemes can be identified using a set of independent tests proposed in this study. Furthermore, the four-way classification and the tests not only apply to free motion morphemes, but also bound motion morphemes.
 - c. The four types of scale-based motion morphemes form a Motion Morpheme Hierarchy that can be used to predict the order of cooccurring motion morphemes in Chinese motion constructions.
 - d. The Motion Morpheme Hierarchy can be accounted for by a semantic and conceptual constraint, which I term as the "Scalar Iconicity Constraint". This constraint specifies that each morpheme is more specific in terms of the scale information it lexicalizes than the morpheme it follows. The constraint is cognitively motivated by iconicity in the sense that the order of language elements reflects the order in physical experience or the order of knowledge (Greenberg 1966, Haiman 1980, among others). However, it is worth noting that the Scalar Iconicity Constraint proposed in this study can not only account for the ordering of morphemes that denote sub-events occurring in a sequential order, but also those denoting simultaneous sub-events.

There are three major contributions of this study. First, this work is the first of its kind to classify Chinese motion morphemes in a finer-grained way based on their lexicalized scale structure, to provide a series of independent semantic, syntactic, or pragmatic tests to determine the categorization of each Chinese motion morpheme, and to generalize the ordering of co-occurring Chinese motion morphemes based on what they lexicalize. Hence, this study enriches the literature on motion and motion events and furthers our understanding of the nature of motion events. Second, this study provides new insights into the relationship between the semantic components and syntactic distributions of Chinese motion morphemes, or in other words, a new type of

² Some of the research questions of this book have been explored in Lin (2011), Lin and Peck (2011), Lin (2015a, 2015b). This book presents a significant revision and expansion of these studies.

iconicity that cognitively motivates the structure in Chinese. Third, not only can the scalar approach and the major proposals of this work shed light on the studies of motion constructions in other languages, the approach and proposals are also extensible to studies beyond motion (verbs), including providing a more consistent account for the distributions and behaviors of verbs in general, adjectives, preposition phrases, and the relative word orders of larger elements such as adjuncts in Chinese.

1.3 Overview of the book

This book consists of six chapters. Chapter 1 is an introduction to the book. It outlines the background, the major research questions and proposals of this study, as well as the sources of the Chinese data used in the study.

Based on an exhaustive survey of motion morphemes and motion expressions in a corpus comprised of Chinese novels, Chapter 2 first provides a comprehensive description of how motion events are encoded in Chinese and a list of motion morphemes that constitute motion expressions. It also points out that there is a need for a more satisfactory explanation when it comes to the classification and ordering of Chinese motion morphemes.

Chapter 3 reviews and notes that previous studies on "manner" and "path" are inconsistent due to the lack of clear definitions and systematic tests. It proposes an alternative approach by which the manner and path meaning components of motion morphemes can be identified based on a set of compatibility tests. Furthermore, this chapter also reviews previous studies on verbs encoding both manner and path information and illustrates with examples that Chinese motion morphemes exhibit a tendency of manner/result (path) complementarity.

In Chapter 4, this study proposes a four-way classification of Chinese motion morphemes based on the kind of scale information they lexicalize. In the domain of motion, a scale can refer to the path that is composed of contiguous points ordered between the starting point and the reference point and these ordered points indicate measurement values on the dimension of distance (Rappaport Hovav and Levin 2010, among others). According to whether a motion morpheme lexicalizes a scale, whether the scale has an inherent endpoint, and whether the scale is composed of only two points (the beginning and ending points) or multiple points (the beginning and ending points and many points in between them), motion morphemes can be classified into four types: nonscalar change motion morphemes (e.g., 滚 gǔn 'roll'), open scale motion morphemes (e.g., 落 luò 'fall'), multi-point closed scale motion morphemes (e.g., 回 huí 'return'), and two-point closed scale motion morphemes (e.g., 进 jìn 'enter'). It is important to note that of the four types, the first, that is the nonscalar change motion morphemes, is equivalent to manner-of-motion morphemes, and the other three present a further classification, and thus a finer-grained classification of path morphemes as proposed by Talmy (1975, 1985, 2000). Furthermore, this chapter proposes a set of independent semantic, syntactic, or pragmatic tests to determine which scalar category each motion morpheme belongs into. This chapter also shows that the proposed classification and tests are also applicable to bound motion morphemes, i.e. motion morphemes such as λ -rù enter' and Ξ -zhì arrive' that are no longer verbs in Modern Chinese. Finally, there are several motion morphemes that do not always behave like other morphemes lexicalizing the same type of scale; these morphemes are discussed in depth in this chapter.

In Chapter 5, I formulate a hierarchy consisting of the four scalar types of motion morphemes to predict the order of motion morphemes that co-occur in a Chinese motion expression. The hierarchy is then verified by a corpus-based investigation. In addition, I present motion expressions that the hierarchy does not predict as well as motion expressions that are predicted by the hierarchy but rarely found in Chinese and show that the predicting power of the hierarchy is not challenged by these examples. More importantly, this chapter extends the discussion on what the ordering hierarchy tells us about the encoding of motion events in Chinese, as well as why certain morphemes can or cannot occur together. Specifically, the ordering of Chinese motion morphemes to the "Scalar Iconicity Constraint": the morpheme which is more specific about the scale in a motion event must precede the morpheme that is less specific. The constraint is conceptually movitated by iconicity in that the morpheme order is iconic to the order in reality or the order of knowledge.

The last chapter of the book, Chapter 6, first summarizes the major proposals of this study and points out the future directions for scale-based studies of motion events. It then moves beyond motion (verbs) and discusses, using case studies, where the scalar approach and major proposals of this study are successfully applied to a more unified analysis of the distributions and behaviors of Chinese verbs in general, Chinese adjectives, preposition phrases, and the word order of Chinese adjuncts.

1.4 Sources of Chinese data

The Modern Chinese data used in this study come from seven major sources. The first is the BLCU Chinese Corpus ("the BCC corpus" in short) developed by the Beijing Language and Culture University Corpus Centre (Xun et al. 2016). The BCC corpus for Chinese language has 15 billion Chinese characters, consisting of several subcopora (assorted, literature, newswire, microblog, technology, classical Chinese, and student writing). The corpus is available online at http://bcc.blcu.edu.cn/. When it is not explicitly specified, the data from the corpus is either extracted from BCC (assorted) (one billion Chinese characters) or BCC (literature) (three billion Chinese characters). While the study is primarily based on modern written texts, modern spoken Chinese is also occasionally used when investigating the behaviors of some motion morphemes. The Media Language Corpus (MLC, http://ling.cuc.edu.cn/RawPub/) is adopted as the primary source of spoken Chinese. The corpus was developed by the National Broadcast Media Language Resources Monitoring and Research Center in Communication University of China. It consists of 200 million Chinese characters transcribed from radio and TV programs broadcasted during 2008 and 2013. In addition, examples from Google searches are also used when necessary. The searches in both the BCC corpus, the MCL Corpus, and Google were conducted during three periods: May - September 2015, September - November 2017, March - June 2018. In order to carry out an exhaustive investigation of the types of motion morphemes and motion expressions used in Chinese, as well as to verify the major proposals of this book from a quantitative perspective, this study also built a small-scale corpus (about 164,000 Chinese characters) consisting of selected chapters of five contemporary Chinese novels (see Chapter 2 for more information), providing a fourth source of data for the study. Examples from previous studies are also cited when necessary. The format of these examples in the original literature may differ from that of this book. For consistency purpose, this book presents these examples in the same way with the other examples of this study. For instance, Chinese characters are added in this book if the

original examples were given in Chinese pinyin only and some glossings from the original examples were changed, following the conventions adopted in this book. While this study highly values natural language data for linguistic research, some examples of this book are provided by the author as a native speaker of Chinese. Such examples are mainly used for convenience of discussion or for the tests of the scalar features of motion morphemes. All these examples have been verified with other native speakers for acceptability. Finally, while this study primarily focuses on the encoding of motion events in Modern Mandarin Chinese, relevant data from earlier stages of Chinese is occasionally referred to. This study follows Wang (1980) on the periodization of Chinese, as given in Table 1.1.

Table 1.1 Major periods of the Chinese language (Wang 1980: 43)

Periods	Years
1. Old Chinese	Period prior to third century
2. Middle Chinese	Fourth to twelfth centuries CE
3. Early Modern Chinese	Thirteen to early twentieth centuries CE
4. Modern Chinese	Early twentieth century (1919) to present

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