

**A Study of Language Typology and Comparative Semantics:
Human Locomotion Verbs in English and Chinese**

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Abstract

The present research sits itself within the intersection of Language Typology and Comparative Semantics, aiming to shed light on the comparison between English and Chinese typologically on one hand, and contribute to the study of Comparative Semantics in human locomotion verbs on the other.

Within the field of Language Typology, Slobin (2006) proposes that languages can be placed on a *cline of manner salience* in terms of the degree of manner profiling. It is the aim of this research to explore the relative position of English and Chinese on this cline. Simply put, it pertains to the question that which language pays more attention to manner specification. It is hoped that by investigating a typical type of verbs, i.e. human locomotion verbs, this research could throw light on the above question.

In the field of Comparative Semantics, this research conducts a semantic comparison of English and Chinese HLVs from both macro and micro perspectives. On a macro level, I examine the semantic components and lexicalization pattern of HLVs, and on a micro level, I pay particular attention to the manner granularity of HLVs.

Human locomotion refers to the self-propelled movement of human beings. Among verbs indicating human locomotion, this paper singles out the WALK, RUN, JUMP, CLIMB, and CRAWL-type verbs. It draws upon the theory of lexicalization and semantic componential analysis to compare the core meaning, semantic components and lexicalization patterns between English and Chinese HLVs, attaching special attention to the granularity of manner. Based on the previous research, this paper addresses the following questions: (1) what are the lexicalization patterns of English and Chinese HLVs? 2) What is the manner salience in English and Chinese HLVs? 3) How to explain the possible similarities and differences of lexicalization pattern and manner specification of HLVs in English and Chinese?

It is discovered that there are both semantic similarities and particulars between English and Chinese HLVs. In English, the degree of lexicalization of human locomotion is higher and its manner information is also more finer-grained than in Chinese. In short, this research reports a systematic and comprehensive comparison between English and Chinese HLVs in terms of meaning construction, particularly manner granularity. As far as HLVs concerned, English should be placed more towards the high- manner- salience end than Chinese on the *cline of manner salience*.

Key words: Human locomotion verbs, Language Typology, Comparative Semantics, Lexicalization pattern, Manner granularity

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Chapter 1 Introduction

1.1 Introduction

The present study falls into the domain of Language Typology and Comparative Semantics. Within the field of Language Typology, Talmy (1985, 2000b) classifies languages into verb-framed and satellite-framed languages based on the incorporation of path and points out that both English and Chinese are satellite-framed languages. However, scholars such as Slobin (2006) argue that Chinese, as a serial verb language, falls into the third category: equipollently-framed language. Furthermore, Slobin discovers that compared with verb-framed languages, satellite-framed languages attach more emphasis on manner information and possess more manner-of-motion verbs. Based on this observation, Slobin further suggests that languages can be placed on a cline of manner salience in terms of the degree of manner profiling.

It is anchored in this research background that the author addresses the issue: since in terms of the incorporation of path, it is still controversial to identify which type Chinese should belong to, then in terms of the incorporation of manner, what is the relative position of English and Chinese on the *cline of manner salience*? In other words, which language pays more attention to manner specification, English or Chinese? This research of human locomotion verbs (Hereinafter referred to shortly as HLVs) comparing their manner specification in these two languages is conducted with the intention of answering this question to some degree. HLVs, denoting the concept of human self-propelled movement, are an important sub-type of verb, among which this research singles out the WALK, RUN, JUMP, CLIMB, and CRAWL-type verbs for particular attention. In the field of Comparative Semantics, by adopting the tool of semantic componential analysis, this research conducts a semantic analysis of HLVs in English and Chinese at both macro (semantic components and lexicalization pattern) and micro (manner granularity) levels.

Slobin (2006) also points out that there are quite few studies which have been devoted to either scrutinizing motion verb lexicons or exploring manner-of-motion verb granularity between languages typologically different or similar. In order to bridge this gap, this dissertation focuses on the semantic construction of human locomotion which enjoys a rich

lexical set in both English and Chinese, comparing the way the two languages lexicalize this concept in verbs. The aim of the study is to compare the lexicalization pattern and manner specification of HLVs in English and Chinese, trying to find out the underlying reasons for the possible similarities and differences.

1.2 Definition of Human Locomotion Verb

Before moving to the main body of the research, it is essential to give a definition of human locomotion by which we can judge whether a certain verb is truly qualified as a HLV or not, since it is far from enough by defining it as the self-propelled movement of human beings. Needless to say, here we do not mean to elucidate human locomotion from the perspective of mechanics; instead, we are interested in the representation of human locomotion in language.

In order to differentiate HLVs from verbs of neighboring domains, HLVs are situated into the wider context of human action. According to Guo Fuliang (1995), human-action is a wide semantic field including four smaller semantic fields, i.e., upper-limb action, head action, lower-limb action and whole-body action, as illustrated in the following figure.

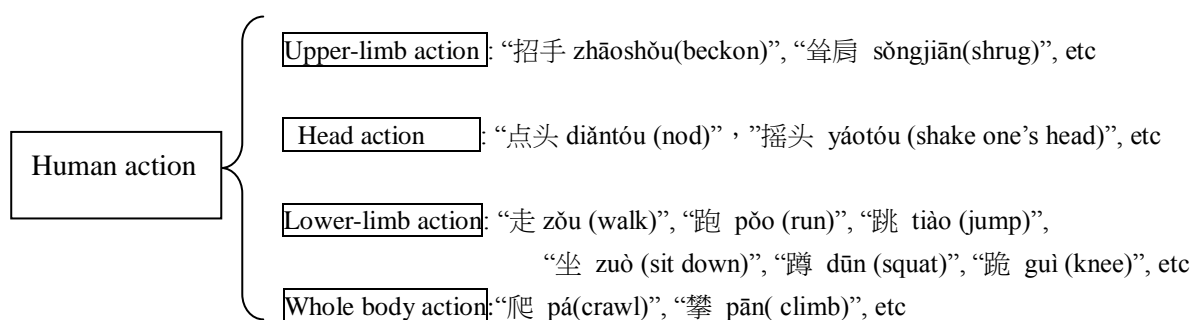


Figure 1.1 Semantic Field of Human Action

Noticeably, this four-division is based on the body part involved in the human action. We are now in a position to give the definition of human locomotion and try to select those motions in the above figure which can be regarded as human locomotion. Human locomotion(Mila, Liliana, Ole, & Thomas Brox 2007), as an important sub-domain of motion, refers to the self-propelled movement of human beings; it differs from other kinds of motion in several

ways---it is by definition self-agentive and involves complex patterns of internal motion of the body and limbs, the function of which is to cause translational motion. According to this definition, this dissertation summarizes the following distinguished features of human locomotion, based on which we could exclude other types of motion from this research.

(i) Figure is a human being

In keeping with this criterion, English verbs such as *gallop* (of a horse, moving very fast) or its equivalent in Chinese “驰骋 *chíchěng* (to gallop)” are excluded from consideration. However, if the locomotion verbs apply to both human beings and animals, they fall within the scope of the research, such as *amble*, which may refer to the leisurely walk of either a person or a horse.

(ii) The movement is under one's own will or control

This is to say, there is no separate vehicle, gravity or other natural, physical forces which determine the movement. Based on this criterion, we also exclude English motion verbs like *descend*, *drop*, *fall*, *plummet*, *plunge*, *rise*, *slant* and Chinese motion verbs like “下落 *xialuò*(to fall down)”, “跌倒 *diēdǎo* (to stumble)” and “滑倒 *huádǎo*(to slip down)”.

(iii) The motion is overall translational motion

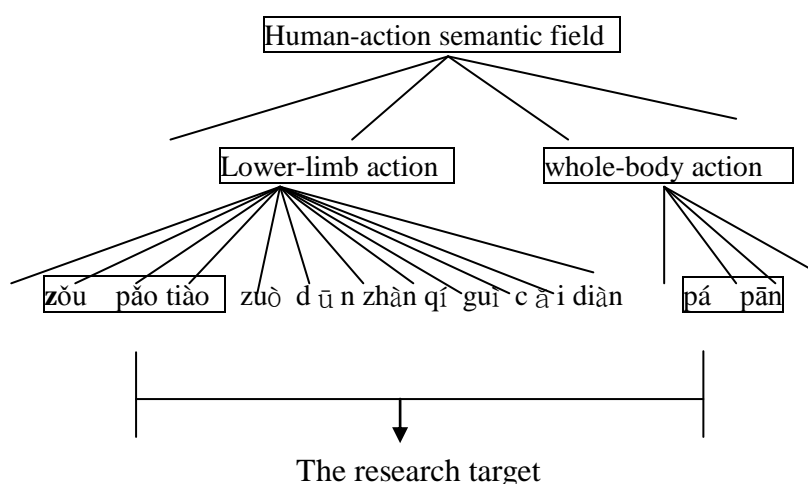
If only part of the Figure is involved in the movement and there is no translational movement of the whole body, I will not consider this situation either. In other words, HLVs should entail some kind of displacement or movement along a path. Therefore, a lot of action verbs are not HLVs, such as the upper-limb, head action and some of the lower-limb verbs. (e.g. “耸肩 *sǒngjiān* (to shrug)”, “点头 *diǎntóu* (to nod one's head)”, and “坐下 *zuòxià* (to sit down)”.

(iv) The verb should provide enough and explicit information about the physical attributes of motion

In English, such verbs as *speed* and *hurry* are excluded from this paper, since they provide little information about concrete physical attributes of motion. For example, the verb *speed* may refer to a motion carried out on foot, but one may also speed somewhere in a car or on a bike; Chinese verb “前行 *qiánxíng* (to go forward)” may refer to the

movement of a person or a vehicle. However, if a HLV can express more than one type of the motor patterns: WALK, RUN, JUMP, CLIMB or CRAWL, I will consider this kind of verbs, which are often defined in the form of “to move...” in the dictionary.

Specifically, the term *locomotion* refers to certain types of motion: *walking*, *running* (including *trotting*), *jumping* (including *leaping gaits*), *crawling*, *climbing*, *swimming* and *flying*. Needless to say, all these subtypes of motion, except *flying*, can refer to the biological motion of human beings. For swimming, there are counterpart terms for different kinds of swimming in both languages, out of the need of swimming competition. Hence, in this paper, I will not investigate various terms for different kinds of swimming. By now, I could narrow down the research target and locate it in figure 2. In other words, this current research is only concerned with the WALK, RUN, JUMP, CRAWL and CLIMB domains for the sake of consistency. For ease of illustration, see below:



(Note: zǒu: walk; pǎo: run; tiào: jump; zuò: sit; dūn: squat; zhàn: stand; qí: ride; guī: knee; cǎi: trample; diàn: stand on one’s toes; pá: crawl; pān: climb)

Figure 1. 2 Locating Human Locomotion Verbs in Human-action

1.3 Research Questions

The general goal of this research is to compare the semantics of English and Chinese HLVs with a focus on the manner granularity which can at least partly indicate the relative position

of English and Chinese on the *cline of manner salience*. To this end, this research aims at solving the following questions:

1) What are the lexicalization patterns of English and Chinese HLVs?

In other words, this research aims at finding out the semantic components incorporated in English and Chinese HLVs. Semantic components refers to the basic elements of Motion event (Talmy 2000b), such as Figure, Ground, Manner and Path.

2) What is the manner salience of English and Chinese HLVs?

This research tries to answer the question from different aspects. Specifically, it deals with several smaller questions: which language pays more attention to the specification of manner in HLVs, English or Chinese? What's the manner preference in English and Chinese HLVs respectively? Which motor pattern category (Walk, Run, Jump, Crawl, or Climb) exhibits finer manner distinctions in both languages?

3) How to explain similarities and differences found in 1) and 2)?

This question is meant to account for the possible similarities and differences of lexicalization pattern and manner specification of HLVs in English and Chinese.

The above three questions are closely related in that the first two questions are on the phase of description and comparison while the third is on the phase of explanation. The first question compares HLVs in English and Chinese from a rather macro perspective, while the second from a micro perspective with emphasis on the manner specification. The first two questions would contribute to the study of Comparative Semantics between HLVs in English and Chinese and the second alone can shed light on the comparison of these two languages from the perspective of Language Typology. In question 2), there are smaller questions which constitute an attempt to explore manner granularity from different aspects.

1.4 Organization of the Dissertation

This paper is organized in the following way:

Chapter 1 presents a general introduction of this research. Firstly, it provides the

definition of HLVs to target what this research is intended to study. Secondly, it put forwards the research questions to narrow down what the research aims at solving. Finally, it offers a brief tour to the whole dissertation. Chapter 2 outlines the theoretical motivation and literature review. It mainly includes the theories of Talmy and Slobin's language typologies together with the semantic componential analysis as the theoretical tool. Furthermore, the previous researches on human locomotion verbs are reviewed. Chapter 3 introduces the research methodology, which includes the data collection and data analysis. It also offers an account of the steps undertaken to fulfill the goals of the research. Chapter 4 compares the semantic components encoded in English and Chinese HLVs. It mainly includes the semantic components and the manner granularities of English and Chinese locomotion verbs. Chapter 5 summarizes the similarities and differences between English and Chinese HLVs and tries to dig up the underlying reasons. Chapter 6 is characterized by a conclusion of this research, including a summary, limitations of the research and suggestions for further studies.

Chapter 2 Literature Review

2.1 Introduction

This chapter firstly outlines the theoretical background and analytical tool of the research and finally reviews the previous studies on HLVs.

2.2 Theoretical Context: Talmy and Slobin's Typologies

2.2.1 Talmy's Typology

Talmy (2000b) calls the sentences containing motion or stationary location as a Motion event, which is composed of a *framing event* and a *co-event* (or a subordinate event). The *framing event* serves as the schematic structure of the Motion event and can be analyzed into four basic components: (1) Figure (the entity moving or being located), (2) Ground (the locational anchor relative to which the Figure is moving or located) (3) Motion (the event of motion or location) (4) Path (the paths followed or sites occupied). The *co-event* provides a support relation to the framing event by elaborating or motivating the *framing event*. It may take several forms, two most common forms being Manner and Cause. All these components are also called semantic elements, which can be realized in different surface expressions (Talmy's term (2000b), referring to linguistic forms such as verbs, subordinate clauses etc). See the example below:

The rock	moved	down	the hill	rolling
Figure	Motion	Path	Ground	Manner

Talmy (1985, 2000b) classifies languages into two types in terms of where the Path is lexicalized in the sentence, namely, the verb-framed and satellite-framed languages. In verb-framed languages, the Path is encoded in the main verb while in satellite-framed languages, the Path is incorporated in the various particles or 'satellites' associated with the verb, such as prepositions, prefixes, postpositions, etc. English and Spanish are two prototypical examples of these two types. Examples from these two languages are given in (1) and (2).

- (1) The rock rolled down the hill. (Talmy 2000b:30)
- (2) La botella entró a la cueva (flotando) (Talmy 2000b:49)
 The bottle MOVED - in to the cave (floating)
 "The bottle floated into the cave."

As shown in the above sentences, in English, Path is typically encoded in the ‘satellite’ of the verb (here, in the preposition ‘down’), whereas in Spanish, Path is lexicalized in the verb ‘entró’. Upon closer examination, researchers conclude that the typological difference has consequences not only on the conflation of Path, but also of manner. Slobin (1997:458), for instance, mentions that “Satellite-framed languages will have a larger and more diverse lexicon of manner verbs in comparison with verb-framed languages”. The underlying argument goes like this: since satellite-framed languages express Path in the satellite, they will leave the verb slot free to encode manner-of-motion; however, the verb-framed languages typically express Path in the main verb while leaving the expression of manner to adjuncts.

2.2.2 Talmy’s Typology Revised and Slobin’s Typology Proposed

Talmy’s topology of verb-framed and satellite-framed languages is significant in examining languages from a typological perspective and has inspired a vast amount of research (e.g. Férez 2007). However, it is found that languages such as Chinese that express motion events with serial verb constructions (SVCs) do not fit well into either of these types. In order to account for such phenomenon, various scholars (e.g., Slobin & Hoiting 1994; Slobin 2004; Zlatev & Yangklang 2004) have proposed a third category: equipollently-framed languages where path and manner are expressed by equivalent grammatical forms.

Essentially, Talmy’s typology as well as the revised version by adding the third category is mainly concerned with the means of expression of Path in the movement. As mentioned before, Slobin (2006) notices the relationship between the incorporation of Path and that of Manner, thus putting forward the notion of *manner salience*, where languages are put on a *cline of manner salience*. At the two ends of the continuum are extremely high-manner-salient languages and extremely low-manner-salient languages. When mapping Talmy’s typology onto the *cline of manner salience*, it has been long observed that

manner-of-motion verbs are less frequently used, and the manner information is described in much less detail in verb-framed languages (Slobin 1996, 2006). By contrast, in satellite languages, path is encoded by the satellites, leaving the main verb slot available for a manner verb. As a consequence, it appears that satellite languages “habitually” encode manner information, developing a rich lexicon of manner verbs and making fine distinctions within the domain of manner (Slobin 2000).

2.2.3 Comparing English and Chinese Typologically

2.2.3.1 English as a Satellite-framed Language

As noted earlier, English is presented as the prototypical example of satellite-framed languages, expressing the direction of motion or path in satellites (e.g., up, into) and leaving the verb slot free to encode manner-of-motion. Consider the following examples:

- (3) He walks through the gardens.
- (4) He runs into the room.

In these two sentences, the information about path is incorporated in the prepositional phrases, leaving the verb slot free to encode detailed manner information. It should be noted that, although such sentences as “The bottle entered floating”, in which the path is encoded in the verb, are still grammatically acceptable in English, it represents a structure of the loan verbs from the Romance languages and is thus considered to be an exception.

2.2.3.2 Dispute on Chinese as a Satellite-framed Language

Within the typology in terms of the incorporation of path, it is still controversial which type Chinese should fall into. Talmy (2000b) proposed that Chinese, like English, is a satellite-framed language. However, some researchers (Tai 2003) argue it is a verb-framed language and still other scholars think it is an equipollently-framed language.

Here lies the bone of contention: scholars have not achieved consensus about whether the verb complements in Chinese are still full verbs and enjoy equal weight with the motion verbs. To put it another way, which verb is the head, the motion verb or the verb complement?

Different answers to this question lead to different views regarding which type Chinese belongs to. To sum up, there are mainly three kinds of opinions (Shen Jiakuan 2003): (1) The motion verb is the head, so Chinese belongs to the satellite-framed language; this is what Talmy holds, who argues that in Chinese, the verb complements, namely, the directional and resultative complements, serve as the satellites, which are linguistically realized in verbs and adjectives. (2) The verb complement is the head, so Chinese belongs to the verb-framed language (Tai 2003). (3) The verb and verb complement enjoy equal weight, so Chinese is the equipollently-framed language (Slobin 2006). Tai (2003) takes sentences below to show that Chinese is a verb-framed language.

- (5) 约翰 飞过 英吉利海峡。
 John fly-pass the English Channel
 “John flew across the English Channel.”

According to Talmy, the verb “飞 fēi (to fly)” incorporates Motion with Manner, and “过 guò(past)” expresses the Path component. However, “过 guò (past)” can be used independently as a verb incorporating Motion and Path, which is proved by the fact that it can be affixed with the aspect marker “了 lē (aspect marker)”. In contrast, the verb “飞” could not be used alone without “过”. Compare the following sentences.

- (6) 约翰 过 了 英吉利海峡。
 John crossed (aspect) the English Channel.
 (7) ? 约翰 飞 了 英吉利海峡。
 ? John fly (aspect) the English Channel

The above illustrations also show that “过 guò(past)” is a verb incorporating the Path and is the head of predication in the verbal compound “飞过 fēiguò(to fly past)”, which indicates the completion of passing the channel. However, we can get a totally different picture when considering a sentence expressing caused motion events. For example:

- (8) 他 扔 出来 了 一个 瓶子。(Zou 1994:445)

He threw out a bottle

In this case, it is the first verb “扔 rēng (to throw)” of the verbal phrase that determines the transitivity of the whole, while verbs like “出 chū(out)” or “来 lái(come)” do not have a causative use (Yo Matsumoto 2003). In this kind of contexts, it is easy to come to a different conclusion that the verb is the center and the complement the satellite, hence Chinese belongs to the category of satellite-framed language.

However, this is not the end of the story; still, there are scholars such as Slobin (2006) thinking that in serial-verb languages, “It is not always evident which verb in a series, if any, is the ‘main’ verb”. So, Chinese is classified as an equipollently-framed language in which “both path and manner have roughly equal morphosyntactic status”.

2.2.3.3 Comparing Lexicalization Pattern of English and Chinese

(1) Definition of Lexicalization Pattern

The notion of lexicalization has long been put forward; however, linguists have not yet achieved consensus about its definition. In the following, I will compare different views of lexicalization and try to capture essential characteristics of this term.

In brief, lexicalization refers to the process of making a word to express a concept or the mapping of conceptual categories to lexical items. Xu Yulong (1992) defines lexicalization as the use of a word available to express a semantically complex concept which otherwise would need a phrase or even sentence to denote its meaning.

Dong xiufang (2000) conducts a systematic study on lexicalization and concludes that lexicalization has the following characteristics:

- a) Lexicalization happens during the natural evolution process of language. Its occurrence is often out of the language users’ awareness.
- b) Lexicalization is a diachronic process, which involves a certain span of time
- c) Lexicalization begins with a non-word unit and ends with a word unit. That is to say, it is the process of making a non-word to become a word, which can express semantic concepts.
- d) Lexicalization occurs at the discrete level and thus is characterized by a lot of variety.

e) Lexicalization brings the change of meaning.

In a word, lexicalization is a process by which certain semantic components are associated with a particular morpheme. Once the process is completed, the semantic components are fossilized into a lexical unit, which can syntactically function as an independent lexeme.

In this research, Talmy's way of examining lexicalization pattern in Motion event is adopted. In Talmy (2000b), lexicalization is defined as the association between the surface form and the semantic components, i.e. which semantic elements are expressed by which surface expressions. According to Talmy (2000b), this relationship is largely not one-to-one. In other words, a combination of semantic elements can be expressed by a single surface element, or a single semantic element by a combination of surface elements.

Talmy's particular interest goes to the regular associations (lexicalization pattern) among meaning components and the verb root in the motion event and tried to find out if languages exhibit a wide variety of patterns, a comparatively small number of patterns (a typology), or a single pattern (a universal). He identifies three basic lexicalization patterns for verb roots which are used by different languages, namely, Motion +Co-Event (Manner/Cause), Motion +Path and Motion +Figure.

In the first lexicalization pattern Motion + Co-Event (Manner/Cause), the main verb incorporates the information of Manner or Cause as well as the Motion itself. Examples are given below:

(9) The rock	rolled	down	the hill.
Figure	Motion+ Manner	Path	Ground
(10) The napkin	blew	off	the table.
Figure	Motion+ Cause	Path	Ground

The two sentences above can be expressed more explicitly as: [the rock MOVED down the hill] WITH-THE-MANNER-OF [the rock rolled] and [the napkin MOVED off the table] WITH-THE-CAUSE-OF [(something) blew on the napkin]. Likewise, the second lexicalization pattern Motion + Path refers to the incorporation of Path into the main verb, as illustrated in sentence (11).

- (11) La botella entró a la cueva (flotando)
The bottle MOVED-in to the cave(floating)
Figure Motion+ Path Ground.
“The bottle floated into the cave”.

In the third lexicalization pattern Motion + Figure, the verb expresses the fact of Motion together with Figure.

- (12) It rained in through the bedroom window. (Talmy 2000b: 57)
Motion+ Figure Path Ground

(2) Comparing Lexicalization Pattern of English and Chinese

A comparison between lexicalization pattern of English and Chinese HLVs reveals that there are both similarities and differences. For example, the Motion + Co-Event (Manner/Cause) pattern exists in both languages. Consider the following sentences:

- (13) The rock slid down the hill.
石头 滑下了 山。
Stone slide-down(aspect) hill
- (14) The napkin blew off the table.
餐巾 吹落了 桌子。
Napkin blow-fall(aspect) table.

In sentence (13), Manner information is encoded in the verb *slide* and “滑 huá(to slide)” respectively. In (14), cause of the motion is incorporated in the verb *blew* and “吹 chūi (to blow)”. From these examples, we can see that both languages have verb expressions of Motion conflated with either the Manner or Cause. Besides, there is also Motion + Path pattern in both languages. For instance:

- (15) 他 进 了 屋。
He entered (aspect) the house.

In the Motion+ Figure pattern, the Figure refers to the name of the Figure in the strict sense. If adopting this view, there is no similar pattern in Chinese; however, a rather broad view has been adopted in this paper. That is to say, if the verb encodes certain information of the Figure, the pattern can be thought as Motion+ Figure. See the following example:

- (16) 下了课， 学生 鱼贯而出。
After the class, students came out one behind another in the same way as fishes swim.

In (16), the verb “鱼贯而出 yúguàn ér'chū(to come out one by one)” encodes the number of the Figure, implying that there are a group of people as the Figure.

In spite of these similarities in lexicalization pattern between English and Chinese, there are some expressions that are unique to English. For instance, some English verbs encode Path, besides Manner or Cause. Two good examples are “take” and “bring”. The corresponding Chinese translations can show the conflation better:

Take-拿走/带走 Bring-拿来/带来

The Chinese verb roots “拿 ná (to take)” and “带 dài (to bring)” express only Motion and Manner. They need the satellites “来 lái (to come)” and “走 zǒu (to walk)” respectively to indicate the direction of motion, that is, the Path. It is apparent that the same linguistic meaning is expressed in different linguistic forms. This is an aspect of differences in lexicalization patterns between the two languages.

There are further combinatorial possibilities to be considered. For example, “the Ground and Path together are conflated with Motion in a minor system of agentive verbs in English (Talmy 2000b: 62), such as “shelve”, “box” in these sentences.

- (17) I shelved the books.

我把书 放在 书架上。

I book put-at shelf-upside

- (18) I boxed the apples.

我 把 苹果 放进 箱子。

I apple put-into box.

Some other English agentive verbs conflate the Figure and Path together with Motion, such as *powder* and *scale*.

(19) She powdered her nose.

她 往 鼻子上 抹 粉。

She toward nose-upside apply cosmetics.

(20) I scaled the fish.

我 刮掉 鱼鳞。

I scrape-fall fish-scale

From the corresponding Chinese translations, we could see that two components are conflated with Motion in a motion event in English. These examples also show that there are no Chinese equivalents to the English verbs *shelve*, *box*, *powder*, and *scale*; and on the contrary, Chinese speakers express the same meaning in an analytic way.

2.2.3.4 Comparing Manner Salience between English and Chinese

In order to examine what pattern a certain language falls into, a picture book, *Frog, where are you?* (Mayer 1969) has been used in extensive cross-linguistic research (Berman & Slobin 1994; Stromqvist & Verhoeven 2004). This book features a series of pictures depicting the continuous motion of a little boy. The participants from different countries are required to create sentences to describe the motion of the boy in their mother tongue. All these sentences are collected and compared across languages, with a particular emphasis on the path and manner information encoded in these sentences. It is discovered that for verb-framed languages, manner tend to be expressed in some kind of subordinate element, such as a gerund or other adverbial expression (e.g. exit flying), whereas for satellite-framed languages, the main verb of a clause is available for the expression of manner. Furthermore, frog stories in verb-framed languages almost never include mention of the owl's manner of emergence, simply using a clause with a path verb meaning 'exit'. By contrast, narratives in satellite- and equipollently-framed languages frequently encode manner with a special verb, adding an additional element for path information. The following figure presents data from hundreds of

frog stories, showing the percentage of narrators who used a manner-of-motion verb such as *fly*, *jump*, *hop*, and the like in describing this event.

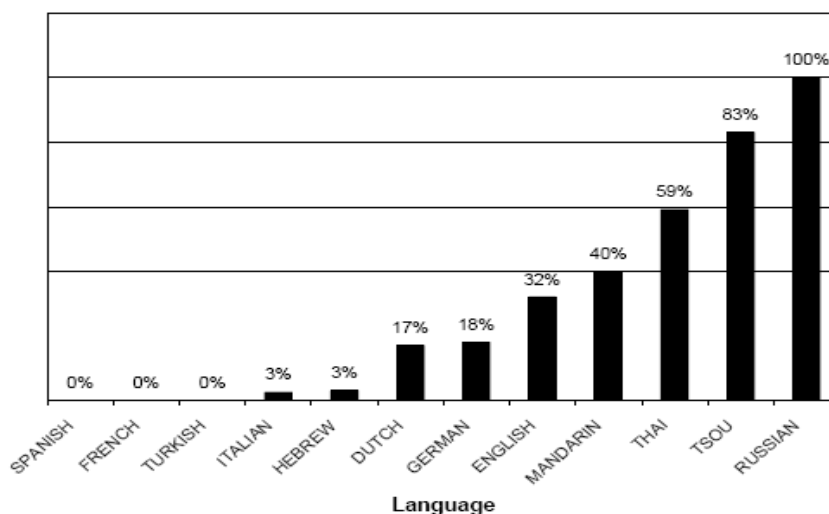


Figure 2.1 Owl's Exit: Percentage of Narrators Using a Manner-of-Motion Verb

(From Slobin 2006)

The above figure shows that the percentages of narrators who use manner-of-motion verbs in English and Chinese are quite similar, 32% in English and 40% in Chinese. However, this does not mean that this data can be extended to manner-of-motion verbs in general. In other words, we cannot rush to the conclusion that Chinese's manner salience is higher than that in English for all manner-of-motion verbs.

2.3 Theoretical Tool: Semantic Componential Analysis

For various semantic theories, one of the fundamental goals is to represent complex meanings in terms of simpler ones. Although different positions have been taken with respect to this issue, the following hypotheses are shared by various positions.

- i the meaning of every lexeme can be analyzed in terms of a set of more general meaning components.
- ii some or all these components are common to groups of lexemes in a language/cross-linguistically.

It is based on the above hypotheses that semantic componential analysis is put forward. The

semantic components could not only differentiate a group of words from another, but also a word from another within the same group. Below is a classic example, showing how semantic componential analysis is usually performed:

Group 1:

Bull: [+ bovine, + fully adult, +male]

Cow: [+ bovine, + fully adult, + female]

Group 2:

Man: [+ human, + fully adult, + male]

Woman: [+ human, + fully adult, + female]

Essentially, the two groups differ from each other at the component BOVINE vs. HUMAN and within each group, the difference hinges on gender. Likewise, HLVs such as *go*, *run*, *jump* can be prototypically analyzed as:

Walk: [+ lower-limb action, + one foot off the ground, +displacement, -quick]

Run: [+lower-limb action, + one foot off the ground, +displacement, +quick]

Jump: [+lower-limb action, -one foot off the ground, -displacement, -quick]

However, for more specific HLVs, our focus is on the detailed semantic components indicating manner information. So, *amble* is analyzed as [+ walk, + slow, + relaxed] and “昂首阔步 *ángshǒu kuòbù* (to walk with the head high and big step)” is analyzed as [+walk, +head high, +big step].

2.4 Previous Studies on Human Locomotion Verbs

2.4.1 Comparing Human Locomotion Verbs in English and Chinese

Reviewing the existing literature, the author finds that there is no comprehensive comparison between English and Chinese HLVs. As for the comparison of the same type verb in English and Chinese in terms of the semantic component and lexicalization pattern, Chinese scholars have only made some preliminary studies on verbs such as the “Walk”, “Look”, “Dig” and “Smile” type. Here I review exclusively the comparison of “Walk” type verbs, since they form a main sub-group of the HLVs.

Chen Xiujian (2006) compared the lexicalization pattern of “Walk” type verbs between English and Chinese and Luo Siming (2007) paid special attention to the “Walk slowly” type verbs. Their researches, as preliminary studies in this field, are significant in many aspects: 1) their research lend evidence to that in Chinese, the level of lexicalization degree of “walk” type verbs is lower than that in English. 2) In terms of the lexicalization pattern, Chen Xiujian (2006) concludes that English and Chinese WALK-type verbs share the lexicalization patterns of WALK +Manner and WALK +Cause. Luo Siming (2007) uses the pattern of WALK+Manner/Cause +X to refer to the lexicalization patterns in English and Chinese. In this pattern, Manner/Cause represents that one of them exists or both exist. X functions as the distinguishing factor among WALK-type verbs. 3) It is found that there are both semantic similarities and particulars of “Walk” type verbs between English and Chinese.

However, their researches are deficient in the following aspects: 1) both their studies lack a quantitative comparison: they only provide some verbs of “walk” type, not trying to give a comprehensive list. As is known, the adequacy of explanation is based on the adequacy of description; without enough data or trying to capture all these types of verbs in both languages, it is hard to justify their conclusions. 2) They fail to give sound reasons to explain why English and Chinese display the similarities or differences regarding the WALK-type verbs. 3) Both of the studies only discuss WALK-type verbs and other types of HLVs are excluded. 4) When they analyze the manner granularity of “walk” type verbs, no consistent parameters are adopted. For instance, when Luo Siming (2007) makes a detail componential analysis of the “walk slowly” types verbs, he adopts the way as bellows:

**Table 2.1 Componential Analysis of WALK-type Verbs
(Adapted from Luo Siming 2007)**

Verbs	Sense	Semantic componential analysis
pace	To walk backwards and forwards within a small area, especially because you are nervous, bored, or angry	缓步 (walk slowly)+ 前前后后 (backwards and forwards)+小范围 (within a small area)+紧张或烦恼或生气 (nervous, bored or angry)
stroll	To walk for pleasure in a slow and relaxed way	缓步 (walk slowly)+消遣 (for pleasure)+悠闲 (in a relaxed way)

amber	To walk in a slow and relaxed way, especially when you are going a short distance, or not going anywhere in particular	缓步(walk slowly)+消遣(for pleasure)+悠闲(relaxed)+短距离或原地不动(short distance, or not going anywhere)
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As presented in the above table, Luo Siming (2007) conducts a rather literal analysis of the manner granularity in “walk” type verbs. Although this way of analysis reduces subjectivity, Luo fails to give a consistent list of manner parameters, which adds difficulty to compare the manner granularity between English and Chinese HLVs.

2.4.2 Manner Granularity of Human Locomotion Verbs

(1) Definition of Granularity

Granularity is a concept which relates closely to the notion of *detail/precision* and *event*. To be concrete, it refers to the investigation of different levels of detail (precision) in different relationships (events). Narasimhan and Cablitz (2002), suggest that one way of viewing granularity is in terms of how much detail about events is provided in typical descriptions of events. It is easy to conclude that granularity refers to different levels or degrees, which gives rise to the terms like *fine-grained* or its polar opposite *coarse-grained*, depending on how detailed the encoded information is.

To give the simplest example, both lexical verbs i.e. *walk* and *amble*, encode manner of motion. There is divergence, however, as for the richness of the information encoded: while *walk* encodes a motion event in which one uses one’s legs to move, *amble* enriches this idea by adding information of a leisurely pace at which this motion is performed. The inclusion of the extra semantic detail entails that *amble* is more precise, and may be said to be of a finer grain than *walk*.

Manner Granularity of Human Locomotion Verbs

After putting forward the notion of the *cline of manner salience*, Slobin (1997: 459) has conducted further research about manner-of-motion verbs among languages and found that languages possess a two-level or ‘two-tiered’ lexicon of manner-of-motion verbs: (1) a general or super-ordinate level such as *walk*, *run*, and *jump* (2) a specific level which

expresses detailed information about manner, such as different ways of walking like *stroll*, *wander*, or *shuffle*, different ways of running like *sprint* or *jog*. In order to distinguish among various specific words denoting human locomotion, manner is divided into different fine-grained categories in an attempt to capture the semantic nuances among different manner-of-motion verbs.

Özcaliskan (2004) compares the typological variation in encoding the Manner, Path and Ground components of a metaphorical motion event between English and Turkish, where he uses the phrase *domain of manner* to mean the same thing as granularity of manner and lists nine domains: rapid motion, forced motion, obstructed motion, leisurely motion, smooth motion, furtive motion, manners of walking, manners of jumping and manners of running.

By summarizing different ways of dividing the manner information, this paper draws the following figure, which captures most of the manner granularities related to the description of human locomotion. However, it is noteworthy that in this research, after conducting a detailed semantic componential analysis of English and Chinese HLVs, the author reclassifies and makes a more subtle division of the manner granularities, which will be explored one by one.

Table 2.2 Manner Granularities

Manner categories	Definition	Information about ...	Examples
Motor pattern (mp)	basic locomotive abilities	Motion	Ways of walking Ways of running Ways of jumping
Forced motion	motion requires an effort to be performed	Motion	drag, trudge
Furtive motion	hidden purpose or secretive motion;	cause	crawl, creep, sneak
Obstructed motion	there is some impediment or obstacle	Motion	stumble, trip

Smooth motion	motion flows, no obstacle	Motion	glide, slide
Leisurely motion	motion for pleasure	Motion	roam saunter
No aim in motion	no special purpose	Motion	roam, saunter
Joyful, playful motion	Motion conducted with joy	Motion	scamper, frolic
Violent motion	Motion requiring effort	Motion	charge, dash
Unsteady motion	unbalanced motion	Motion	totter, stagger
Rate	speed of motion	Motion	hurry, dash, zoom
State of Figure	physical or psychological state	Figure	limp, traipse, stroll
Length of Steps	about the steps the Figure takes	Motion	stride (long steps)
Shape of Legs	information about the Figure's legs	Figure	goosestep
Use of Figure's Hands	whether Figure's hands are also involved in the motion	Figure	crawl, climb, vault

It could be inferred, from this table, that the existing division of manner information is not satisfactorily reasonable. For example, the type of “joyful, playful motion” can be regarded as one subtype of the state of Figure (specifically, the psychological state). To avoid redundancy and repetition, it is necessary to find a clearer way of setting up these parameters. Later in chapter 4, I will deal with manner specification of HLVs between English and Chinese from a more detailed and clear-cut perspective.

2.5 Summary

In sum, this chapter falls into three parts: the theoretical motivation, theoretical tool and a review of the previous studies on HLVs. Let us recall how this research is proposed: within Talmy's typology in terms of Path, it remains controversial which type Chinese language belongs to; then, I turn to Slobin's typology in terms of Manner, trying to compare English and Chinese on *the cline of manner salience*. However, it is impossible for us to compare all manner-of-motion verbs in the two languages. So, it is better to compare certain type of manner-of-motion verbs, which should not be too much colored by cultural influences. Finally, an important sub-type of manner-of-motion verbs, namely, HLVs, has been selected as the research target. I then review the previous studies on HLVs and find there are some gaps, which would be bridged in this dissertation. The next chapter is devoted to the

introduction of the methodology adopted by this dissertation.

Chapter 3 Research Methodology

3.1 Introduction

This chapter is about the research methodology, including the procedure and methods. The procedure includes several steps of how this research is conducted. Special emphasis would be placed on the data collecting process, which in turn includes identifying HLVs in English and Chinese, and collecting their senses from dictionaries. Methodologically, this research endeavors to combine qualitative and quantitative, introspective and empirical, descriptive

and explanative methods.

3.2 Research Procedure

The approach of this research can be summarized as in the following procedural outline:

Step 1: to map out the basic HLV lexical inventory available in English and Chinese, that is to say, to present a comprehensive list of HLVs in both languages. As for senses of these verbs, only those indicating human locomotion are collected from dictionaries.

Step 2: to conduct a semantic componential analysis of all the HLVs collected from both languages.

Step 3: to make a comparison in terms of the lexicalization patterns and manner granularity between English and Chinese HLVs.

Step 4: to account for the similarities and differences found in step 3, from a cognitive and typological perspective.

Noticeably, step 1 is the data collection stage; steps 2 and 3 involve the data analysis and finally step 4 proceeds to the explanation stage. The data collection and data analysis stage will be discussed in the following sections.

3.2.1 Data Collection

The data collection stage consists of two phases: firstly, to identify HLVs in English and Chinese; secondly, to collect senses of these HLVs from dictionaries. The first process appears extremely important, since the quantitative analysis requires that we should try to neither over-count nor under-count the HLVs in either language, otherwise, the reliability of the research will be ruined to a great extent.

Before we proceed to introduce the method to identify HLVs in English and Chinese, we must deal with a definitional problem: identifying ‘verb’ in English and Chinese. It is known to the linguistic circle that the identification of a ‘verb’ across languages is highly problematic. The basic problem is that linguists apply different criteria in each language to identify a category such as ‘verb’. What’s more, the criteria are not cross-linguistically comparable, in that they employ language-specific constructions. Talmy (2000b) circumvents

this problem by comparing the lexicalization pattern of *verb root*, when he compares the lexicalization pattern of motion verbs across languages. For this research, it is easy to identify verb in English, the problems lies in the HLVs in Chinese. The following factors should be considered:

- i. Disyllables prevail in modern Chinese (Chen Xiujuan 2006:55) and it is found that there are few monosyllables indicating human locomotion. One type of these monosyllables are HLVs such as “走 zǒu(to walk)”, “跑 pǎo(run)”, “跳 tiào(to jump)”, “攀 pān(to climb)” and “爬 pá(to crawl)”, which refer to the general motor patterns without further specification of manner; the other type is those verbs which are only used in ancient times such as “蹠 lì(to go around)” and “躄 jí(to walk with small steps)” but have gone out of use. Alternatively, some monosyllables have been combined to disyllables to indicate human locomotion, say, “跋 bá (to walk across mountains)”and “涉 shè (to walk across water)” have been combined to a disyllable “跋涉 báshè (to walk across mountains and water)”. In view of these facts, monosyllables are excluded from this research. Since verbs indicating general motor patters (“走 zǒu”, “跑 pǎo”, “跳 tiào”, “攀 pān” and “爬 pá”) are excluded, their counterparts in English, namely, *walk*, *run*, *jump*, *climb* and *crawl* are also not examined.
- ii. For the current research, verb is defined from a broad sense, that is to say, I collect not only verbs in a strict sense but also verbal idioms which could function as verbs grammatically.

The specific way to collect HLVs in English and Chinese is specified below:

(1) Identifying HLVs in English

Since it is nearly impossible for us to search HLVs manually from the dictionary, a much more convenient way has been applied by examining what Levin (1993) called *Run* verbs and Levin and Rappaport Hovav (1998: 282) later renamed *agentive verbs of manner of motion*, which is the largest and most important class of manner-of-motion verbs. It encompasses verbs which describe different manners in which animate entities can move. This approach to

collect HLVs in English is adopted on the grounds that HLVs are a subtype of *agentive verbs of manner of motion* and hence I can select HLVs from the *agentive verbs of manner of motion* according to the criteria set up in the first chapter.

Levin lists (1993: 265-266) 125 *Run* verbs (as listed in appendix 1), but even a casual examination of an authoritative dictionary shows that there are many more. The following verbs from Garrudo (1991, 1996) can also be included in this class:

barge, blow, break, burn, cruise, crush, drop, leapfrog, sag, schuss, scorch, scrape, scuff, shin, shoot, shove, shuttle, slip, snake, spank, spring, sprint, stamp, steal, steam, steer, step, storm, stream, struggle, surge, swing, throng, thrust, toboggan, toil, tootle, whirl

And from the *Longman Dictionary of Contemporary English*, one can draw *lurk* (to move furtively or inconspicuously), *pound* ("to move along heavy or persistently" in one of its transitive senses, but "to move with or make a heavy repetitive noise" in one of its intransitive senses) and *dawdle* (to move lackadaisically: dawdled up the hill). By the same way, I have added another 11 *Run* verbs from other research. They are *bustle, caper, edge, flounce, pace, stalk, straggle, sweep, trip, waltz, wriggle*.

Up to now, 177 agentive verbs of manner of motion have been collected. This saves the author the huge project to search HLVs in the dictionaries by hand, among which 110 HLVs have been identified as human locomotion verbs, which are listed in Appendix 2. It is noteworthy that I fail to find any verbal idioms expressing human locomotion in *English Idioms with Chinese Translation*.

The senses-collecting process is dictionary-based. Senses are searched from two authoritative dictionaries, with an attempt to increase the credibility of the analysis. The two dictionaries are *Longman Dictionary of Contemporary English* (2003) and *Oxford Advanced Learner's English-Chinese Dictionary* (2002).

(2) Identifying HLVs in Chinese

The way of identifying Chinese HLVs is as follows: firstly, to collect disyllable HLVs under the sub-categories of lower-limb and the whole-body action from *The Modern Chinese*

Semantic Classification of Verbs Dictionary, which classifies verbs into different categories in terms of meaning. Secondly, for verbal idioms, I have searched in the dictionary *The Dictionary of Modern Chinese Idioms*. Finally, *The A Comprehensive Dictionary of Chinese verbs* acts as a supplement to the dictionaries above. In total, 108 Chinese HLVs have been identified, which are listed in Appendix 4 and their senses are collected from the above three dictionaries.

3.2.2 Data Analysis

This stage can also be divided into two processes, one from macro and the other from micro perspective. The first process is to analyze the semantic components encoded in the HLVs. The second process is to single the Manner component out for detailed examination.

3.3 Research Methods

3.3.1 Combination of Qualitative & Quantitative Methods

The qualitative aspect of this research is primarily manifested in two processes: to identify HLVs in two languages and to nail down specific manner information of a HLV. For convenience of comparison, this research also adopts a quantitative method to compare the number of HLVs, preference of manner granularity, distribution of certain motor pattern etc. between two languages. As reviewed in chapter two, previous comparative studies of certain class of verb fail to adopt the quantitative method; most of them achieve their conclusion only by giving some examples.

3.3.2 Combination of Introspective & Empirical Methods

Since language is spoken by people, people's experience and perception plays a significant role in the research of language. However, experience and perception is subject to subjectivity and impreciseness and thus needs be backed up by objective evidence. In this sense, introspective and empirical methods should be combined to an organic whole. In each stage of this research, the author attempts to achieve this. For instance, when selecting HLVs from dictionaries, the research is based not only on senses from dictionaries but also the encyclopedic knowledge. Likewise, in the semantic componential analysis, judgments are

made on the senses collected from both dictionaries and introspection.

3.3.3 Combination of Descriptive & Explanative Methods

This research has conducted a detailed description of the senses of HLVs in dictionaries. Two general principles are observed: the first one is the “discrepancy principle”, which refers to that during the description process, the author pays attention to the differences of HLVs from verbs of other type and the discrepancy among sub-classes of HLVs; the second principle is the “discovery and explanation-oriented description”. To put it in another way, description itself is not the end. In this research, I describe the HLVs and their manner granularity, with the ultimate goal to compare and explain similarities and differences between English and Chinese HLVs.

3.4 Summary

To sum up, in order to pave the way for the next chapter, this chapter introduces the research methodology, including the research procedure and methods. Particularly, a thorough explanation has been given to the means of collecting HLVs in the two languages. Obviously, a more scientific, and convincing approach to collect the data is to search the English HLVs by sifting through all the lexical items in the dictionary one by one, as I did for Chinese HLVs. However, this would be such a huge and exhausting task that is beyond the author’s ability in a limited period of time. Therefore, this research consults the list of *agentive verbs of manner of motion* summarized by Levin and Rappaport Hovav (1998). As for the method, this research has tried to combine qualitative and quantitative, introspective and empirical, descriptive and explanative methods. The next chapter will carry out a comparative study of HLVs in detail, based on the procedure and methods outlined above.

Chapter 4 Comparison of Semantics

between English and Chinese Human Locomotion Verbs

4.1 Introduction

The literature review in Chapter 2 provides the theoretical motivation, theoretical tool and previous studies for this study. In order to bridge the gap, this chapter is devoted to comparing the lexicalization pattern and manner granularity of HLVs between English and Chinese. In other words, the focus of this chapter is the semantic construction of HLVs. I will illustrate the cross-linguistic variation or similarities in the encoding of human locomotion between English and Chinese. In section 4.2, I examine HLVs from a rather

macro-perspective by analyzing semantic components incorporated in these verbs, namely Manner, Figure, Ground, Path and Cause; in section 4.3, I change the method to micro-perspective, paying special attention to the specification of Manner.

4.2 Conflation of Motion + Two Other Semantic Components

As mentioned earlier, Talmy identifies three major lexicalization patterns of verb root in different languages, namely, MOTION + Co-Event (Manner/Cause), MOTION + Path, MOTION + Figure. Following Talmy’s method, I find that besides Manner, information about Figure, Ground, or Path can be also incorporated in the HLVs.

4.2.1 Figure + Manner

It is necessary to differentiate general information about Figure here and more detailed information about Figure, which I will deal with later. Figure here refers to its generic attributes, such as the type and age of the Figure. More specific information about the Figure is regarded as depicting the manner of motion, such as the physical and psychological state of the Figure. In English, there are some HLVs which encode information about Figure and Manner, as specified in the following table.

Table 4.1 Figure +Manner (English HLVs)

HLVs	Sense	Figure	Manner
File	to walk in a line of people, one behind the other	a group of people	one behind the other
March	to walk as soldiers do, with regular steps of equal length; march in procession	a group of people	regular steps
Parade	to march or walk in a procession or in order to display sth	a group of people	in procession
Troop	(with a pl subject) come or go together as a troop or in large numbers	a group of people	as a troop
Toddle	(esp a young child) walk with short unsteady steps	a young child	short unsteady steps
Dodder	to walk in an unsteady way shaking slightly, especially because you are old.	old people	unsteady steps

From the above table, we can see that information about the Figure, such as the number and age of the Figure could be lexicalized in the English verbs. While in Chinese, it is found that the specified information of Figure is slightly different.

Table 4.2 Figure +Manner (Chinese HLVs)

HLVs	Sense	Figure	Manner
独步/蹒跚独行/独行	to walk alone	Only one person	Walk
鱼贯而行	to walk one behind another like the way fishes swim	A group of people	One behind another

By comparing the Figure information encoded in English and Chinese, I find out the interesting similarities: 1) in both English and Chinese, two aspects of Figure can be lexicalized in the verbs, namely, number and age of the Figure. However, they differ in the following aspects: 1) in English, there is no single verb to express the concept of “walking alone”, while in Chinese, I find three verbs to denote this meaning. 2) In Chinese, we apply the adverb “蹒跚 pánshān (haltingly)” to describe the walking of both the child and the aged, such as “蹒跚学步 pánshān xuébù (to walk haltingly, esp. when children learn to walk)” and “蹒跚而行 pánshān ér’xíng (to walk haltingly)”. The lexicalization differs in that in English, Figure is encoded in the verb while in Chinese, we apply the adverb “蹒跚 pánshān (haltingly)” to describe the manner.

4.2.2 Ground + Manner

Ground specifies the location where the human locomotion takes place. Broadly speaking, it indicates the medium, by which the human locomotion happens, including terrestrial, submarine, and celestial motion. Most of the HLVs refer to terrestrial motion, a few submarine and no celestial motion. This distribution corresponds to our daily life: we conduct locomotion, mostly on the ground and sometimes under the water; if only by biological motion, we could not fly in the sky.

There are two English verbs indicating the meaning of “walking in the shallow water”, namely, *wade* and *paddle*. In Chinese, this concept is also lexicalized as “涉 shè (to walk in

water)” in “跋涉 *báshè* (to walk across mountains and in water)”. As for the terrestrial motion, different places can act as the Ground, such as the countryside, the street, and the mountain. For convenience of presentation and comparison, I also summarize HLVs in terms of different Grounds in the following table.

Table 4.3 Ground + Manner (English HLVs)

HLVs	Sense	Ground	Manner
hike	to walk a long way in the mountains or countryside	Mountains or countryside	Walk
ramble	to go for a long walk or walks, usually in the countryside, for pleasure	Countryside	Long walk
promenade	take a leisurely walk or ride in public(esp. along a promenade)	Promenade	Leisurely walk or ride
tread	to walk along (a path or road)	A path or road	Walk

As illustrated in the above table, English speakers employ those verbs to express motion taking place in certain places. It is noteworthy that this does not mean that the motion of these verbs must happen in these places; it is merely a tendency. For example, we cannot assert that rambling must happen in the countryside. Next, we proceed with the case in Chinese.

Table 4.4 Ground +Manner (Chinese HLVs)

HLVs	Sense	Ground	Manner
跋涉	walk over the mountain and in the water	Mountain/water	walk
翻山越岭	climb over the mountains	Mountains	walk
远足	take a long journey especially in the suburbs, countryside or mountains	Suburbs, countryside or mountains	Walk
飞檐走壁	to walk on eave and wall	Eave and wall	Flying-like walk

Coincidentally, Ground such as mountain and countryside can be lexicalized in both languages. However, we note that the two languages also display distinct features regarding the lexicalized information about Ground, owing to different customs or cultures. For example, the English verb *promenade* is perhaps as strange, to the Chinese, as the verb “飞檐走壁 *fēiyán zǒubì* (to walk on eave and wall)” to the English. As we all know, in English culture, it is usual to take a walk at the seaside, namely, the *promenade*, which adds the

necessity to create a specific word to describe this concept. In the same way, Chinese boasts numerous novels about martial arts. Hence, no wonder Chinese would create the verb idiom “飞檐走壁”, though a little exaggerating, to describe those with excellent acrobatic feats.

4.2.3 Path + Manner

Both English and Chinese lexicon possesses verbs encoding information about Path in addition to the manner information. Talmy (2000) identifies three main components of Path, i.e., Vector, Conformation and Deictic. Vector (Talmy 2000b: 53) expresses “the basic types of arrival, traversal and departure that a Figural schema can execute with respect to a Ground schema”. In other words, it is a concept relative to the ground, specifying the dynamic features of the Figure during different stages of the movement. It is represented by abstract prepositions such as TOWARD and TO. Conformation is another component of the Path and indicates the spatial relation of the Path to the Ground. Take English word *in* as an example, we use it to express the Figure located at the inside of an enclosure. Finally, by *Deictic*, Talmy means the direction away from or toward the speaker’s view point. It is found that information about Path encoded in HLVs is mainly about Vector of Path. Here, we distinguish three sub-types of Vector:

(1) Path (towards the Ground) + Manner (run/walk, rate+ fast)

This sub-type corresponds to the arrival stage of the Vector, i.e., the Figure comes towards the Ground. In English, we have verbs such as *charge*, which means “to deliberately rush quickly towards someone or something in order to attack them”, *lunge*, which carries the meaning of “to make a sudden strong movement towards someone or something, especially using your arm and to attack them”. In Chinese, we have verbs “径奔 jìnbēn (to walk directly toward)”, 赶奔 gǎnbēn (to walk towards), “扑奔 pūbēn (to run directly towards)” to express the meaning of “run directly towards the destination”. It is interesting to note that verbs of this type all carry the concept of quickness.

(2) Path (away from the Ground) + Manner (run/walk)

This sub-type is identical to departure stage of vector in expressing the meaning of “leaving away from the Ground”. In English, *scurry* and *scuttle* mean “to run with short, quick steps,

especially to escape from something.” In Chinese, we apply verbs such as “扬长而去 yángcháng ér’qù” to express the concept of “to sail out of the Ground”. More examples are “奔窜 bēncuàn(to run away from)”, “溜走 liūzǒu(to run away from)”.

(3) Path (around the Ground) + Manner (walk)

The third subtype is similar to the traversal stage of vector. It is found that in both English and Chinese there are some HLVs which imply motion taking place around a certain wide area. *Rove*, for example, ususally refers to waking over a large area and *pace* walking with slow, regular and steady steps, usually backwards and forwards. More verbs of this type are *prowl*, *mooch*. In Chinese, we have “踱步 duóbù(to walk slowly around the Ground)”, “转悠 zhuànyōu (to walk slowly around)”, “徜徉 chángyáng(to walk relaxedly around)”, etc.

4.2.4 Summary

Up to now, I have discussed the general semantic components that could be encoded within HLVs in both languages, exporing both similarites and differences. That is to say, the first one of the research questions has been answered. In the next part, I will shift the attention to the specification of Manner, in an attempt to answer the second research question.

4.3 Manner Granularities in English and Chinese HLVs

In this section, I narrow down the focus to the specification of manner information in HLVs and present the analysis in six motor patterns: WALK, RUN, JUMP, CRAWL ,CLIMB and MULTIPLE. MULTIPLE pattern refers to those HLVs designating either walking or running or the motion in between. Their senses are listed in the dictionary in the form of “to move...” . In English, there are 110 HLVs in totoal, among which there are 49 referring to walk, 13 referring to run, 6 referring to jump, 3 to climb, 0 to crawl, and 39 to multiple pattern. In Chinese, there are 108 HLVs in total, among which there are 62 walk-type verbs, 16 run-type verbs, 14 jump-type verbs, 11 climb-type verbs, 4 crawl-type verbs and 2 multiple-type verbs. The following figure captures the distribution of motor patterns in both English and Chinese.

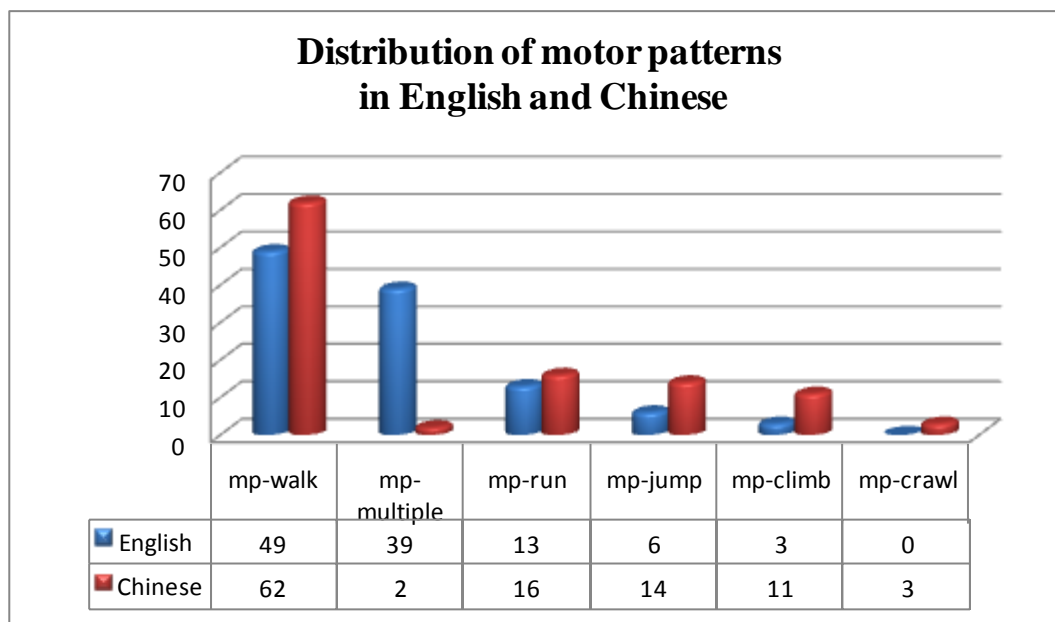


Figure 4.1 Distribution of Motor Patterns in English and Chinese

It is interesting to note that English possesses much more verbs indicating a multiple pattern than Chinese and the distribution of motor patterns in both languages follows the descending order: walk-type > run-type > jump-type > climb-type > crawl-type walk. This seems to correspond to the frequency of the human locomotion conducted in daily life. Next, I will explore the manner specification of these motor patterns.

4.3.1 Motor Pattern-WALK

Both English and Chinese possess a variety of WALK type verbs to describe various gaits with subtle differences. In English, there are 49 in total, which differs from each other in terms of the manner granularity. In Chinese, there are 62 in total, all which are listed below.

WALK-type verbs in English (49 in total):

amble, clump, dodder, file, goose-step, hike, hobble, limp, march, meander, mince, mosey, pace, pad, parade, perambulate, plod, prance, promenade, ramble, roam, rove, sashay, saunter, scuff, shamble, shuffle, sidle, sleepwalk, slog, slouch, stalk, step, stomp, stride, stroll, strut, stumble, stump, swagger, tiptoe, toddle, totter, traipse, tramp, trudge, waddle, wade, waltz

WALK-type verbs in Chinese (62 in total):

昂首阔步 跋涉 奔走 便步 跛行 跛脚 步趋 步行 步履蹒跚 穿行 徜徉 彳亍 独步 蹀躞 踱步 独行 鹅行鸭步 飞檐走壁 赶路 高视阔步 缓步 缓行 疾步 疾行 举步如飞 举步生风 踽踽溜走 蹒跚 漫步 徘徊 徘徊歧路 潜行 绕行 三脚两步 散步 随行 同行 蜗行牛步 行进行军 行走 徐步 徐行 巡行 闲步 偕行 信步 行步如飞 远足 移步 移行 衣锦夜行 鱼贯而行 掩鼻

而过 掩耳而走 扬长而去 转悠 走动 走路 钻行 趑行

As mentioned before, the method used is semantic componential analysis. Here is a sample indicating how such analysis is conducted. For the semantic analysis of all the HLVs, please refer to Appendix 3 and 5.

Table 4.5 Semantic Analysis of a Selected Sample

HLVs	Definitions (two sources)	Semantic construction
amble	(of a person) ride or walk at a slow, leisurely pace	WALK+ rate(slow)+state(relaxed)
	To walk in a slow relaxed way	
clump	Walk in the specified direction putting the feet down heavily	WALK+ force of step (heavy)+sound(noise)+rate(slow)
	(Longman) to walk with slow noisy steps	
dodder	(informal) move or act in a shaky unsteady way, because of old age or weakness	WALK+ Figure(old)+steadiness of step(unsteady)
	To walk in an unsteady way shaking slightly, especially because you are old.	
昂首阔步	抬起头大步前进, 形容精神振奋, 勇往直前的样子	WALK+ step(big)+state(energetic)
跋涉	徒步爬上蹚水	WALK+ Ground(water/mountain)
徜徉	逍遥自在的来回走动	WALK+ Ground(around the Ground)+state(relaxed)
彳亍	慢步走; 走走停停	WALK+ rate(slow)

As shown in the above table, manner granularities such as “rate”, “force of step” and “state” have been identified after a detailed analysis of HLVs in both languages. The walk-type verbs can specify manner granularities as follows. For those manner granularities which only exist in one language, I try to list their corresponding expression in the other language, with the aim to unveil the difference in the coding of manner.

Body parts as active zones:

Here, I borrow the concept of *active zone* from Langacker (1987), which refers to those portions of the entity that participate most directly and crucially in the profiled relationship. Compare the following sentences:

[1] Your dog bit my cat.

[2] ? Your dog bit my cat with its teeth.

In the above sentences, it is evident that the relational predication [BITE] designates an interaction which involves only selected parts of the entities, i.e. the teeth of the dog and part of the cat's body. However, there is a notable phenomenon called *active zone discrepancy*, which refers to the fact that the active zone does not always need to be explicitly mentioned by a linguistic form. That's why sentence [2] appears to be infelicitous and redundant.

For WALK-type verbs, it is obvious that the arms and the lower limbs act as the active zones. However, occasionally a specific body part would be more actively involved and become the active zone:

(1) Knee as active zone:

For natural gaits of walking, the default manner of one's knee is to remain bended and straight alternately. However, the verb *goosestep* requires "the knee not bending". In Chinese, the counterpart is the noun "正步 zhèngbù" and there is another verb "膝行 xīxíng" describing the motion of "to move forward on one's knees."

(2) Feet or legs as active zone:

One's feet are supposed to touch the Ground alternately when walking. However, there are verbs expressing special gaits of walking, say only the toes touch the Ground or the feet drag along the Ground. The former gait is lexicalized in the verb *tiptoe* and the latter *shuffle*, *scuff*, or *shamble*. If one's feet or legs are injured or disabled, we can use the verbs *hobble* or *limp* to describe the manner of their walking. In Chinese, we may say "踮着脚走 diǎnzhējiǎo zóu (to walk on one's tiptoe)", "拖着脚走 tuōzhējiǎo zóu (to walk dragging one's feet) and "一瘸一拐地走 yìquányìguǎi dézóu (to walk lamely)" respectively to depict these three ways of walking. In the third situation, we also have verbs which encode the manner information, namely, "跛行 bǒxíng (to walk lamely)". From these examples, it seems that Chinese language prefers the pattern of adverb + general verb construction, where the manner information is encoded in the adverb; whereas in English, people seem to prefer incorporating manner information within the verb.

(3) Hip as active zone:

English speakers use the verb *mince* to describe a certain unnatural way of walking with the hip moving. We translate this verb into Chinese as “扭扭捏捏地走 niǔniǔniēniē dēzǒu (to walk unnaturally)”. Again, the adverb + general verb structure is adopted.

(4) Shoulder as active zone

In English, we use the verb *swagger* to express the concept of “to walk proudly, swinging your shoulders in a way that show too much confidence”. In Chinese, the adverb + general verb structure “趾高气扬地走 zhǐgāoqìyáng dēzǒu (to walk proudly)” has the same connotation.

(5) Head as active zone

In Chinese, “昂首阔步 ángshǒu kuòbù(to walk with head high and big steps)” depicts the scene of a person making great strides with head up, in which the character “首 shǒu(head)” refers to the head. In English, the verb *strut* implies the walker’s head is high, with the chest being pushed forward.

(6) Eye as active zone

In Chinese, “高视阔步 gāoshìkuòbù (to walk with big steps, looking at a higher place)” literally means a person making great strides with his eyes looking at higher place. There is no HLV profiling the eye in English.

(7) Nose as active zone

It is hard to associate one’s walking with his nose. However, in Chinese, nose can actually be lexicalized in the walk-type verb “掩鼻而过 yǎnbí ér’zǒu”, which means “walking with one’s nose covered”. In English, there is no counterpart verb.

(8) Ear as active zone

Like nose discussed in (7), ear hardly bears any relationship with walking. Again, it is in Chinese that we find verbal idiom of similar construction “掩耳而走”, which means “to walk with one’s ear covered”.

Velocity:

English boasts a lot of verbs which incorporate information about the velocity. It is noteworthy that velocity is a rather relative concept: on the continuum of velocity, we can

only say the speed indicated by a verb is comparatively slow or comparatively fast. The identifying of the following verbs is based on their senses listed in the dictionary.

- (1) Slowness: among English walk-type verbs, there are several verbs which carry the state of slowness, such as *amble*, *clomp*, *dodder*, *limp*, *meander* etc. In Chinese, we find verbs such as “徐行 *xúxíng* (to walk slowly)”, “缓步 *huǎnbù* (to walk slowly)”.
- (2) Quickness: when searching the English verbs with semantic features of [+walk, +quickly], I only find the verb *march* and *stride*. Most of the verbs indicating quick motion are those in the form of “to move...” instead of “to walk...”. Possibly, English prefers to view this kind of quick walking as moving in general sense. However, in Chinese, verbs such as “步趋 *bùqū*”, “举步如飞 *jǔbù rúfēi*”, “举步生风 *jǔbù shēngfēng*”, “行步如飞 *xíngbù rúfēi*” and “疾步 *jíbēn*” are all characterized as [+walk, +quickly].

State of Figure:

State of the Figure refers to the Figure's physical or psychological conditions. Physically, the Figure's legs or feet could be injured (*limp*/ “跛行 *bǒxíng* (to walk lamely)”) or the Figure feels tired (*trudge*/ *traipse*). Psychologically, a much more varied emotion can be contained in the verbs: the Figure may feel relaxed (*roam*, *saunter*, *amble*, *meander*, *mosey*, *stroll*/ “徜徉 *chángyáng*(to walk around an area in a relaxed manner)”, “闲步 *xiánbù*(to walk in a relaxed manner)”), angry (*flounce*, *stomp*, *storm*/ “扬长而去 *yángcháng ér'qù*(to walk angrily)”), frightened (*bolt*, *slink*), proud/arrogant (*stalk*, *strut*, *swagger*), confident (*prance*, *sashay*), joyful (*caper*, *gamble*) or energetic (“昂首阔步 *ángshǒu kuòbù*(to walk with big steps and head high)”))

Aim:

Interestingly, the aim (or no definite aim) of walking could also be lexicalized in HLVs. In English, verbs such as *drift*, *meander*, *mosey*, *roam*, *wander*, *stray* and *rove* express the idea of no aim. However, there can be various aims when walking, such as to attack (*lunge*), to have leisure (*promenade*/*saunter*/*stroll*), to do something bad (*skulk*). In Chinese, when the Figure takes a walk without definite aim, we describe such walking as “便步 *biànbù*”, “漫步 *mànbù* 漫步”, “闲步 *xiánbù* 闲步” or “信步 *xìnbù* 信步”. The aim also can be to complete (“赛跑 *sàipǎo*”) or to do

something secret (“潜行 qiǎnxíng”).

Step:

For the granularity of step, we can depict its different aspects, such as its length, shape, force or steadiness. As for the length of step, it can be short (*mince, toddle, waddle*, “蹠蹠 diéxiè (to walk with small steps)”), regular (march, *pace*) or long (*stalk, stride*, “高视阔步 gāoshì kuòbù (to walk with long step, looking at a higher place)”), “昂首阔步 ángshǒu kuòbù (to walk with head high and big steps)”).

As for the shape of the step, Chinese language captures very vivid description in the verbal idioms such as “鹅行鸭步 éxíng yābù (to walk with steps like those of goose and duck)” and “蜗行牛步 wōxíng niúbù (to walk slowly with steps like those of snail and cow)”. In English, we fail to find similar verbs. Force of step includes heavy and light step. The first kind is illustrated in the verbs such as *tramp, clomp, trudge* and *plod*, and the second type such as *trip* and *pad*. In Chinese, people tend to encode the force of step in adverbs, such as “轻快地 qīngkuàidē (quickly)”, “沉重地 chénzhòngdē (heavily)”. Steadiness of step is emphasized in the verb *slog* (walk steadily, often with difficulty) and *totter/ stagger* (walk or move unsteadily). In Chinese, we encode the unsteadiness of step into the verb “步履蹒跚 bùlǚpánshān (to walk lamely)”.

Sound:

It is natural for people to walk with sound resulted by the rubbing between the feet and the Ground, so in most cases information about sound would not be incorporated in the verb. However, if the sound is too loud or too small, it can be profiled by the HLV. We find verbs characterized by [+walk, +noise] and [+walk, +quiet] respectively. For the former class of verbs, we find *clump, shuffle, stomp* and *tramp* in English and the second class of verbs, *sidle, slink, slip, sneak* and *tiptoe*. In Chinese, there are not verbs explicitly denoting the sound of walking.

Attention:

The walker’s intention to attract attention or not can also be incorporated in the verb. In English, we find several walk-type verbs denoting the concept of “to avoid attracting

attention”, such as *creep*, *sidle*, *skulk*, *slink*, *slip* and *sneak*. Quite the opposite, *prance* and *sashay* indicate that the Figure tries to catch attention from others. In Chinese, when the Figure avoids attention, we use verbs such as “溜走 *liūzǒu* (to walk away secretly)” and 潜行 *qiánxíng* (to walk secretly)”; otherwise, we use the adverb+ general verb of “大摇大摆地走 (*dà yáo dà bài dì zǒu*)”.

It is noteworthy that some of the manner granularities are closely related, such as the force of the step, sound and attention. It is easy to see that if the force of the step is strong, then the sound is loud and quite possibly, the Figure is trying to catch attention from others.

4.3.2 Motor Pattern-RUN

In both English and Chinese, there are fewer verbs denoting the concept of *run* compared to the WALK-type verbs. Here is a list of the running verbs in both languages.

Running verbs in English (13 in total):

barge, bolt, bound, charge, jog, lope, scamper, scoot, scurry, scuttle, skitter, sprint, trot

Running verbs in Chinese (16 in total):

奔窜, 奔跑, 奔腾, 奔逐, 奔逸绝尘, 飞奔, 飞驰, 飞跑, 疾驶, 径奔, 狂奔, 跑步, 扑奔, 赛跑, 小跑, 迅跑, 直奔

The two languages possess nearly the same number of running verbs. There are some cross-linguistic similarities and differences. In both languages, running verbs include a large amount of verbs denoting fast rate: *to bolt*, *to charge*, *to lope*, *to scamper*, *to scoot*, *to scurry*, *to scuttle*, *to skitter*, *to sprint* in English and “奔跑 *bēnpǎo*”, “奔逸绝尘 *bēnyìjuéchén*”, “飞奔 *fēibēn*”, “飞驰 *fēichí*”, “疾驶 *jíchí*”, “迅跑 *xùnpǎo*” in Chinese. However, in English there are more running verbs encoding fine-grained manner information than in Chinese. For instance, in English, information about the step, state of Figure, aim can be lexicalized in the verb. The step can be long (*lope*), short (*scamper*, *scurry*, *scuttle*, *trot*), heavy (*barge*) or light (*skitter*); the state can be energetic (*bound*) and the aim can be for exercise (*jog*). In Chinese, we only find three verbs to encode manner information about the state, aim, and step respectively: “狂奔 *kuángbēn*” implies the crazy-like state, “赛跑 *saipǎo*” means one runs for competition and “小跑 *xiǎopǎo*” carries the meaning of running with small step.

Both English and Chinese verb lexicons are much less elaborated or varied with respect to the following three motor patterns, namely, the JUMP, CRAWL, and CLIMB-type verbs. Next, we will discuss them one by one.

4.3.3 Motor Pattern-JUMP

In English, there are 6 jumping verbs: to *caper* (to jump about and play in a happy, excited way), to *cavort* (to jump about excitedly), to *hop* (to jump on one leg), to *leap* (to make a large jump from one place to another), to *spring* (Jump quickly and suddenly, esp from the Ground in a single movement), and to *vault* (to jump using your hands or a pole). Generally speaking, there are two kinds of manner information encoded in these verbs, namely, the state of Figure and body part as active role. The state can be excited (*caper/ cavort*) or vigorous (*leap*); the profiled body parts can be one leg (*hop*) or the hands (*vault*).

In Chinese, there are 14 jump-type verbs in total: 暴跳, 蹦窜, 蹦跶, 蹦跳, 蹿跳, 蹿跃, 欢跃, 雀跃, 弹跳, 腾跃, 跳跃, 腾越, 踊跃, 跃进, among which there are many synonymies. Roughly speaking, they can be divided into five groups, the first with the concomitant psychological state, such as the verb “暴跳 bàotiào(to jump angrily)”, “欢跃 tiàoyuè(to jump excitedly)”, the second with certain manner, such as “雀跃 quèyuè(to jump like a bird)”, “弹跳 tántiào(to jump under the elasticity of another entity)”, the third group indicating path such as “跃进 yuèjìn(to jump forward)”, “腾越 téngyuè(to jump across)” and the fourth group emphasizing certain aspect of jumping, “蹿跳 cuàntiào(emphasizing the upward direction when jumping)”, “腾跃 téngyuè(emphasizing jumping into the air)”, and the last group simply denoting general concept of jumping: “蹦窜 bèngcuàn”, “蹦跶 bèngdá”, “蹦跳 bèngtiào”, “跳跃 tiàoyuè” and “踊跃 yǒngyuè”.

4.3.4 Motor Pattern-CRAWL

In English, there is no specific verb to express the manner of crawling (the verb *crawl* itself is excluded from consideration). In Chinese, there are one verb “爬行 páxíng (to crawl)” to indicate the general motor pattern of crawling and other two verbs, i.e. “蛇行 shéxíng (to crawl with the body twisted like a snake)” and “匍匐 púfú (to crawl with the belly near the ground)”, highlighting the state of the body when crawling.

4.3.5 Motor Pattern-CLIMB

In English, there are three verbs conveying the concept of climbing: *clamber* (to climb, esp. with difficulty or effort, using the hands and feet), *scramble* (to climb up or over something with difficulty) and *shin* (climb up/down something). It is noteworthy that although Chinese boasts 11 climbing verbs, there are many synonymies among them. For instance, all these verbs “登高 dēnggāo”, “登攀 dēngpān”, “爬高 págāo”, “攀登 pāndēng”, “攀高 pāngāo”, “攀爬 pānpá” mean “to climb upward”, “攀附 pānfù”, “攀援 pānyuán”, “攀缘 pānyuán” are similar in that they convey the meaning of climbing by griping something, “攀越 pānyuè” expresses “to climb over” and “力攀 lìpān” to climb using effort.

4.3.6 Multiple Motor Pattern

Multiple motor pattern refers to verbs of two types. The first type is those whose definitions in the dictionary are marked by “to move...”; the second type is those verbs which can refer to two different motor patterns, such as the verb *gambol*, which means “to jump or skip about playfully”. Verbs of this pattern are mostly found in English. In Chinese, however, only two verbs of this type are found: “赶奔 gǎnbēn” and “膝行 xīxíng”, “赶奔 gǎnbēn” means to move quickly. “膝行 xīxíng” belong to none of the WALK, RUN, JUMP, CRAWL, or CLIMB patterns since it means “to move on one’s knee”.

Interestingly, there are many verbs with the semantic feature of [+ move, + quick/slow]. Examples are to *dart* (to move suddenly and quickly in a particular direction) and to *toil* (to move slowly and with great effort). One may wonder that whether we could replace semantic feature of [+ move, + quick] with *run*, and [+ move, + slow] with *walk*. Presumably, the prototypical feature of walking and running is “the feet alternately touch the Ground with the legs swinging”. And for those motions that are non-typical, the dictionary marks them with “to move” instead of “to walk” or “to run”.

4.4 Comparison of Distribution of Manner Granularities

In order to compare the distribution of manner granularity between English and Chinese

HLVs, I count the number of HLVs encoding different kinds of granularities in both languages. Those granularities which are encoded by less than three verbs are excluded from our consideration. In English, it is discovered that a variety of manner information can be encoded in the HLVs, such as the velocity, the step, the Figure's state, Figure's aim, sound of motion, the Figure's intention to catch others' attention or not, etc. The exact number of HLVs encoding the velocity, the step, Figure's state, the aim, the attention, body parts and the sound is 54, 34, 30, 21, 16, 13 and 12 respectively. It is interesting to note that there is nearly one third of the English HLVs indicating information about the velocity.

In Chinese, there are 27 verbs encoding information about the velocity, followed by the aim (15), the step (10), Figure's state (7), body parts (6) and the attention (4). In fact, there are too many synonymies and general verbs in Chinese. For instance, in JUMP-type verbs, we have “蹦窜 bèngcuàn (to jump)”, “蹦跶 bèngdá (to jump)”, “蹦跳 bèngtiào (to jump)”, “蹿跳 cuànyuè (to jump)”, all of which are similar in meaning and denote no specific manner information. Besides, Chinese also encodes other information in the verb, but there are too few verbs, such as “衣锦夜行 yījǐnyèxíng (to walk with luxurious clothes at night)”. The following figure compares the distribution of manner granularities in both languages.

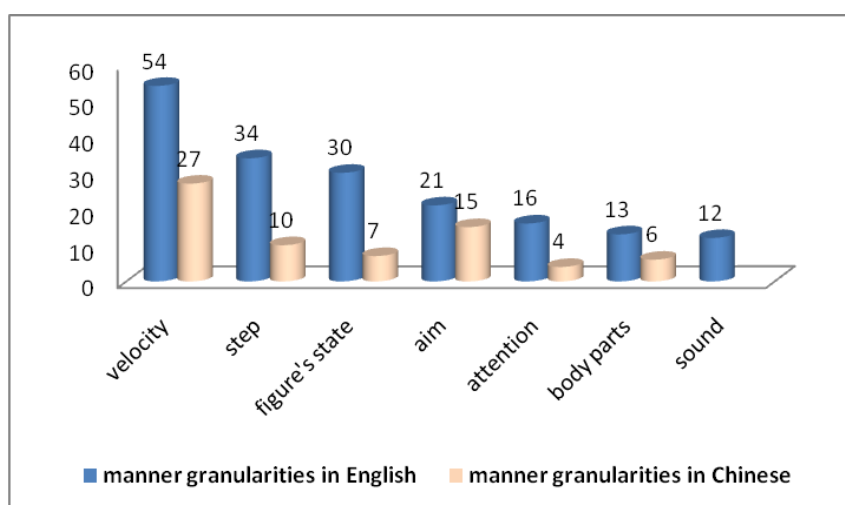


Figure 4.2 Comparison of Distribution of Manner Granularities

To conclude, the above figure is illuminating in several aspects. Firstly, it is obvious to see

that English boasts finer manner specifications within the domain of human locomotion. Secondly, since English and Chinese possess almost the same number of HLVs, we could infer that on the average an English HLV carry more manner information than a Chinese HLV. Finally, we find that the velocity, the step, Figure's state and the aim are among the most frequently encoded manner granularities in both languages.

4.5 Summary

This chapter compares the semantic construction between English and Chinese HLVs from two aspects, namely, the lexicalization pattern and manner granularity. The manner granularity is further explored by comparing preference within one language and distribution between two languages. Some similarities and differences have been identified. The next chapter is devoted to summarizing these similarities and differences, with an attempt to unravel the underlying reasons.

Chapter 5 Results and Discussions

5.1 Introduction

This chapter serves as a complement to the previous chapter, in the sense that the goal of chapter four is to describe, while this chapter aims at summary and explanation. We will first list all the similarities and differences discussed in chapter four and then try to give proper explanations.

5.2 Similarities and Differences between English and Chinese Human Locomotion Verbs

There are both cross-linguistic similarities and differences found in the previous chapter. The similarities are summarized as:

Firstly, both languages have almost the same number of HLVs, 110 in English and 108 in

Chinese. Secondly, as for the lexicalization pattern, both languages boast three patterns, namely, Figure +Manner, Ground +Manner and Path +Manner. Thirdly, both languages follow the same tendency: the number of walking verbs > that of running verbs > that of jumping verbs > that of climbing verbs > that of crawling verbs. Finally, as for the manner information, the most frequently encoded granularities in both languages are the velocity, the step, Figure's state and the aim.

However, HLVs in the two languages display some differences: Firstly, although the number of HLVs in both languages is nearly the same, there are a lot of synonymies and general verbs in Chinese, such as “蹦窜 bèngcuàn (to jump)”, “蹦跶 bèngdá (to jump)”, “蹦蹦跳跳 bèngtiào (to jump)” and “跳跃 tiàoyuè (to jump)”. In other words, English boasts a greater variety of HLVs than Chinese.

Secondly, although both languages have the above three lexicalization patterns, there are some HLVs encoding languages-specific information about semantic components. For instance, English can incorporate the Ground “promenade” in the verb *promenade*, while Chinese can encode the Ground “eave and wall” in the verb “飞檐走壁 fēiyánzǒubi”.

Thirdly, generally speaking, English boasts a greater variety of manner granularities encoded in HLVs. In order to compensate this difference, Chinese tends to encode information in the adverbs and adopt the construction of “adverb + general verb”, such as “小心翼翼地走 xiǎoxīnyìyì dēzǒu (to walk cautiously)”, “蹑手蹑脚地走 nièshǒunièjiǎo dēzǒu (to walk cautiously)”. This is to say, Chinese tend to lexicalize manner information in adverbs. This finding attests the manner categorization parameter proposed by Matsumoto (2003), which refers to the distinction of manner lexicalization as a parameter in human language. According to Matsumoto, English is a manner-in-verb language, in which verbs tend to make richer manner distinctions, while languages like Japanese are manner-in-adverb languages, in which manner distinctions are primarily made by adverbials. Following his proposal, we can conclude that Chinese is a manner-in-adverb language.

Finally, the degree of lexicalization differs greatly between English and Chinese HLVs. All HLVs in English are fully lexicalized, but Chinese HLVs exhibit different degrees of

lexicalization. The disyllables and verbal idioms in Chinese under scrutiny are partially lexicalized.

Dong xiufang (2000) has proposed a hierarchy of lexicalization of verbs consisting of four levels. I will present them from the least lexicalized to the most lexicalized.

The first-level are compound verbs whose meaning as a whole can be expressed by a synonymous monosyllable. However, the order of the components of the verbs cannot be changed. A good example is the verb “召开 zhàokāi (to organize a meeting)”, which has synonymous monosyllable “开 kāi (to organize a meeting)”; Among the HLVs examined in this research, a lot of verbs belong to this type, such as “攀爬 pānpá (to climb)”, “行走 xíngzǒu (to walk)”, “蹿跳 cuàntiào (to jump)”, “登攀 dēngpān (to climb)”, “蹦跳 bèngtiào (to jump)”.

The second-level verbs do not have corresponding synonymous monosyllable, that is to say, its componential parts cannot express the whole meaning of the compound verb individually. For instance, in “诽谤 fěibàng (to slander)”, neither “诽 fěi” or “谤 bàng” can stand alone to express the same meaning as “诽谤 fěibàng”. Most of the verbs examined in this paper belong to the group such as “匍匐 púfú (to crawl with the belly near the ground)”, “徘徊 páihuái (to linger)”, “蹑蹻 diéxiè (to walk with small steps)”, “跋涉 báshè (to walk across mountains and water)”, “疾步 jíbù (to walk quickly)”. It is noteworthy that although we cannot find a corresponding synonymous monosyllable for these verbs, we can guess their meaning based on their components. For example, we can associate the verbs “步 bù” “奔 bēn” with some kind of human locomotion.

The third-level verbs have undergone the process of meaning transformation, namely, the meaning has changed from a concrete to abstract domain. A good example would be the verb “堕落 duòluò (to convict bad or evil things)”, which originally means the falling of hair, but now is entrenched to denote the meaning of convicting bad or evil things. Since all human locomotion refers to a concrete domain, we fail to find verbs of this type in our research.

The four-level verbs have undergone the process of syntactical transformation. That is to

say, their parts of speech have been changed. For example, “待遇 dàiyù (the way of treating somebody)” transfers from a verb to a noun. We do not find any HLVs of this type either.

5.3 Account for the Similarities and Differences

As for the above similarities and differences between English and Chinese HLVs, I would give explanations from a cognitive and typological perspective. For the similarities, experientialism seems to play an important role and for the differences, we can find the underlying reasons by examining English and Chinese typologically.

5.3.1 Experientialism

As the theoretical background of Cognitive Linguistics, experientialism characterizes meaning in terms of embodiment, or in terms of “our collective biological capacities and our physical and social experiences as being functioning in our environment.” (Lakoff 1987:266) In short, experientialism assigns a central role to bodily experience in meaning, understanding and reasoning. It holds that human knowledge arises out of the interaction between organism and the experienced environment. Consider the conceptual metaphor of HAPPY IS UP; SAD IS DOWN (Lakoff & Johnson 1980:15) and the following sentences:

I am feeling up; I am feeling down.
That booted my spirits. I am depressed.
My spirits rose. He is really low these days.

The experiential basis of the above sentences is that drooping posture always goes along with sadness and depression, erect posture with a positive emotional state. Experientialism explains why in both languages, the number of walking verbs > that of running verbs > that of jumping verbs > that of climbing verbs > that of crawling verbs. The experiential basis is that in daily life, the frequency of conducting different motor patterns seems to follow the same order. For example, it is self-evident that people walk more often than run. As for the most preferred manner granularities in both languages, namely, *velocity*, *step*, *Figure's state* and *aim*. We can explain in this way: velocity, step and Figure are the most obvious and noticeable features of human locomotion, so it is natural for more verbs to encode

information about these manner granularities. However, the reason why the *aim* granularity is so frequently encoded in Chinese verbs is that there are several synonymies such as “散步 sànbù (to take a walk)”, “信步 xìn bù (to walk without aim)”, “漫步 màn bù (to walk aimlessly)”, “溜达 liūdà (to take a walk)” expressing the concept of “walking without definite aim”.

While different cultural experience can explain why there are also language-specific verbs in the two languages, such as “飞檐走壁 fēiyánzǒubì (to walk on eave and wall)” and *promenade*.

5.3.2 Language-specific Morphology

Briefly speaking, the difference between English and Chinese HLVs is that English speakers not only use a greater number and variety of HLVs, but also are tuned to make finer lexical distinctions within the domain of human locomotion. Furthermore, the degree of lexicalization of English HLVs is higher than that of Chinese. Slobin (2006) thinks that languages differ considerably in the attention that they pay to manner as a dimension of motion events and he owes the different degrees of “manner salience” among languages to a combination of factors. Here quotes his original remarks: “In particular, language-specific morphosyntax, the availability of ideophones, and the availability of motion-related lexical categories (such as posture verbs) are three sorts of factors that interact with lexicalization patterns in influencing manner salience.” For this research, we try to explain the difference of manner salience between English and Chinese HLVs from the following perspectives.

(1) Analytical vs. synthetic

Analytical and synthetic refers to two contrast patterns of language morphology. The division is basically about the manner of how certain structural forms express word meanings. Synthetic pattern refers to the fact that word meanings exist as a holistic whole and cannot be structurally decomposed into smaller components. In other words, we use a single verb to denote a complicated concept. For instance, *amble* ((of a person) ride or walk at a slow, leisurely pace), “跑 pǎo (run)”. On the contrary, analytic pattern refers to that word meanings exists as an analytic concept and can be structurally analyzed into two or more componential

parts. For instance, “lipstick” “bedroom” “船舱 chuáncāng (the interior area of a boat)”, “闲逛 xiánguàng (to walk aimlessly)”, the meaning of the word is the combination of two smaller parts: lip and stick, bed and room, “船 chuán (boat)” and “舱 cāng(the interior part of a boat or a plane)”, “闲 xián(aimlessly)” and “逛 guàng (to walk)”.

English and Chinese have both synthetic and analytic patterns. For example, to express the concept of *walking fast*, we resort to the verb *rush* (in synthetic way) or just say “walking fast” (in analytic way). However, it is widely known that Chinese is an analytic language but English is a synthetic language. So Chinese has a much larger number of compound words than English, which in turn explains why the lexicalization degree of HLVs in English is much higher than that in Chinese. This also explains why when translating the English HLVs to Chinese, we can hardly find any equivalent verb but have to apply the “adverb + general verb” construction, such as “小心翼翼地走 xiǎoxīnyìyì dēzǒu (to walk cautiously)”, “蹑手蹑脚地走 nièshóunièjiǎo dēzǒu (to walk cautiously)”. The analytic way of encoding manner information in adverbs can account for the less finer-grained manner information in Chinese HLVs.

The synthetic or analytic pattern has direct consequence on the transparency (analyzability) of language, since the pair of concept (transparent & opaque) corresponds to the division of synthetic and analytic. The analytic language is more transparent since one can get a lot of information about the word meaning just from the constituents of the words. As for the domain of HLVs, we find that Chinese is more transparent than English as least in two aspects.

Firstly, Chinese possesses a lot of phonograms, from which we can guess the active zone of the HLVs. For instance, “跑 pǎo (to run)”, “跳 tiào (to jump)”, “攀 pān (to climb)”, “爬 pá (to crawl)”, the active zones are displayed in these verbs. Secondly, Chinese attaches more importance to the generic relationship among words of the same type. For example, we have “独步 dúbù (to walk alone)”, “踱步 duóbù (to walk slowly)”, “缓步 huánbù (to walk slowly)”, “阔步 kuòbù (to walk with big step)”, “漫步 màn bù (to walk aimlessly and relaxedly)”, which denote different manners of walking, while the corresponding walking

counterparts in English show no common generic feature.

In short, Chinese is an analytic and transparent language, while English is a synthetic and opaque language. Upon closer examination, we find that these differences are rooted in the preference of different morphological patterns, Chinese being Zi-centered and English word-centered.

(2) Zi-centered vs. word-centered

Analytic pattern of Chinese is closely related with the characteristics of Chinese as a Zi-center language. The concept of *Zi* is as essential to Chinese as *word* to English. *Zi* and word are similar in that they are both the integrating form of “form, meaning and sound”. However, Chinese is Zi-centered while English is word-centered.

Xu Tongqiang (1998a, 1998b) argues that Chinese does not have words but *Zi*'s. He also puts forwards the idea of *Zi* as the basic unit. *Zi* is characterized by “1 *Zi*, 1 syllable, 1 concept”, that is, one syllable packs one concept and they relate each other in one basic unit. However, English relate some syllables with one concept in one word. We can draw the pattern like “1 word, n syllable, 1 concept” which refers that one concept rests itself in one word, which may have one or more syllables.

Chinese has only 432 syllables in total (without the tonal contrast) or 1376 syllables (with the tonal contrast) (Liu Zexian 1957:459). As we said, one syllable only represents one concept. Hence question arises how to use the 1376 *Zi*'s to express millions of millions of concepts? Inevitably, we would have a lot of homophones (*Zis* that are the same in sound but different in meaning).

Because of the weakness of *Zi* as a “single entity integrating form, sound and meaning”, which fails to express all the things and phenomena in the rapidly-changing world, Chinese language has gone through the process from the monosyllabic *Zi* to the disyllabic and polysyllabic *Zi*-group. Furthermore, most of the *Zi*-groups present themselves in an analytic way because Chinese does not have many affixes like those in English and have to maintain the characteristic of one *Zi* representing one basic concept. As a result, we can get a lot of information about the word meaning just from the constituents of the words, while English

words literally provide less information about their meaning. For example, “踮着脚走 diǎnzhējiǎo zǒu (to walk on one’s tiptoe)” can be translated in English as *shuffle*. That is to say, when new concepts appear, Chinese prefer to combine Zi together to name them but English tends to create new words to name new things. This explains why Chinese is rather transparent while English is opaque.

5.4 Summary

To sum up, this chapter has discussed the similarities and differences between English and Chinese HLVs. Through the above analysis, we attribute the similarities to the shared experiential basis and the differences to the typologically different morphology between English and Chinese.

Chapter 6 Conclusion

6.1 Summary of the Whole Study

Human locomotion plays an essential role in people's everyday action: we constantly experience human locomotion, which takes different motor patterns. This research is a dictionary-based study of HLVs, conducting a semantic componential analysis of WALK, RUN, JUMP, CLIMB, CRAWL-type verbs in English and Chinese. We have investigated and compared the semantic components and manner information encoded in these verbs.

It can be said that during the process of describing the similarities and differences, we have adopted a comparative semantic perspective. However, when we try to give possible explanations for our findings, we have applied a language-typological view. Moreover, by comparing the manner specification between English and Chinese HLVs, we have solved the general question raised before: since in terms of the incorporation of path, it is still controversial to identify which type Chinese should belong to, then in terms of the incorporation of manner, what is the relative position of English and Chinese on the *cline of manner*? In other words, which language pays more attention to the manner specification, English or Chinese? Up to now, it is safe to say: at least in the field of human locomotion, English HLVs attaches more importance to the manner information.

Specifically speaking, the findings of the research are listed below, which can answer the three research questions raised at the beginning of this dissertation:

- (1) English and Chinese HLVs share the same lexicalization patterns: Figure+ Manner, Ground+ Manner, Path + Manner, although they display minor differences for each pattern.
- (2) English speakers not only use a greater number and variety of HLVs, but also are tuned to make finer lexical distinctions within the domain of human locomotion. Both languages follow the same tendencies: preference of encoding manner

information of velocity> step> Figure's state; the most preferred manner granularities are velocity, step, Figure's state and aim.

- (3) The similarities in terms of lexicalization pattern, manner preference and motor pattern reflect the embodied cognition. HLVs in both languages are rooted in the same body experience, with the same physical foundations. However, the differences reflect the typological differences between English and Chinese, the former being an adverb-in-verb, synthetic, opaque and word-centered language, while the later a manner-in-adverb, analytic, transparent and Zi-centered language.

6.2 Limitations and Suggestions for Future Studies

Although the research sheds light on both the studies of Language Typology and Comparative Semantics, it is inevitably deficient in a few aspects.

The first problem lies in the process of collecting HLVs in both languages. It is hard to say that a precisely comprehensive list of HLVs has been made, since examination from only two dictionaries or one scholar's research do not guarantee that we have collected all the HLVs. The second problem is that in this research, we have conducted only a static description of senses from dictionaries. If some dynamic researches are added, the research would become more convincing. For instance, empirical study of questionnaire or experiments may be conducted regarding people's actual understanding to these finer-grained manner-of-motion verbs. Senses may also be collected from corpora, considering the importance of context.

For future studies in this area, further suggestions are made as below:

The research has provided evidence for detailed manner granularities of HLVs in both English and Chinese. It would be interesting to explore a vast amount of other languages to test the hypothesis. For example, researches can be conducted with other languages to test if the common tendency of greater number of walk > run>jump>climb>crawl-type verbs is a universal phenomenon.

With respect to the issue of manner granularity in English and Chinese, other

sub-domains of manner-of-motion could also be considered, for example, ‘non-locomotion’, ‘motion by using a vehicle’, ‘motion in water’ and ‘motion on air’. It might not always be the case that English has a richer manner lexicon than Chinese for a specific sub-domain of motion. For example, Chinese boasts a much more varied of “cook” type verbs than English, due to the “cooking culture” dominating in Chinese culture.

Finally, path of motion on its own can be of special research interest. In the same way as we examined what sort of manner information is expressed in motion verbs, a careful analysis of the kinds of paths which can be lexicalized in English and Chinese motion verbs could be also carried out.

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Appendix 1: Agentive Verbs of Manner of Motion (125 in total)

(Levin 1993: 51.3.2: 265-66)

amble, backpack, bolt, bounce, bound, bowl, canter, carom, cavort, charge, clamber, climb, clump, coast, crawl, creep, dart, dash, dodder, drift, file, flit float, fly, frolic, gallop, gambol, glide, goosetstep, hasten, hike, hobble, hop, hurry, hurtle, inch, jog, journey, jump, leap, limp, lollop, lope, lumber, lurch, march, meander, mince, mosey, nip, pad, parade, perambulate, plod, prance, promenade, prowl, race, ramble, roam, roll, romp, rove, run, rush, sashay,

saunter, scamper, scoot, scam, scramble, scud, scurry, scutter, scuttle, shamble, shuffle, sidle, skedaddle, skip, skitter, skulk, sleepwalk, slide, slink, slither, slog, slouch, sneak, somersault, speed, stagger, stomp, stray, streak, stride, stroll, strut, stumble, stump, swagger, sweep, swim, tack, tear, tiptoe, toddle, totter, traipse, tramp, travel, trek, troop, trot, trudge, trundle, vault, waddle, wade, walk, wander, whiz, zigzag, zoom.

Appendix 2: Human Locomotion Verbs in English (110 in total)

amble, barge, bolt, bound, bustle, caper, cavort, charge, clamber, clump, creep, dart, dash, dodder, drift, edge, file, flit, flounce, fly, gambol, goose-step, hike, hobble, hop, inch, jog, leap, limp, lollop, lope, lumber, lunge, lurch, march, meander, mince, mosey, pace, pad, parade, perambulate, plod, prance, promenade, prowl, race, ramble, roam, rove, rush, sashay, saunter, scamper, scoot, scramble, scuff, scurry, scuttle, shamble, shin, shuffle, sidle, skip, skitter, skulk, sleepwalk, slink, slip, slog, slouch, sneak, spring, sprint, stagger, stalk, step, stomp, storm, straggle, stray, streak, stride, stroll, strut, stumble, stump, surge, swagger, sweep, swing, tear, throng, tiptoe, toddle, toil, totter, traipse, tramp, trip, troop, trot, trudge, vault, waddle, wade, waltz, wander, whirl, wriggle

Appendix 3: Senses of Human Locomotion Verbs in English

HLVs	Definitions (2 sources)	Semantic construction
amble	(of a person) ride or walk at a slow, leisurely pace	WALK+velocity(slow)+state(relaxed)
	To walk in a slow relaxed way	
barge	(infml) rush or bump heavily and clumsily	RUN+ step(clumsy/heavy)
	To move somewhere in an awkward way, often hitting against things	
bolt	(of a person) run way quickly	RUN+ Path(away from the ground)+velocity(quick)
	to escape from somewhere	
bound	Jump or spring; run with jumping movements(in a specified direction)	RUN + state(energetic)
	To run with a lot of energy, because you are happy, excited or frightened	
bustle	(cause sb) to move busily and energetically (in the specified direction)	MOVE+velocity(quick)+state(busy/energetical)
	To move around quickly, looking very busy	
caper	To jump or run about playfully	JUMP+state(happy/excited)
	To jump about and play in a happy, excited way	
cavort	To jump about excitedly	JUMP+state(excited)
	To jump or dance around nosily in a playful or sexual way	
charge	Rush in the specified direction	RUN+velocity(quick)
	to deliberately run or walk somewhere quickly	
clamber	Climb, esp with difficulty or effort, using the hands and feet	CLIMB+velocity(slow)+effort(effort)
	To climb slowly, using your hands and feet	

clump	Walk in the specified direction putting the feet down heavily	WALK+ force of step (heavy)+sound(noise)
	(Longman) to walk with slow noisy steps	
creep	Move slowly, quietly or stealthily, esp crouching low	MOVE+velocity(slow) +attention(no attention) +sound(quiet)
	To move in a quiet, careful way, especially to avoid attracting attention	
dart	(cause sth to) move suddenly and quickly in the specified direction	MOVE+velocity(quick)
	To move suddenly and quickly in a particular direction	
dash	Move suddenly and quickly, rush	MOVE+velocity(quick)
	To go or run somewhere very quickly	
dodder	(inflm) move or act in a shaky unsteady way, because of old age or weakness	WALK+Figure(old)+steadiness of step(unsteady)
	To walk in an unsteady way shaking slightly, especially because you are old.	
drift	(of people) move casually or aimlessly	MOVE+ aim(no aim)
	To move or go somewhere without any plan or purpose	
edge	To move slowly and carefully across, etc	MOVE+velocity(slow)+length of step(small)+state(careful)
	To move gradually with several small movements	
file	March or walk in the specified direction in a single line	WALK+Figure(a group of people)
	To walk in a line of people, one behind the other.	
flit	Fly or move lightly and quickly from one place to another	MOVE+velocity(quick)
	To move slightly or quickly and not stay in one place for very long.	
flounce	Move about in an exaggerated, and usually impatient and angry manner	MOVE+state(angry/impatient)
	To move in a way that shows that you are angry	
fly	Go or move quickly; rush along	MOVE+velocity(quick)
	Go somewhere very quickly:	
gambol	Jump or skip about playfully	MOVE+state(lively)
	To jump or run around in a lively active way	
goose-step	Way of marching without bending the knees	WALK+Figure(soldier)+body part as active role(knee)
	A way of marching, used by soldiers in some countries, in which each step is taken without bending your knee.	
hike	Go for a long walk	WALK+ground(mountains or countryside)
	To walk a long way in the mountains or countryside	
hobble	Walk with difficulty because the feet or legs hurt or are disabled; walk lamely, limp	WALK+body part as active role(feet or legs)
	To walk with difficulty, especially as a result of an injury to your legs or feet.	
hop	(of a person) move by jumping on one foot	JUMP+body part as active role(one foot)
	To move by jumping on one foot	
inch	Move(sth) slowly and carefully in the specified direction	MOVE+velocity(slow)+state(careful)
	To move very slowly in a particular direction	

jog	Run slowly and steadily for a time, for physical exercise	RUN+velocity(slow)+aim(exercise)
	To run slowly and steadily, especially as a way of exercising : two figures jogging along the beach	
leap	To jump vigorously	JUMP+state(vigorous)
	To jump high into the air or to jump in order to land in a different place	
limp	Walk unevenly, as when one foot or leg is hurt or stiff	WALK+velocity(slow)+body part as active role(foot or leg)
	To walk slowly and with difficulty because one leg is hurt or injured	
lollop	(infml) move in clumsily jumps, flop about	MOVE+step(long/clumsy)
	(infml) to run with long awkward steps	
lope	Run fairly fast with long bounding strides	RUN+velocity(quick)+step(long)
	To run easily with long steps	
lumber	Move in a heavy clumsy way	MOVE+velocity(slow)+step(heavy/clumsy)
	To move in a slow, awkward way	
lunge	Make a lunge(sudden movement of the body(eg when trying to attack))	MOVE+Path(toward the ground)+aim(to attack)
	To make a sudden strong movement towards someone or something, especially using your aim and to attack them	
lurch	Lean or roll suddenly, stagger	MOVE+steadiness(unsteady)
	To move suddenly forwards or sideways, usually because you cannot control your movements.	
march	Walk as soldiers do with regular steps of equal length	WALK+step(regular)+velocity(quick)
	to walk quickly and with firm, regular steps like a soldier	
meander	(of a person) wander aimlessly	WALK+velocity(slow)+state(relaxed)+aim(no aim)
	To walk in a slow, relaxed way, not in any particular direction	
mince	Walk in an affected manner, trying to appear delicate or refined	WALK+step(short)+body part as active role(hip)
	To walk in an unnatural way, taking short steps and moving your hips	
mosey	(infml) walk aimlessly (in the specified direction); amble	WALK+aim(no aim)+velocity(slow)+state(relaxed)
	To walk somewhere in a slow relaxed way	
pace	Walk with slow or regular steps	WALK+velocity(slow)+step(regular)
	To walk with slow, regular, steady steps, usually backwards and forwards.	
pad	Walk in the specified direction with a soft steady sound of steps	WALK+step(steady)+sound(quiet)
	To walk softly and quietly	
parade	March or walk in a procession or in order to display sth	WALK+Figure(a group of people)
	to walk or march together to celebrate or protest about something	
perambulate	(fml or rhet) walk about, through or over (a place)	WALK+state(no hurrying)
	To walk around or along a place without hurrying	

plod	Walk with heavy steps or difficulty; trudge	WALK+step(heav)+velocity(s low)+effort(effort)
	To walk along slowly, especially with difficulty and great effort.	
prance	Move in the specified direction in a high-spirited or arrogant way	WALK+state(arrogant)+attention(attention)
	To walk moving your body in a confident way in order to make people notice and admire you	
promenade	Take a leisurely walk or ride in public (esp along a promenade)	WALK+ground(promenade)+aim(leisure)
	None	
prowl	Move quietly and cautiously	MOVE+sound(quiet)+state(cautious)
	1 if someone prowls, they moves around an area quietly, especially because they are involved in some criminal activity	
race	Move very fast	MOVE+velocity(quick)
	To move very quickly or make someone or something move very quickly	
ramble	Walk for pleasure with no special destination	WALK+aim(pleasure)
	To go on a walk for pleasure	
roam	Walk or travel without any definite aim or destination	WALK+aim(no aim)
	To walk or travel, usually for a long time, with no clear purpose or direction	
rove	(esp rhet) Wader without intending to reach a particular destination; roam	WALK+aim(no aim)
	To travel from one place to another	
rush	(cause sb/sth) to go or come with great speed	MOVE+velocity(quick)
	To move very quickly, especially because you need to be somewhere very soon.	
sashay	(iml) walk or move in a casual but slow way	WALK+state(confident)+attention(attention)+step(slow)
	To walk in a confident way moving your body from side to side, especially so that people look at you.	
saunter	Walk in a leisurely way, stroll	WALK+aim(leisure)+velocity(slow)
	To walk in a slow unhurried way, that makes you look confident or proud	
scamper	Run quickly and often playfully as children and some small animals do	RUN+step(short)+velocity(quick)
	To run with quick short steps, like a child or small animal	
scoot	(esp in commands and in the infinitive) (inflm) run away quickly	RUN+Ground(away from the Ground)+velocity(quick)
	To leave a place quickly and suddenly	
scramble	Climb or crawl quickly, usu over rough ground or with difficulty; clamber	CLIMB+velocity(quick)
	To climb up or over something with difficulty, using your hands to help you	
scuff	Drag one's feet while walking, shuffle	WALK+velocity(slow)+body part as active role(feet)
	To walk in slow lazy way, dragging your feet along the ground	
scurry	Run with short quick steps	RUN+velocity(quick)+length of step(short)
	To move quickly with short steps	
scuttle	Run with short quick steps	RUN+velocity(quick)+length

	To move quickly with short steps	of step(short)
shamble	Walk or run awkwardly, without raising one's feet properly	WALK+body part as active role(feet)+step(awkard)+state (tired)
	To walk slowly and awkwardly, dragging your feet in a tired, weak or lazy way.	
shin	Climb up/down sth, using the hands and legs to grip	CLIMB+body part as active role(hands and legs)
	To climb up or down a tree pole etc by using your hands and legs, especially quickly	
shuffle	Walk without lifting the feet completely clear of the ground	WALK+body part as active role(feet)+sound(noisy)+velocity(slow)
	To walk very slowly and noisily, without lifting your feet off the ground	
sidle	Move(in the specified direction) furtively, or as if shy or nervous	WALK+velocity(slow)+sound(quiet)+attention(no attention)
	To walk towards something or someone slowly and quietly, as if you do not want to be noticed.	
skip	Move lightly and quickly, esp by taking two steps with each foot in turn	MOVE+step(light)+velocity(quick)
	To move forwards with quick steps and jumps	
skitter	None	RUN+velocity(quick)+step(light)
	To run very quickly and lightly, like a small animal	
skulk	Hide or move around as if one is ashamed or trying to hide, esp when one is planning sth bad	MOVE+attention(no attention)+aim(sth bad)
	To hide or move about secretly, trying not to be noticed, esp when you are intending to do something bad	
sleepwalk	Walk around while sleeping	WALK+state(sleeping)
	To walk while sleeping	
slink	Move as if one feels guilty or ashamed, or does not want to be seen	MOVE+attention(no attention)+sound(quiet)
	To move somewhere quietly and secretly, especially because you are afraid and scared.	
slip	Go somewhere quietly or quickly, eg in order not to be noticed, or without being noticed	MOVE+velocity(quick)+sound(quiet)+attention(no attention)
	To move quickly, smoothly or secretly	
slog	Walk steadily, often with difficulty, in the direction specified)	WALK+steadiness of step(steady)
	To make a long hard journey, especially on foot	
slouch	move in a lazy way, often not quite upright	WALK+state(with a slouch)
	To stand, sit or walk with a slouch	
sneak	Go quietly and secretly in the direction specified	MOVE+sound(quiet)+attention(no attention)
	To go somewhere secretly and quietly in order to avoid being seen or heard	
spring	Jump quickly and suddenly, esp from the ground in a single movement, move suddenly (eg from a hiding-place or a position of relaxation)	JUMP+velocity(quick)
	To move suddenly and quickly in a particular direction, especially by jumping	
sprint	Run a short distance at full speed	RUN+distance(short)+velocity(quick)
	To run very fast for a short distance	
stagger	Walk or move unsteadily as if about to fall (from carrying sth heavy, being weak or drunk, etc)	MOVE+steadiness of step(unsteady)
	To walk or move unsteadily, almost falling over	

stalk	To walk with slow stiff strides, esp in a proud, self-important or threatening way	WALK+velocity(slow)+state(proud)+step(long)
	To walk in a proud or angry way, with long steps	
step	Move a short distance	WALK+step(short)
	To walk a short distance	
stomp	(iml) move, walk, dance, etc with a heavy step (in the specified direction)	WALK+step(heavy)+state(angry)
	To walk with heavy steps, especially because you are angry	
storm	Move or walk in a very angry or violent manner in the direction specified	MOVE+state(angry)
	To go somewhere in a noisy fast way that shows you are extremely angry	
straggle	Walk, march, etc too slowly to keep up with the rest of the group, drop behind	MOVE+velocity(slow)+Figure(a group of people)
	To move at a slower speed than the group you are with so that you remain at a distance behind them	
stray	Move away from one's group, proper place, etc, with no fixed destination or purpose, wander	MOVE+Ground(away from the Ground)+aim(no aim)
	To leave the place where you should be without intending to	
streak	(iml) to move very fast (in the specified direction)	MOVE+velocity(quick)
	To run or fly somewhere so fast you can hardly be seen	
stride	Walk with long steps (in the specified direction)	WALK+step(long)+velocity(quick)
	To walk quickly with long steps	
stroll	Walk in a slow leisurely way	WALK+velocity(slow)+aim(leisure)+state(relaxed)
	To walk somewhere in a slow relaxed way	
strut	(derog) walk in an upright, proud way	WALK+body part as active role(head)+state(proud)
	To walk proudly with your head high and your chest pushed forwards, showing that you think you are important	
stumble	Move or walk unsteadily (in the specified direction)	WALK+steadiness of step(unsteady)
	To walk unsteadily and often almost fall	
stump	Walk stiffly or noisily	WALK+sound(noisy)+step(heavy)
	To walk with heavy steps	
surge	To move forward in or like waves	MOVE+Figure(a group of people)+velocity(quick)
	If a crowd of people surges, they suddenly move forward together very quickly	
swagger	Walk or behave in a proud or boastful way	WALK+body part as active role(shoulder)+state(proud)
	To walk proudly, swinging your shoulders in a way that show too much confidence	
sweep	Move in a smooth or dignified way (in the direction specified)	MOVE+velocity(quick)+Figure(a group of people)
	If a group of people sweep somewhere, they quickly move there together	
swing	Walk or run with an easy rhythmical movement	MOVE+velocity(quick)
	To move quickly in a smooth curve	
tear	Move (in the specified direction) very quickly, excitedly	MOVE+velocity(quick)+state(excited)

	To move somewhere very quickly, especially in a dangerous or careless way	
throng	Move or press in a crowd	MOVE+Figure(a group of people)
	If people throng a place, they go there in large numbers	
tiptoe	Walk quietly and carefully on tiptoe	WALK+sound(quiet)+body part as active role(tiptoe)+state(careful)
	To walk quietly and carefully on your toes	
toddle	(esp of a young child) walk with short unsteady steps	WALK+Figure(child)+step(short/unsteady)
	If a small child toddles, it walks with short, unsteady steps	
toil	Move slowly and with difficulty in the specified direction	MOVE+velocity(slow)+effort (effort)
	To move slowly and with great effort	
totter	Walk or move unsteadily, stagger	WALK+steadiness of step(unsteady)
	To walk or move unsteadily from side to side as if you are going to fall over	
traipse	(informal) walk wearily, trudge	WALK+velocity(slow)+state(tired)
	Informal to walk somewhere slowly and unwillingly when you are tired	
tramp	Walk with heavy or noisy steps	WALK+step(heavy)+sound(noisy)
	To walk around or through somewhere with firm or heavy steps	
trip	Walk run or dance with quick light steps	MOVE+step(light)+velocity(quick)
	(Literary) to walk or run with quick light steps as if you are dancing	
troop	Come or go together as a troop or in large numbers	MOVE+Figure(a group of people)
	To move together in a group	
trot	(of a person) run with short steps	RUN+velocity(slow)+step(short)
	To run fairly slowly, taking small steps	
trudge	Walk slowly or with difficulty because one is tired, on a long journey (in the specified direction etc	WALK+velocity(slow)+state(tired)
	To walk with slow, heavy steps, especially because you are tired: The old man trudged home through the snow.	
vault	Jump in a single movement over or onto an object with the hand(s) resting on it with the help of a pole	JUMP+body part as active role(hands)+tool(pole)
	To jump over something in one movement, using your hands or a pole to help you	
waddle	(often derog) walk with short steps and a swaying movement, as a duck does	WALK+step(short)
	To walk with short steps, swinging from one side to another like a duck	
wade	Walk with an effort (through water, mud or anything that makes walking difficult)	WALK+Ground(water)+effort(effort)
	To walk through water that is not deep	
waltz	(informal) move in the specified direction gaily or casually or by dancing	WALK+state(calm/confident)
	To walk somewhere calmly and confidently (informal)	

wander	Move around in an area or go from place to place without any special purpose or destination; roam	MOVE+Ground(around the Ground) +aim(no aim)+velocity(slow)
	To move slowly across or around an area, without a clear direction or purpose	
whirl	(cause sb/sth) to move or travel rapidly in the specified direction	MOVE+velocity(quick)
	To spin around very quickly, or to make something do this	
wriggle	Move or make (one's way) in the specified direction with wriggling movements	MOVE+velocity(quick)+step(small)
	To twist from side to side with small quick movements	

Appendix 4: Human locomotion verbs in Chinese (108 in total)

昂首阔步 跋涉 暴跳 奔窜 奔跑 奔腾 奔走 便步 跛行 跛脚 步趋 步行 步履蹒跚 奔逸绝尘 蹦窜 蹦跶 蹦跳 蹿跳 蹿跃 穿行 徜徉 彳亍 独步 蹀躞 踱步 登高 登攀 独行 鹅行鸭步 飞奔 飞驰 飞跑 飞檐走壁 赶奔 赶路 高视阔步 缓步 缓行 欢跃 疾驶 疾步 疾行 径奔 举步如飞 举步生风 踽踽独行 狂奔 阔步 溜走 踟蹰 力攀 漫步 爬高 爬行 攀登 攀附 攀高 攀爬 攀援 攀缘 攀越 匍匐 徘徊 跑步 扑奔 徘徊歧路 雀跃 潜行 绕行 赛跑 散步 随行 蛇行 三脚两步 同行 弹跳 腾跃 跳跃 腾越 蜗行牛步 小跑 迅跑 行进 行军 行走 徐步 徐行 巡行 膝行 闲步 偕行 信步 行步如飞 踊跃 跃进 远足 移步 移行 衣锦夜行 鱼贯而行 掩鼻而过 掩耳而走 扬长而去 直奔 转悠 走动 走路 趿行

Appendix 5: Senses of Human Locomotion Verbs in Chinese

HLVs	Sense	Manner specification
昂首阔步	抬起头大步前进，形容精神振奋，勇往直前的样子	WALK+step(big)+state(energetic)
跋涉	徒步爬上蹬水	WALK+Ground(water/mountain)
暴跳	急躁地跳脚	JUMP+state(angry)
奔窜	走投无路地乱跑	RUN+Ground(away from the Ground)
奔跑	很快地跑	RUN+velocity(quick)
奔腾	跳跃着奔跑	RUN
奔走	急走	WALK+velocity(quick)
便步	随便地走动	WALK+aim(no aim)
跛行	腿或脚有残疾，走路一瘸一拐	WALK+body part as active role(feet)
跛脚	腿或脚有残疾，走路一瘸一拐	WALK+body part as active role(feet)
步趋	快步行走	WALK+velocity(quick)
步行	徒步行走	WALK
步履蹒跚	形容行走缓慢而摇晃的样子	WALK+velocity(slow)+steadiness of step(unsteady)
奔逸绝尘	形容跑得极快	RUN+velocity(quick)
蹦窜	蹦跳	JUMP
蹦跶	蹦跳	JUMP
蹦跳	连蹦带跳	JUMP
蹿跳	向上跳起	JUMP+Path(upward)
蹿跃	向上跳跃	JUMP+Path(upward)

穿行	在狭窄的通道中穿越行走	WALK+Ground(narrow alley)
徜徉	逍遥自在的来回走动	WALK+Ground (around the Ground)+state(relaxed)
彳亍	慢步走；走走停停	WALK+velocity(slow)
独步	一个人行走	WALK+Figure(alone)
蹀躞	小步走；来回走动	WALK+step(small)
踱步	在小范围内慢慢地走来走去	WALK+velocity(slow)
登高	向高处攀登	CLIMB
登攀	攀登	CLIMB
独行	一个人行走	WALK+Figure(alone)
鹅行鸭步	像鹅和鸭子那样走路，形容走路速度缓慢	WALK+velocity(slow)+step(like that of duck and goose)
飞奔	迅速地奔跑、前进	RUN+velocity(quick)
飞驰	飞一般地快跑	RUN+velocity(quick)
飞跑	飞快地跑	RUN+velocity(quick)
飞檐走壁	在屋檐，墙壁上行走如飞，形容身体轻捷，武艺高强	WALK+Ground(eave/wall)+velocity(quick)
赶奔	急速前往	MOVE+velocity(quick)
赶路	加快脚步行走	WALK+velocity(quick)
高视阔步	眼睛看得高，步子迈得大，形容态度傲慢，或气概不凡	WALK+step(big)+body part as active zone(eye)
缓步	慢慢地走	WALK+velocity(slow)
缓行	慢慢地走	WALK+velocity(slow)
欢跃	欢呼跳跃	JUMP+state(excited)
疾驶	快速奔跑	RUN+velocity(quick)
疾步	急速地走	WALK+velocity(quick)
疾行	急速地走	WALK+velocity(quick)
径奔	直接向目的地跑去	RUN+Path(toward the goal)
举步如飞	形容行走相当快速	WALK+velocity(quick)
举步生风	迈开大步快走，好像脚下生风一样，形容走得很快	WALK+step(big)+velocity(quick)
踽踽独行	一个人行走	WALK+Figure(alone)
狂奔	发狂似的跑	RUN+state(crazy-like)
阔步	步子很大地走	WALK+step(big)
溜走	偷偷地走开	WALK+attention(no attention)
踟蹰	散步；闲走	WALK+ aim(no aim)
力攀	奋力攀登	CLIMB
漫步	无目的悠闲地走	WALK+aim(no aim)
爬高	向高处爬	CLIMB
爬行	爬	CRAWL
攀登	抓住东西往上爬	CLIMB
徘徊	在一个地方走来走去	WALK+Ground(around the Ground)
攀附	附着东西往上爬	CLIMB
攀高	往高处攀登	CLIMB
攀爬	抓住东西往上爬	CLIMB
攀援	抓着东西向上爬	CLIMB
攀缘	抓着东西往上爬	CLIMB
攀越	攀登越过	CLIMB
匍匐	爬行	CRAWL
跑步	按照规定姿势往前跑；奔跑	RUN
扑奔	身体向前倾，向着目标奔跑	RUN+Path(toward the goal)
徘徊歧路	在岔路口来回走动 形容犹豫不决的样子	WALK+Ground(at the crossing)
雀跃	像鸟雀那样跳跃	JUMP
潜行	秘密地行走	WALK+attention(no attention)
绕行	环绕着走	WALK+Path(around the Ground)

赛跑	竞赛跑步	RUN+aim(competition)
散步	随便走走	WALK+aim(no aim)
三步两步	三步并作两步走，形容步履匆匆	WALK+velocity(quick)+step(big)
随行	随同一起走	WALK+ Figure(at least two people)
蛇行	身体伏地像蛇一样弯曲着爬行	CRAWL
同行	一起走	WALK+Figure(at least two people)
弹跳	一种物体的弹性作用使另一物体跳动	JUMP
腾越	跳跃着越过	JUMP
腾跃	腾空跳跃	JUMP
跳跃	跳	JUMP
蜗行牛步	像蜗牛一样慢慢地爬行，像老牛一样慢慢地行走，比喻行动迟缓	CRAWL(snail)+WALK(cow)
小跑	小步奔跑	RUN+step(small)
膝行	跪着向前移动	MOVE+body part as active role(knee)
闲步	悠闲地随便走走	WALK+aim(no aim)+state(relaxed)
偕行	一同行走	WALK+Figure(at least two people)
信步	随意走动；散步	WALK+aim(no aim)
行进	向前行走	WALK
行军	军队从一个地点到另一个地点	WALK+Figure(solider)
行走	走	WALK
徐步	慢走	WALK+velocity(slow)
徐行	慢走	WALK+velocity(slow)
巡行	巡回地走	WALK+Path(around the Ground)
行步如飞	走路的步子轻快如飞	WALK+step(light)+velocity(quick)
迅跑	快跑	RUN+velocity(quick)
踊跃	跳跃	JUMP
移步	向前行走移动	WALK
移行	向前行走移动	WALK
衣锦夜行	穿着高级的绸缎衣裳在黑夜中行走，比喻显贵而不为人所知	WALK+state(expensive clothes)
鱼贯而行	像游鱼一个接一个地行进	WALK+Figure(a group of peple)
扬长而去	大模大样地离去	WALK+Path(away from the Ground)
掩鼻而过	捂着鼻子走过去，形容嫌恶的样子	WALK+body part as active zone(nose)
掩耳而走	捂着耳朵走开，指不想听到别人说的话	WALK+body part as active zone(nose)
跃进	跳着前进	JUMP+Path(forward)
远足	徒步旅行	WALK+Ground(countryside etc)
转悠	漫步 闲逛	WALK+ aim(no aim)
直奔	径直跑去	RUN+Path(toward the Ground)
走动	行走	WALK
走路	在地上走	WALK
趑行	急步行走	WALK+velocity(quick)

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Of course, any mistake that may still exist is mine.