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The Difference and Motivation of the Semantic Conflation Patterns in Chinese and English Autonomous Motion Event Sentences: Path and Containers

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Abstract

In English, a single sentence can be formed with only one core verb, while in Chinese, a serial verb construction is required to encode elements that are semantically equivalent to the English core verb. In English, verbs that involve no horizontal/vertical path, such as *swirl*, or even verbs that lack the concept of motion, such as *roar*, can directly enter a sentence when coupled with an element denoting the path. Yet in Chinese, the complement from a main movement verb is required. For example, verbs like *xuánzhuǎn* 'swirl' and *hūxiào* 'roar' can only function as additional elements to modify main movement verbs like *fēi* 'fly' or *shǐ* 'drive'. Building on this observation, the present research investigates autonomous motion event sentences in Chinese and English, proposing that in both languages, characterizing an autonomous motion event requires the semantic conflation of its motion and path to express a concept of translational movement. The differences in semantic conflation patterns between Chinese and English can be attributed to the greater number and variety of prepositions in English. Some English prepositions, such as *across*, encode a directional path, while others, such as *in*, do not. Prepositions expressing a directional path could compensate for the absence of directional motion in non-horizontal/vertical movement verbs. However, Chinese has far fewer prepositions, and none encode a directional path, making movement verbs or directional path verbs indispensable. This study concludes that when a complement for movement is needed to characterize an autonomous motion event, prepositions expressing path perform this function in English, whereas in Chinese, the role is fulfilled by verbs.

Keywords

motion event frames, conflation, prepositions

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1 Introduction

Since Talmy (1991) put forward his typology of motion events, the lexicalization and typology of motion events in Chinese have remained a focused topic in the study of the Chinese language. Relevant studies can be divided into two strands. The first strand consists of comparative studies that describe and analyze the features of lexicalization of motion events in Chinese by comparing them with those in other languages (Yan 1998; Luo 2008; Zheng and Wu 2013; Wu 2015; Wu and Pan 2017; Liang 2020; Li 2020). The second strand focuses on Chinese ontology, verifying the typology of lexicalization in Chinese through corpus and empirical evidence from a diachronic or synchronic perspective (Shi 2011; Liu 2013; Deng and Li 2015; Zhu and Li 2015). However, in both strands, scholars have yet to reach a consensus on the classification of the Chinese lexicalization pattern of motion events. Shi (2011) looks into the typology of the Chinese lexicalization of motion events from a diachronic view and deems that, modern Chinese predominantly demonstrates features of a *satellite-framed language*. Shen (2003) investigates directional complements in Chinese, arguing that Chinese is a *weak satellite-framed language*. Chen and Guo (2009), studying language acquisition of children, propose that modern Chinese could be classified as the *equipollent-framed language* defined by Slobin (2006: 65). Li (2017) argues through empirical research that Chinese cannot be clearly classified as either *verb-framed language* or *satellite-framed language*.

Why is Chinese so difficult to be classified typologically? The main reason lies in its richness of path verbs. For example:

(1) Xiǎozhāng jìn wū-le.
Xiaozhang enter room-LE
'Xiaozhang entered the room.'

(2) Wǒ pǎo xiàng fángjiān.
I run towards room
'I run towards the room.'

In (1), *jìn* 'enter' integrates [+MOVE, +PATH], exhibiting the characteristics of a *verb-framed language*, while in (2), *xiàng* 'towards' encodes [+Path], demonstrating a clear feature of a *satellite-framed language*. In addition, we find that in the encoding process of Chinese motion events, path verbs, directional path verbs, and prepositions selectively choose their compatible predicate verbs. In contrast, in English, it is the predicate verbs that select prepositions. In short, when encoding a motion event, Chinese exhibits a left-oriented restriction, imposing a strict inclusion criterion on the manner verbs that can enter the sentence, while English has a right-oriented restriction that strictly selects the path prepositions that can be used in the sentence.

The linguistic evidence for the arguments above is that a single sentence in English only requires one core verb, yet in Chinese, a serial verb construction[1] is

[1] The "serial verb construction" discussed here follows the definition from Haspelmath (2016).

required in order to encode elements that are semantically equivalent to the English core verb. See sentences (3)–(5) below:

(3) a. Low clouds **swirled through** the landscape.
b. Yúnwù **xuánzhuǎn-zhe piāo-guò** dàdì. (Mandarin)

(4) a. The taxi **roared along** the interstate.
b. Chūzūchē **yán-zhe** zhōujì-gōnglù **hūxiào-ér-guò**. (Mandarin)

(5) a. The hawk **screeched across** the sky.
b. Lǎoyīng **hūxiào-zhe fēi-guò** tiānkōng. (Mandarin)

In (3a), the core verb *swirled* encodes the manner of the movement. However, when we translate this sentence into Chinese, as in (3b), we have to rely on a serial verb construction to construct a correct sentence because "*Yúnwù xuánzhuǎn guò dàdì*" is obviously unacceptable in Chinese; and "*Yúnwù piāoguò-le dàdì*" would also lack the meaning of "the cloud is swirling". Sentences (4a) and (5a) are similar: even though *roar* and *screech* involve no movement and only describe the accompanying states of motion, each sentence still conveys its respective movement in English. Then take a closer look at (5b). To express the same meaning in Chinese, we have to add the main movement verb *fēi* 'fly' to encode [+MOVE], with *hūxiào-zhe* 'screech' encoding the accompanying state of the movement.

Talmy (2000b: 221) summarizes "the manner of movement" and "the accompanying state of movement" as semantic components contained in a co-event. The examples above suggest that these components have different encoding patterns in Chinese and English. Therefore, when classifying the Chinese language, it is not enough to solely look at the semantic conflation patterns of the [+PATH] components. We also need to pay attention to the specific differences in how Chinese and English lexicalize a co-event and incorporate it into the main event (Talmy 2000b: 226). This research examines motion event sentences in both languages. We propose that characterizing an autonomous motion event requires the semantic conflation of its motion and path to express a concept of translational movement. The lexicalization and incorporation patterns of a co-event differ between English and Chinese due to the role of prepositions. In English, the representation system encoding path is a continuum mainly composed of prepositions denoting from horizontal/vertical paths to directional relations, which can compensate for the lack of paths in non-horizontal/vertical movement verbs. Given the abundance of prepositions in English and their capacity to characterize multiple concepts, there are no strict restrictions on the verbs used in encoding autonomous motion event sentences. For example, the non-motion verb *roar* can also enter an autonomous motion construction when coupled with a preposition that can compensate for the path. Therefore, English autonomous motion event sentences demonstrate right-oriented restrictions on prepositions.

The path system in Chinese is composed of prepositions, verbs, and other elements. Chinese prepositions are far fewer in both quantity and variety, with only a few functioning the same as their English counterparts. They typically encode the

starting or ending point of the path, such as *cóng* 'from', *dào* 'to', *xiàng* 'towards', etc. Additionally, Chinese lacks prepositions that express horizontal/vertical paths and instead relies on motion or directional path verbs to compensate.

(6) motion verbs

a. **shàng**lóu	b. **jìn**wū	c. **chū**mén
go.upstairs	enter.room	go out.door

(7) directional path verbs

a. pǎo**guò**	b. tiào**shàng**
run.across	jump.on

As a result, there are strict restrictions on core verbs when encoding autonomous motion event sentences in Chinese. For example, non-motion verbs like *hūxiào* 'screech' can only function as accompanying components for motion verbs, not as core verbs. Therefore, Chinese autonomous motion event sentences demonstrate a left-oriented restriction on verbs.

In conclusion, when the motion path is absent in the encoding of an autonomous motion event, English relies on prepositions that express path, while Chinese compensates for this by using verbs.

2 Core schema of typical autonomous motion events

As for the conceptualization of autonomous motion events, Talmy (2000b: 25) proposes the hypothesis of the *frame of motion event*: Every motion event consists of four semantic entities: Figure (the subjective of motion), Ground (the reference point of motion), Move (the motion itself), and path (the motion path linking Figure and Ground).

Based on whether the motion contains a causative force, motion events can be divided into two categories: causative motion and autonomous motion. An example of causative motions can be seen in (8):

(8) I put apples into the basket.

Here, the motion of the *apple* is caused by *I*, the causative subject of the motion, but not an autonomous motion out of the *apple* itself. In contrast, when the motion is autonomously conducted by the Figure and does not need a causative force, it is an autonomous motion, as in (9):

(9)

I	ran	through	the park	yesterday.
FIGURE	MOVE	PATH	GROUND	

This research intends to focus on autonomous motions. Causative motions, as well as autonomous motions without displacement, such as *swell* and *shrink* mentioned by Talmy (2000a: 333) (see (10) for examples), will not be discussed.

(10) a. The clothes shrank.
Yīfu suōshuǐ-le. (Mandarin)

b. **The balloon** swelled.
Qìqiú péngzhàng-le. (Mandarin)

In summary, autonomous motion events have two characteristics: First, the Figure is the initiator of the motion; second, the path encodes the actual displacement.

Talmy (2000b: 26) indicates that path is the core schema of autonomous motion events, distinguishing them from other event structures and defining their boundaries. In English, the role of path is often taken by prepositions, such as *through*, *across*, *at*, *on*, etc., or a certain type of adverbs, such as *away*, *out*, etc. However, Talmy excludes prepositions from "satellites" (Croft et al. 2010), which may lead to a further problem regarding English's typological classification. See (11) and (12) below:

(11) a. The bird flew **into** the cave.
b. *The bird flew **into**.

(12) a. The bird flew **over** the house.
b. The bird flew **over**.

If we follow Talmy's definition of satellites strictly, (11a) is not a satellite-framing construction because the core schema is only expressed in the preposition *into*. Thus, we extend the definition to include prepositions and adverbs/particles as well.

However, it is clear that prepositions and adverbs/particles share different syntactic performances. For example, (11b) is unacceptable without the Ground, whereas (12b) is valid. We therefore conclude that prepositions are also satellites that not only encode path but also introduce the Ground, while adverbs/particles only encode path. This research focuses on prepositions; adverbs/particles will not be discussed here.

We also find that the presence of path does not always indicate an autonomous motion event. See below:

(13) a. I ran **through** the park yesterday.
b. ?I ran **at** the park yesterday.

Each sentence above encodes a path (*through* and *at*). (13a) presents an autonomous motion scene, while (13b) depicts the location of the motion. Therefore, path alone does not independently convey the concept of autonomous motion.

Hsiao (2009) considers the differences in manner verbs between Chinese and English and categorizes the manner verbs in autonomous motion sentences into two groups: *Event-centred Manner* and *Figure-centred Manner*. However, she assumes that all core verbs in autonomous motion sentences encode translational movement and neglects sentences such as (14) and (15):

(14) a. The peanuts **splattered across** the table and the floor.
b. Huāshēng **pīli zuòxiǎng-de gǔnguò** zhuōzi hé dìmiàn. (Mandarin)

(15) a. Hassan **hurried down** the stairs.
b. Hassan **cōngmáng-de zǒuxià** lóu. (Mandarin)

In (14a) and (15a), the verbs *splatter* and *hurry* do not carry the concept of [+MOVE]. They cannot be incorporated into either category proposed by Hsiao (2009) but still unequivocally characterize autonomous motion events. This suggests that the concept of autonomous motion does not rely solely on core verbs.

Therefore, this research proposes that in autonomous motion events, the meaning of displacement is not solely carried by the verb or the path; rather, it is generated through the interaction of them.

To investigate this interaction, we analyze the collocations of 23 prepositions with verbs and identify the autonomous motion sentences. Then we classify these sentences as shown in Table 1.

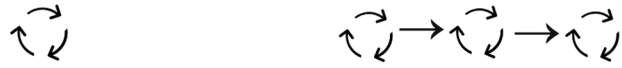
Table 1. Categories of autonomous motion sentences in English[2]

Preposition		V1 Verb to test: *run*	V2 Verb to test: *swirl*	V3 Verbs to test: *screech, bark*
Prep.1	*across*	+	+	+
	down	+	+	+
	up	+	+	+
	through	+	+	+
	past	+	+	+
	into	+	+	+
	alongside	+	+	+
	onto	+	+	+
	over	+	+	+
	out of	+	+	+
Prep.2	*off*	+	+	–
	to	+	+	–
	from	+	+	–
	towards	+	+	–
Prep.3	*in*	+	–	–
	beside	+	–	–
	above	+	–	–
	at	+	–	–
	on	+	–	–

V1 verbs, defined by Shi (2021: 20) as movement verbs, encode translational movement and horizontal/vertical path, such as *pǎo* 'run' and *jìn* 'get in'. V2 verbs express self-contained motion, as defined by Talmy (2000a: 229–333), where the

2 "+" means the collocation can characterize autonomous motion; "–" means it cannot.
V1: [+MOTION] [+DISPLACEMENT]; V2: [+MOTION] [-DISPLACEMENT]; V3: [-MOTION] [-DISPLACEMENT].
Prep.1: in collocation with all three types of verbs; Prep. 2: in collocation with V1/V2 verbs; Prep. 3: in collocation with V1 verbs.

Ground is functioned by the Figure, such as *xuánzhuǎn* ‘swirl’, *péngzhàng* ‘swell’, and *suōxiǎo* ‘shrink’. They cannot carry a horizontal path (see Figure 1). V3 verbs refer to those that do not contain the notion of motion.



The motion path of *swirl* The motion path of *roll*

Figure 1. The motion path of *swirl* and *roll*

Based on Table 1, the following conclusions can be made:

1. When collocated with V1 verbs, all prepositions can represent the meaning of displacement, generating an autonomous motion event.

2. Not all prepositions can represent a displacement meaning when collocated with V2 or V3 verbs. Also, when a preposition cannot be collocated with V2 verbs, it cannot be collocated with V3 verbs either. Therefore, the priority order of the three types of verbs in English autonomous motion event sentences is: V1>V2>V3.

3. Not all prepositions can be collocated with V2 or V3 verbs to represent autonomous motion events. In “V1+Prep.3” collocations, prepositions do not represent the direction of movement and can only be used to introduce the Ground. As V1 verbs (e.g., *roll*) contain a horizontal path, these combinations can generate the meaning of “moving along a horizontal path”. In “V2+Prep.2” collocations, V2 verbs (e.g., *swirl*) involve motion but lack a horizontal path. Prep.2 prepositions supplement the direction of motion, enabling these combinations to generate the meaning of “moving towards a horizontal path”. “V3+Prep.1” collocations are special and rare as V3 verbs convey neither horizontal path nor motion. However, Prep.1 prepositions contain a horizontal path, and their capability of introducing the Ground adds direction to this path. Therefore, these collocations can be interpreted as “moving along a horizontal/vertical path towards the Ground”.

In summary, the collocation of “verb + preposition” is able to characterize a scene of autonomous motion in two scenarios. First, the motion verb itself carries a translational path (e.g., V1 verbs can combine with all three groups of prepositions), or the preposition interprets a translational path towards the Ground (e.g., Prep.1 prepositions can combine with all three groups of verbs). Second, verbs and prepositions select each other and collectively convey the concept of motion towards a translational path (e.g., V2 verbs cannot combine with Prep.3 prepositions and V3 verbs cannot combine with Prep.2 or Prep.3 prepositions).

In order to verify these conclusions in Chinese, we analyze the 30 path verbs identified by Wu (2015), excluding self-contained motion verbs such as *sàn* ‘collapse’ and *dǎo* ‘fall down’. Also, we examine the sentence pattern of autonomous motion in Chinese by using the BCC corpus (detailed data will be

discussed in Section 4). Our findings indicate that the concept of path is generally expressed through directional path verbs and prepositions. For example:

(16) a. Xuéshēng-men **shàng** lóu-le.
student-PL **go.up** stair-LE
'Students **went up** stairs.'
b. Xuéshēng-men **pǎo-shàng** lóu-le.
student-PL **run-up** stair-LE
'Students **ran up** stairs.'

The directional verb *shàng* 'go up' functions as the predicate in (16a), denoting both motion and a vertical path, which can be interpreted as "motion along a vertical path". In (16b), the verb-complement structure *pǎo-shàng* 'run up' functions as the predicate. Here, the core verb *pǎo* 'run' encodes a translational path, while *shàng* 'up' serves as a directional complement of *pǎo*, further indicating that the direction of the path is vertical and bottom-up. Therefore, the combination of *pǎo* + *shàng* can be interpreted as "motion along a vertical path". It is common in Chinese that directional path verbs function as complements to characterize path in autonomous motion event sentences.

We can then look at the cases where prepositions characterize path:

(17) a. Tā **cóng** jiālǐ **pǎo-le**.
he **from** home **run-LE**
'He ran(out) from home.'
b. Tā **wǎng** jīchǎng **qù-le**.
he **towards** airport **go-LE**
'He went towards the airport.'

As elements that characterize path, the prepositions *cóng* 'from' in (17a) and *wǎng* 'towards' in (17b) introduce their respective Grounds, which represent the starting point (*jiā* 'home') and the ending point (*jīchǎng* 'airport') of motion. The verbs *pǎo* 'run' and *qù* 'go' are V1 verbs, carrying path themselves, and can be interpreted as "motion along a translational path towards/away from the Ground" when integrated with the prepositions and locations.

In addition, general path verbs also convey path. See below:

(18) Chuánshàng-de bǎozàng dōu **chén** shuǐdǐ-le.
in.boat-DE treasures all **sink** deep.in.water-LE
'All the treasures in the boat **sank** deep into the water.'

(19) Bàba-de huā-er **luò**-le.
dad-DE flower **fall**-LE
Dad's flowers **have fallen**.

(20) Shǒulǐ-de miànbāo **diào** dìshang-le.
in.hand-DE bread **fall** on.floor-LE
'The bread in hand **fell** on the floor.'

In (18)–(20), the general path verbs *chén* 'sink', *luò* 'fall', and *diào* 'drop' carry [+MANNER OF MOTION, +MOVE, +HORIZONTAL/VERTICAL PATH], and can be interpreted as "motion along a horizontal/vertical path with a certain manner".

Therefore, in Chinese autonomous motion sentences, the concept of "motion along a translational path" can be expressed through prepositions, directional path verbs, and general path verbs, consistent with findings in English. As for the usage of directional path verbs when they appear alone and their difference from general path verbs, these topics exceed the focus of our present research, and will not be explored further here.

3 Path system in English

Based on the discussion above, the present research proposes that the core schema of autonomous motion events is the horizontal/vertical path, which forms a prototypical scope comprising typical and atypical members. The typical members can directly characterize a translational path, clearly distinguishing autonomous motion events among the event spectrum. In contrast, the atypical members, which only indicate the direction of motion or provide the location reference related to the Ground, need additional elements to complement a horizontal/vertical path.

(21) a. I **ran through** the park yesterday.
b. Smoke **swirled through** the landscape.
c. I **screeched through** the park yesterday.

(22) a. I **ran at** the park yesterday.
b. *Smoke **swirled at** the landscape.
c. *I **screeched at** the park yesterday.

In (21), the preposition *through* characterizes a horizontal path from entrance to exit, which is a typical path. When a verb does not carry horizontal/vertical path or even the concept of motion, as in (21b) and (21c), the autonomous motion event can still be characterized. However, as a preposition of locality, *at* in (22a) characterizes the locational relation between *I* and *the park*, creating an atypical path. So, the autonomous motion event can only be characterized when the verb *run* complements the translational path. In (22b) and (22c), by contrast, *swirl* and *screech* fail to complement their translational paths, making the sentences unable to characterize autonomous motion events.

There is no explicit boundary between typical and atypical members. Instead, they form a continuum transitioning from horizontal/vertical paths to locational relations. According to the Principle of Distance Iconicity (Haiman 1983), the distance between linguistic elements in syntactic distributions represents the conceptual distance between them. In other words, elements conceptually close to each other are prioritized for combination in syntactic distribution (Chen 2007). Therefore, elements characterizing horizontal/vertical paths are more closely associated with the concept of motion, and tend to be adjacent to verbs in sentences.

Similarly, elements characterizing the positional relation between the Figure and the Ground introduce the Ground and are conceptually closer to it, thereby they are positioned nearer to the Ground in sentences. See (23) below:

(23) a. He ran **away from** the supermarket.
b. *He ran **from away** the supermarket.

In these two sentences, *away* characterizes the horizontal path of *run*, which is required to be located right next to motion. The preposition *from* indicates that the starting point of motion is the *supermarket*, which needs to be adjacent to the Ground. Therefore, based on the distance between path element and verb, and the distance between path element and Ground in the syntactic distribution, we can figure out which concept path element characterizes.

We have searched typical movement verbs in COCA (Corpus of Contemporary American English) and found 79,100 examples, among which, 12,498 autonomous motion sentences are identified and categorized in the table below by the distribution of path.

Table 2. Proportion of autonomous motion sentences in English[3]

	Column A	Column B	Column C	Column D
Structure / Path	V+^+G	V+^	V+^+P2+G	V+P2+^+G
out	0	19	47	1
away	0	0	36	0
off	5	38	17	9
alongside	25	67	8	0
over	27	61	8	4
in	24	39	35	15
up	44	2	50	4
down	71	6	19	4
on	2	0	30	67
through	95	2	0	3
past	60	33	4	4
from	34	1	0	65
to	47	0	0	53
onto	64	0	0	36
into	74	0	0	26
towards	82	0	0	22
beside	85	2	0	13
at	91	0	2	7
across	91	3	2	3
above	100	0	0	0

[3] V stands for verb, G stands for the Ground, ^ stands for Path, P2 stands for Path2.

English is a typical satellite-framed language (Talmy 2000b: 223), with the satellite elements or prepositions encoding path. Satellite elements, such as adverbs in English or complements in Chinese, are integrated with the core verb into a VP, with the core verb semantically functioning as the headword. The prepositional components include prepositions preceding locative nouns and introducing the Ground, postpositions following the Ground (e.g., nouns of locality in Chinese), and prefixes.

Our investigation into the corpus reveals that satellite elements and prepositional elements in English are complementary in distribution. Typical satellite elements, such as the adverbs *away* and *out*, can only appear in semantic contexts without the Ground, while preceding locative prepositions, such as *above*, *at*, and *on*, can only appear in the semantic contexts followed by the Ground. This indicates a shorter semantic distance between the adverb and the movement verb and a farther one between the adverb and the Ground element. In other words, an adverbial path is indispensable to the concept of motion and can perfectly characterize the motion path, which incurs an exclusion against other Ground elements that provide a reference for motion. Preceding locative prepositions characterize positional relations between the Figure and the Ground and cannot appear in distribution contexts lacking the Ground. Notably, some locative prepositions fall in between. According to their distribution in double-path structures (Table 2, columns C and D), we can see that locative prepositions have different tendencies in syntactic distributions. Prepositions such as *up*, *down*, *off*, *alongside*, and *over* tend to be close to the verb, while *from*, *to*, *besides*, and *towards* are prone to be next to the Ground. We also find that locative prepositions right next to the verb all contain a horizontal/vertical path (see Figure 2), whereas those located next to the Ground do not exhibit this feature (see Figure 3). For the sake of convenience, the prepositions in Figure 2 are collectively referred to as horizontal/vertical path prepositions, while those in Figure 3 are called point prepositions.

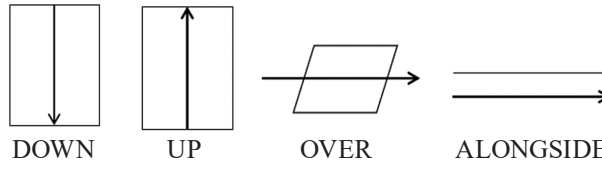


Figure 2. Schema of horizontal/vertical path prepositions

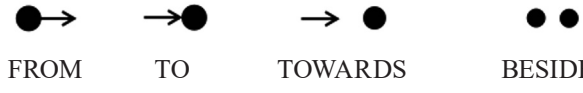


Figure 3. Schema of point prepositions

Therefore, we suggest that adverbs and locative prepositions lie on the two ends of the continuum of path in English, with horizontal/vertical path prepositions

and point prepositions lining in between. The archetypality of path categories decreases in step with their ability to represent the translational path:

Adverb≧horizontal/vertical path preposition>point preposition>locative preposition

As for the cases of *through* and *across*, they both carry the schema of a horizontal path. However, evidence from the corpus shows that *through* and *across* are apt to appear in distribution contexts followed by the Ground and tend to be positioned close to it in double-path structures. Their syntactic distribution is similar to that of locative prepositions. What draws our attention, though, is that they also reject the structures in column C of Table 2, which indicates that the semantic distances between them and movement verbs, as well as between them and the Ground, are equivalent, and their compact degrees are also equal. The Ground introduced by locative prepositions can be the starting point or the ending point of the path of motion, or a certain point along it. To summarize, the Ground is actually part of path. When the Ground follows *through* or *across*, it is only the reference to path, exemplifying a prototypical path. Thus, another characteristic of the autonomous motion path is that horizontal/vertical paths also carry the quality of prepositions that introduces prototypical Ground elements.

In conclusion, we suggest that: 1) the path system in English is mainly comprised of prepositions, which can introduce the Ground; 2) adverbs and horizontal/vertical path prepositions can combine with verb phrases that do not have a horizontal/vertical path to characterize autonomous motion events.

4 Path system in Mandarin

The path system in Mandarin mainly consists of directional path verbs, prepositions, and a small group of general path verbs, which are distributed in different semantic contexts. See Table 3:

Table 3. Semantic environment of path in Chinese[4]

Path \ Environment	Preceding path	Without Ground	With Ground	Double-path (including preceding path)	Double-path (excluding preceding path)
Preposition	+	–	+	+	–
Directional path verb	–	+	+	+	–
General path verb	–	+	+	+	–

Prepositions in Chinese, based on their relation to movement verbs, can be categorized into two types: preceding prepositions, such as *cóng* ‘from’, *wǎng* ‘towards’, and *cháo* ‘towards’; and flexible prepositions, which can appear either before or after a verb, such as *zì* ‘from’, *zài* ‘at, in, on’, *xiàng* ‘towards’. Both

4 “+” indicates that the Path can appear in this specific semantic environment, while “–” indicates that it cannot.

types are similar to locative prepositions in English in that they characterize the locational relation between the Figure and the Ground, with nouns introduced by them serving as locations. See (24) below:

(24) Tā pǎo **xiàng** xuéxiào.
he run towards school
PATH. GROUND
'He ran **towards** school.'

However, the word order in Chinese and English is different. The construction of "Locative preposition + Ground" tends to appear before a movement verb in Chinese, while it occurs after the movement verb and at the end of the sentence in English. See (25) below:

(25) Tā **cóng** **xuéxiào** lái.
he from school come
PATH. GROUND
'He came **from school**.'

This difference may stem from the cognitive frameworks of these two languages. English follows the principle of "the Figure in front of the Ground", while the principle of "the Ground in front of the Figure" dominates in Chinese. Moreover, the Ground-first principle contributes to the semantic divergence between the path that introduces the Ground (located in front of the verb) and the path related to motion (located behind the verb) in the Chinese path system (Chen 2017).

There are 11 directional path verbs in Chinese that can combine with other directional path verbs to form compound directional path verbs: *shàng* 'go up', *xià* 'go down', *jìn* 'get in', *rù* 'get in', *chū* 'get out', *huí* 'get back', *dào* 'arrive', *guò* 'pass', *lái* 'come', *qù* 'go', and *líkāi* 'leave'.[5] The schema of Chinese directional path verbs is similar to that of English horizontal/vertical path prepositions in that they both contain the translational path of movement. However, Chinese directional path verbs can appear in a Ground-free syntactic environment, and do not demonstrate a context-dependent trend. In other words, they tend to be inferior to horizontal/vertical path prepositions in English in introducing the prototypical Ground. See (26):

(26) a. Xiǎowáng gānggāng pǎo **guò**qù-le.
b. *Xiaowang just now ran **through**.

There is also a type of general path verb in Chinese, such as *guī* 'get back', *dǎo* 'fall down', *chén* 'sink', *dī* 'drip', *luò* 'drop', *jiàng* 'descend', *shēng* 'ascend',

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[5] Chen (2007) proposes that *lái* 'come' and *qù* 'go' belong to speaker-centred external reference, while the other directional verbs are location-centred internal reference. The present research does not involve external reference, so the cases containing *come* and *go* will not be discussed here.

diào 'drop', *tuì* 'retreat', *còu* 'gather together', etc. We believe that these general path verbs emphasize motion over path, which makes them closer to movement verbs both semantically and syntactically. Furthermore, their paths are lexicalized, which means they can encode [+Path] without a directional complement, such as *xià*. Examples can be seen in (27)–(29):

(27) Chuánshàng-de bǎozàng dōu **chén** shuǐdǐ-le.
in.boat-DE treasures all sink deep.in.water-LE
'All the treasures in the boat sank deep into the water.'

(28) Bàba-de huā-er **luò**-le.
dad-DE flowers fall-LE
'Dad's flowers have fallen.'

(29) Shǒulǐ-de miànbāo **diào** dìshang-le.
in.hand-DE bread fall on.floor-LE
'The bread in hand fell on the floor.'

Besides, unlike directional path verbs, general path verbs explicitly encode a manner of motion. For example, *chén* 'sink' in (27) denotes the act of completely submerging the object in the liquid, *luò* in (28) describes an object falling from a high place to a low place naturally and gently, and *diào* in (29) refers to changing the force on the object to move it from a certain place. However, for general path verbs, it is difficult to grammaticalize the manner, so they cannot function as complement components of other verbs as directional path verbs do. Instead, they can function as core verbs and combine with directional complements, as seen in (30)–(32).

(30) a. Chuánshàng-de bǎozàng dōu **chénxià** shuǐdǐ-le.
in.boat-DE treasures all sink.down deep.in.water-LE
'All the treasures in the boat sank deep down into the water.'
b. Chuánshàng-de bǎozàng dōu ***xiàchén** shuǐdǐ-le.
in.boat-DE treasures all down.sink deep.in.water-LE

(31) a. Bàba-de huā-er dōu **luòxià**-le.
dad-DE flowers all fall.down-LE
'Dad's flowers have fallen down.'
b. Bàba-de huā-er dōu ***xiàluò**-le.
dad-DE flowers all down.fall-LE

(32) a. Shǒulǐ-de miànbāo **diàoxià**-le táijiē.
in.hand-DE bread fall.down-LE stairs
'The bread in hand fell down the stairs'.
b. Shǒulǐ-de miànbāo ***xiàdiào**-le táijiē.
in.hand-DE bread down.fall-LE stairs

In addition, we also find that it is frequently seen that the non-preceding double-path structure in English autonomous motion sentences will either miss one of the path components in Chinese, as in (33)–(34), or combine one of the path components

with a locative noun to form a noun plus location structure to characterize the Ground with a locative meaning, as in (35).

(33) Xiaoli ran **up to** the room.
Xiǎolǐ pǎo **shàng**-le fángjiān.

(34) The boy ran **off into** the woods.
Nánhái pǎo **jìn**-le Shùlín.

(35) The man ran **up to** the taxi.
Nánrén pǎo **dào**-le chūzūchē-**shàng**.

There is only one double-path format in Chinese: "preceding preposition path 2 + Ground + movement verb + path1". The preceding path in this format corresponds to point path prepositions and locative prepositions in English. Consider (36):

(36) Xiǎogǒu **cóng** jiù nóngchǎng pǎo-le **chūlái**.
little.dog **from** old yard run-LE **out**
'The little dog ran **out from** the old yard.'

To sum up, we believe that the path system in Chinese mainly consists of prepositions and directional path verbs. These two types of path differ in both function and syntactic distribution. Prepositions characterize the locational relation between the Figure and the Ground, and are positioned close to the Ground because of their function of introducing the Ground, as seen in (37):

(37) a. Xiǎogǒu **cóng** **lùkǒu** pǎolái.
little.dog from crossing run
GROUND
'The little dog ran **from** the crossing.'
b. *Xiǎogǒu **cóng** pǎolái **lùkǒu**.
little.dog from run crossing
GROUND

Directional path verbs characterize the horizontal/vertical path of motion, and are more closely related to movement verbs, as seen in (38):

(38) a. Xiǎogǒu **pǎoshàng**-le lóutī.
little.dog run.up-LE stair
GROUND
'The little dog ran **up** the stairs.'
b. *Xiǎogǒu **shàng** lóutī **pǎo**.
little.dog up stair run
GROUND

Our further study of the collocation between directional and general paths and verbs in autonomous motion sentences shows that V2 and V3 verbs function solely as modification elements (see Table 4) rather than as the core of a predicate.

This indicates that existing prepositions in Chinese cannot supplement the missing horizontal/vertical path, so main movement verbs containing such a path are required. However, Chinese directional path verbs that contain a horizontal/vertical path are not prepositional and cannot introduce the archetypal Ground as English path prepositions do; instead, the locative objects can only be introduced by movement verbs.

Table 4. Corresponding syntactic structures to the "Motion + Path" structure in Chinese[6]

Path \ Motion		Verb1 e.g.: *pǎo* 'run'	Verb2 (+*zhe*) e.g.: *xuánzhuǎn* 'swirl'	Verb3 (+*zhe*) e.g.: *hūxiào* 'screech'
Path verbs	Directional path (e.g.: *guò*)	V1+Path *Xuéshēngmen* ***pǎo guò****-le xuéxiào.* 'Students ran across the school.'	V2+*zhe*+MMV +Path *Shùyè* ***xuánzhuǎn-zhe piāo guò*** *tiānkōng.* 'Leaves swirled through the sky.'	V3+*zhe*+MMV+Path *Lǎoyīng* ***hūxiào-zhe fēi guò*** *tiānkōng.* 'Hawks screeched through the sky.'
	General path (e.g.: *chén*)	cannot be used as verb complements to encode [+PATH]		
Prep.	Prepositive/ postpositive (e.g.: *xiàng*)	Path+V1/V1+Path *Xuéshēngmen* ***xiàng*** *xuéxiào* ***pǎo qù****. / Xuéshēngmen* ***pǎoxiàng*** *xuéxiào.* 'Students ran towards the school.'	V2+*zhe*+MMV+Path / V2+*zhe*+Path+MMV *Shùyè* ***xuánzhuǎn-zhe piāo*** *xiàng tiānkōng. / Shùyè* ***xuánzhuǎn-zhe xiàng*** *tiānkōng* ***piāo****-qù.* 'Leaves swirled towards the sky.'	V3+*zhe*+MMV+ Path / V2+*zhe*+Path+MMV *Lǎoyīng* ***hūxiào-zhe fēi xiàng*** *tiānkōng. / Lǎoyīng* ***hūxiào-zhe xiàng*** *tiānkōng* ***fēi-qù****.* 'Hawks screeched into the sky.'
	Postpositive (such as *dào*)	V1+Path *Xuéshēngmen* ***pǎo dào-le*** *xuéxiào.* 'Students ran to the school.'	V2+*zhe*+MMV+Path *Shùyè* ***xuánzhuǎn-zhe piāo dào****-le zhuōmiàn.* 'Leaves swirled to the table.'	V3+*zhe*+MMV+Path *Lǎoyīng* ***hūxiào-zhe fēi dào****-le tiānkōng-zhōng.* 'Hawks screeched into the sky.'

5 Conclusion

Based on substantive corpus, the present research proves that the core schema of autonomous motion sentences in Chinese and English is the horizontal/vertical path. With our analysis of the syntactic distribution of path components in English, the present research also finds that the path system in English is a continuum, ranging from the characterization of horizontal/vertical path to that of relative location, with prepositions taking the domination. When verbs lack the horizontal/vertical path or even the concept of motion, prepositions characterizing the horizontal/vertical path can compensate for the absence. Therefore, such verbs are acceptable in autonomous motion sentences and can be understood as representing the concept of motion. Nevertheless, the path system in Chinese is a bi-polar system consisting of directional path verbs and prepositions. Directional path verbs characterize the horizontal/vertical path but cannot introduce the Ground,

6 "MMV" means main movement verb.

while prepositions characterize the relative location and introduce the Ground but cannot express the horizontal/vertical path. Path verbs and prepositions differ obviously in function. The Chinese path system lacks prepositional components that can simultaneously introduce the Ground and characterize the horizontal/vertical path (such as *through*). When a verb cannot express the horizontal/vertical path or even the concept of motion, a movement verb is required, resulting in the original verb functioning solely as a modification element.

As for the reasons why directional path verbs cannot directly introduce the Ground, and why only *pǎo* 'run', *zǒu* 'walk', and *piāo* 'float' are considered acceptable as their core, these issues may related to the reciprocal semantic choice between the core verb and the directional verb. While this topic lies beyond the scope of the present research, it is undoubtedly a question worthy of further discussion.

Data Availability Statement

All sentence examples were driven from the following resources available in public domain:

1) http://bcc.blcu.edu.cn/
2) https://www.english-corpora.org/coca/

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漢英自移事件句語義整合模式差異及動因：路徑及其載體

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提要

對於英語中某些由單一核心動詞構成的單句，漢語需要形成連謂結構才可以編碼與英語核心動詞在真值語義上等值的成分。以“旋轉”“尖叫”這類不具有橫向或縱向位移義甚至不具有運動義的詞為例，在英語中，這類詞可以直接與路徑成分搭配使用，但在漢語中卻必須補充出對應的主要運動動詞，這類詞只能作為運動的附加信息來修飾主要運動動詞。本文以此為切入點考察漢英位移事件句，認為無論英語還是漢語，要表徵一個自移場景，都要求其運動和路徑進行語義整合後能够被整體識解為“趨向運動”語義。英漢語義整合模式差異背後的動因是英語介詞數量多、類型豐富，包括像 in 這樣的無路徑義的介詞，也包括像 across 這樣的含有路徑義的介詞，後者補償了非橫（縱）向位移動詞本身所缺乏的路徑。漢語介詞數量較少、類型較單一，缺乏英語中包含路徑義的介詞，只能依靠運動動詞或趨向動詞來補償位移路徑。可以說，當需要對位移路徑進行補償才能够表徵自移事件時，英語依靠含路徑義的介詞，漢語則依靠動詞。

關鍵詞

運動事件，詞化模式，介詞