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Author

Tham, Shiao Wei

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When motion and location yield direction: The case of Mandarin

Author(s): Shiao Wei Tham

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- (5) *Gianni è camminato in spiaggia
John is walk.PSTPRT in beach
Intended: John walked to the beach.
(Folli and Ramchand (2005): 97, (32a))

Notably, these readings are not consistently available, often varying with the verb: A directional reading is possible with Dutch *sprong* ‘jumped’ in (2) but not with *zwom* ‘swam’ in (3); it is allowed with Italian *rimbalzata* ‘bounce.PSTPRT’ in (4) but not with *camminato* ‘walk.PSTPRT’ in (5).

Two kinds of approaches have been proposed to explain both the availability of, and the variation in, these interpretations. The LEXICAL AMBIGUITY approach (Alonge 1997, Folli and Ramchand 2005, Fábregas 2007) attributes these interpretations to the ability of certain manner of motion verbs, and some prepositions, to take on a directional meaning.

An alternative account posits PRAGMATIC LICENSING (Nikitina 2008, Tutton 2009, Levin et al. 2009), attributing the directional interpretation to contextual-pragmatic factors such as aspectual properties of the manner verbs, and the nature of the ground described by the prepositional complement. For instance, manners of motion conceivable as describing a single, punctual motion event, e.g. *jump* most easily allow directional interpretations with locative prepositions (Cummins 1996, cf. (2)). Directional interpretations without directional morphemes are also less likely with “explicit descriptions of paths” (Nikitina 2008:185), and more compatible with describing the result of a spatial transition rather than motion along a path. Under this approach, the manner of motion verbs and locative morphemes involved consistently encode manner and location only. They do not themselves alternate with directional meanings.

This paper argues that analogous examples in Mandarin Chinese support the pragmatic approach over a lexical ambiguity analysis. Using data from the Peking University (PKU) online corpus, I show that a directional interpretation without a directional morpheme in Mandarin is facilitated by factors very similar to those observed in other languages. These factors include: (i) aspectually, a verb that describes short, punctual motion; (ii) a less specific path description; (iii) a less specific manner of motion; and (iv) the occurrence of the motion event clause in a narrative sequence.²

The paper is structured as follows: The next section lays out path encoding patterns in Mandarin and gives an overview of the corpus study. Section 2 presents the findings, demonstrating the generalizations with examples. Section 3 discusses

¹ Abbreviations: PSTPRT = past participle; ASP = aspectual marker; ASSOC = associative marker; DUR = durative marker; REDUP = reduplication

² I follow conventional practice in using terms such as Figure, Ground, Manner, and Path, respectively to describe the entity that moves, the place to or at which it moves, the kind of motion described, and the directional component of the motion event, if any.

how different manners of motion may interact with path and manner modification to facilitate or inhibit directional interpretations. Section 4 concludes the paper.

1 Preliminaries

This section provides background on the different ways in which path can be encoded in Mandarin, and outlines the corpus study.

1.1 Multiple path encoding options

A variety of lexical and morphosyntactic resources in Mandarin allows for several options in encoding directed motion events. First, “coverbs,” which are preposition-like morphemes that can also act as main verbs, may encode path e.g. *dao* ‘arrive/to’ and *jin* ‘enter/into’ (6, 7) or location e.g. *zai* ‘be at’ (8).

- | | | |
|--------------------------|-----------------------|------------------------|
| (6) <i>dao</i> lou-shang | (7) <i>jin</i> che-li | (8) <i>zai</i> he-bian |
| arrive/to floor-upon | enter car-within | be.at river-side |
| arrive upstairs | enter the car | be by the river |

A directed motion event can be expressed with path coverbs alone, as in (6, 7), or in combination with manner of motion verbs (9, 10):

- | | |
|--------------------------------|--|
| (9) <i>zou dao</i> shan-shang | (10) <i>kai</i> (che) <i>jin</i> shan-li |
| walk arrive/to mountain-upon | drive car enter mountain-within |
| walk to/go to the mountain top | drive into the mountains. |

Another option is to use a path verb such as *diao* ‘drop’ (11). A path verb may occur with either a directional or locative coverb, or no coverb at all.

- (11) *diao* (zai/dao) shui-li
 drop be.at/to water-within
 drop into the water

In addition, a manner of motion verb with the locative coverb *zai* ‘be at’ allows a directional reading in some cases (12), though not in all (13):

- (12) wuya you jiao-le yi sheng ... **fei zai** qiang-shang
 crow again call-ASP one sound ... fly be.at wall-upon
 The crow cawed once more, and flew onto the wall. (directional) PKU
- (13) you shihou **fei zai** kong-zhong de wuya hui *diao-xia-lai*
 have time fly be.at space-within ASSOC crow will fall-down-come
 Sometimes, crows flying in the air would fall down. (locative) PKU

I argue the directional interpretation in (12) does not arise because *fei* ‘fly’ is ambiguous between a manner and a directional reading. Rather, this interpretation

arises from contextual-pragmatic factors that are relevant across languages. This proposal is based on a qualitative study of the factors that facilitate a directional interpretation when a manner of motion V is followed by the locative coverb *zai*.

1.2 Data and coding

I examined instances where the manner of motion verbs in (14-16) below are followed by *zai* ‘be at’ for the possibility of directional interpretations, using the Peking University Center for Chinese Linguistics online corpus (PKU).^{3, 4} I present data mainly from the verbs in (14) and (15), although I also discuss the verbs in (16).

(14) *tiao* ‘jump’ *pu* ‘throw oneself at’ *yue* ‘leap’

(15) *fei* ‘fly’ *gun* ‘roll’ *pa* ‘crawl’ *liu* ‘flow’

(16) *zou* ‘walk’ *pao* ‘run’ *you* ‘swim’ *hua* ‘slide’ *ben* ‘gallop’ *shi* ‘drive’

Metaphorical uses of the motion verbs were excluded from the data set. The remaining examples of V *zai* sequences were coded as directed motion, located motion, or as ambiguous between these readings.

For some verbs, e.g. *tiao* ‘jump,’ *pu* ‘throw oneself at,’ *fan* ‘overturn’ (not discussed here) there was no clear located motion sense available. For verbs like *pu* and *fan* in particular, the contrast was between a directed motion sense and a non-motional spatial configuration sense or result location sense. Cases like these were coded as locative, although they could also be reasonably excluded.

Directional V *zai* examples were compared with examples of the same verb occurring with the directional coverb *dao* ‘arrive/to.’ Because the frequency of V *dao* greatly exceeds directional V *zai*, only the first 100 examples of V *dao* were investigated.⁵ Again, metaphorical uses of the verbs were excluded. Cases in which the verb was further compounded with another manner verb (see discussion of (34) in section 3) were also excluded.

2 Results and discussion

The results of the study indicate that the kind of manner described by the motion verb has the greatest effect on whether the motion event has a directional interpretation, as foreshadowed in the preceding discussion of such verbs as *tiao* ‘jump.’⁶

³ URL: http://ccl.pku.edu.cn:8080/ccl_corpus/index.jsp?dir=xiandai

⁴ These verbs included a selection from 41 Mandarin manner of motion verbs listed in Chen and Guo (2009) (from nine Mandarin novels), and some others not found in their list, but counterparts of which have been studied in other languages.

⁵ An exception was made in the case of *liu dao*, ‘flow to,’ where all 121 examples found were examined.

⁶ All Mandarin data discussed forthwith are from the PKU corpus unless otherwise indicated.

Verbs describing “short,” punctual motion events favour directional interpretations. Directional interpretations are also facilitated by descriptions of motion over short distances to a proximal goal, which also suggest shorter, punctual motion events. This indicates the nature of the motion event is perhaps the most important factor for directional interpretations. Finally, a less specific manner description and occurrence in a narrative sequence of clauses also favour directional interpretations.

2.1 Effect of the verb

V zai examples were sorted into three classes, according to their relative compatibility with a directional interpretation. For current purposes this division is merely for convenience, although the verbs in Class I do seem to form a coherent class.

(17)	% of directional V- <i>zai</i>	# of Dir. Tokens/N
Class I: <i>Jump</i> -type verbs		
<i>tiao</i> ‘jump’	98%	45/46
<i>yue</i> ‘leap’	89%	8/9
<i>pu</i> ‘fling oneself on’	77%	179/232
Class II: Manners with more than one salient interpretation		
<i>fei</i> ‘fly’	27%	18/66
<i>gun</i> ‘roll’	39%	22/57
<i>liu</i> ‘flow’	59%	41/70
<i>pa</i> ‘crawl’	18%	30/169
Class III: Other manner verbs		
<i>zou</i> ‘walk’	< 0.1%	3/3832
<i>pao</i> ‘run’	4.5%	9/201
<i>you</i> ‘swim’	7%	2/27
<i>hua</i> ‘slither, slide’	9%	1/11
<i>ben</i> ‘gallop’	0%	0/13
<i>shi</i> ‘drive’	0%	0/20

Directional *V zai* relative frequencies

(17) shows that on the whole, manner of motion *V* with *zai* ‘be at’ does not consistently allow a directional interpretation. Class I verbs such as *tiao* ‘jump,’ *pu* ‘throw oneself at,’ etc., however, show directional interpretations almost exclusively with *zai* ‘be at’ (see also Tai (1975)). This could mean that *jump*-type verbs are directional, but examples like (18) show a directional interpretation is not necessary.

- (18) *tiao zai yang-guang-li de touming zhuzi*
 jump be.at sun-light-within DE transparent pearl
 Transparent pearls jumping in the sunlight.
music.douban.com/review/1132356/ - China

I defer discussion of Classes II and III till section 3. Below, I show that despite their strong compatibility with directional readings, Class I verbs are not path verbs.

2.2 Distinguishing manner and path-encoding verbs

At least two properties distinguish true path verbs from verbs that favour directional interpretations. First, they differ in the interpretations they allow with a directional complement e.g. *shangqu* ‘go up/onto.’ A motion verb with *shangqu* can encode upward motion, or a result location that is on top of a surface, regardless of the direction of motion. True path verbs such as *diao* ‘drop’ and *luo* ‘fall’ consistently describe motion in a particular direction (in these cases, downwards). With *shangqu* ‘go up/onto,’ verbs like *luo* ‘fall’ only allow a surface result location reading. Thus in (19), *luo-shangqu* means to move downwards and land on top of the bald pate. It does not mean the fly falls in an upward direction.

- (19) ...tou-ding liang-guang-guang, cangying **luo-shangqu** ye yao hua-dao
 ...head-top light-bright-REDUP housefly fall-upon also must slip-down
 ...a bright (bald) pate, a housefly landing on it would slip and fall.

The verb *tiao* ‘jump,’ however, with *shangqu* ‘up’ can indicate upward motion:

- (20) che lai-le, ta **tiao-shangqu** bi wo gao yi jie
 bus come-PERF 3sg jump-up compare 1sg tall one section
 The bus came, she jumped up, and was higher up than me.

Second, *jump*-type verbs contrast with true path verbs in their relative compatibility with the locative and directional coverbs *zai* ‘be at’ and *dao* ‘to.’ (21) shows that true path verbs such as *diao* ‘drop’ occur more frequently with the locational coverb *zai* ‘be at’ than the directional coverb *dao* ‘to.’ In contrast, manner of motion verbs that favour a directional interpretation such as *tiao* ‘jump’ and *pu* ‘throw oneself at’ show the opposite pattern, occurring more frequently with *dao* ‘to’ than *zai* ‘be at.’

- | | | | | | | | | |
|------|--------------------|--------------|-------------|--------------|---------------------------|------------------|-------------|--------------|
| (21) | Path Vs | V-zai | > | V-dao | Class I Vs | V-zai | < | V-dao |
| | <i>diao</i> ‘drop’ | 904 | | 568 | <i>tiao</i> ‘jump’ | 83 | | 977 |
| | <i>luo</i> ‘fall’ | 8001 | | 5335 | <i>pu</i> ‘throw self at’ | 232 ⁷ | | 556 |

Frequency of path verbs and *jump* type verbs with *zai* and *dao*

We can understand this contrast as reflecting a dispreference for redundancy in path encoding: A path-encoding verb may, but does not need, a directional coverb to entail a directional interpretation. A manner of motion verb may favour a directional

⁷ Except for *pu zai*, the numbers reported here are raw numbers which include metaphorical uses of the relevant verbs. They are thus different from the numbers reported in Table 1. There are actually 612 examples of *pu zai* ‘throw oneself at,’ exceeding that of *pu dao* ‘throw oneself to,’ but tellingly, all the examples of *pu dao* ‘throw oneself to’ show a motion sense, while only 232 of *pu zai* do. This is the number reported here.

interpretation, but does not entail one without a directional coverb. The more frequent presence of the directional coverb with such verbs can be seen as reflecting its non-redundant status. These generalizations support treating *jump*-type verbs not as path verbs, but as manner of motion verbs that favour a directional interpretation even with a locative coverb.

Cummins (1996:51) argues that in French, a manner of motion “conceived of a[s] smooth, unitary, unbroken” allows directional readings with a locative PP, whereas manners understood to consist of a series of repeated movements do not. This generalization also seems applicable in Mandarin. Manners of motion described by *jump*-type verbs are easily interpreted as describing a single, unbroken movement, and they show the highest frequency of directional *V zai*. The same factor is also at work in directional interpretations of Class II verbs with *zai* ‘be at.’

2.3 Non-salient path

Class II verbs in directional *V zai* examples often describe “local motion” to a proximal goal in which the path of motion is non-salient, supporting the idea that manners describing short, unbroken movement facilitate a directional interpretation. This contrasts with *V dao*, which more frequently describes a longer path and a distant goal. I demonstrate this point for each class II verb in turn.

2.3.1 FEI: ‘FLY

Dir. *fei-zai* ‘fly at’: 15/18 (83%) instances describe forceful propulsion of some object into the air just above (22), or of motion to some proximal location (e.g. (12) above).

- (22) ca de yi sheng, na guizi de naodai bian fei zai yi bian le
ONOM DE one sound that devil ASSOC head then fly at one side ASP
A sound of slicing, and the devil’s (Japanese soldier) head flew to one side.

Most examples of directional *fei zai* ‘fly be.at’ described caused motion of “small” items, with very few examples of flight by planes. (23) is one such example, but this example also describes motion to a proximal goal to the side of another plane flying nearby. This contrasts clearly with the long-distance journey described with *fei dao* ‘fly to’ in (24) below.

- (23) ... zhanji gaibian-le duixing, fei zai ta liang ce, wei ta
... fighter.jet change-PERF formation fly be.at 3sg two side for 3sg
hu hang
protect flight
... the fighter jets changed their formation and flew to his two sides to protect him.

***fei dao* ‘fly to’:** 45 out of the first 100 examples clearly described motion with a long distance goal (24), while only 2 clearly described motion to a proximal goal.

- (24) yuhangyuan cong diqiu fei dao yueqiu-shang
 astronaut from earth fly to moon-upon
 The astronaut flew from the earth to the moon.

2.3.2 PA: ‘CRAWL’

Dir. *pa zai* ‘crawl at’: 16/30 (53%) of the examples contained ground NPs describing locations that are relatively low, or are close to or even on the ground, e.g. onto someone’s knee, e.g. (25), so that climbing to that location involved a “short” path. Only 2/30 contained ground NPs describing a tree, and in neither case was it specified how high up the figure had climbed.

- (25) ...pa zai Ning Jinshan xigai-shang
 ...crawl be.at NAME knee-upon
 ...crawled onto Ning Jinshan’s knee.

***pa dao*: ‘crawl to’:** 34 out of the first 100 instances contained some kind of path description, e.g. of the (often considerable) path length (26), or of the path object.

- (26) renmen xun-yang houzi pa dao ershi-duo mi gao de
 people tame-rear monkey climb to twenty-more metre high ASSOC
 shu-shang caizhai
 tree-upon pluck
 People train monkeys to climb upon 20 metre tall trees to pluck (coconuts).

2.3.3 LIU: ‘FLOW’

The contrast between directional *liu zai* ‘flow at’ and *liu dao* ‘flow to’ is most clearly reflected in the kinds of Figure participating in the motion.

Dir. *liu zai* ‘flow at’: 29/41 examples (71%) described the flow of expunged bodily fluids (blood, sweat, tears, etc.). Out of these 29, 25 (86%) described the fluid flowing “locally,” e.g. a tear flowing to the cheek (27). Only 4 (10%) directional *liu zai* ‘flow at’ examples described the flow of large bodies of water in nature (e.g. rivers, lakes, waterfalls).

- (27) ...leizhu yan-zhe hongyun de lianjia liu zai chandong
 ...teardrop along-DUR blush ASSOC cheek flow be.at tremble
 de chun-bian
 ASSOC lip-side
 ...teardrops flowed along the blushing cheek to the side of trembling lips

liu dao ‘flow to’: 49/121 examples (40%) described the flow of natural bodies of water such as rivers, streams, springs, etc., while only 16/121 (13%) described the flow of expunged bodily fluids. 10 (8%) other examples described the flow of blood, but within the body as a circulatory system.

In the same vein, directional *liu zai* ‘flow at’ sentences less often contained path descriptions than those with *liu dao* ‘flow to.’

Dir. liu zai: ‘flow at’: Only 7/41 instances (17%) contained a source or path description, e.g. (27).

liu dao ‘flow to’: 45/121 examples (37%) of *liu dao* ‘flow to’ contained a path description. Moreover, the paths described are more varied, including both shorter (28) and long, convoluted (29) ones.

- (28) leishui cong ta yan-jiao liu dao er-gen
tears from 3sg eye-corner flow to ear-root
Tears flowed from the corner of her eye to her ear.

- (29) xiao he zai shan-zhong zuo-pan-you-rao ... liu dao
small river be.at mountain-within left-twine-right-loop ... flow to
Yu-feng shan-jiao-xia
Jade-peak mountain-foot-below
The little river twists and turns in the mountains ... flowing to the foot of the Jade Peak.

Crucially, none of the path expressions with *liu zai* ‘flow at’ describe motion over long distances or zigzagging paths.

2.3.4 GUN: ‘ROLL’

Dir. gun zai ‘roll at’: 14/22 (63%) examples described motion to a proximal goal:

- (30) ta ying ba Zufe la-qilai, Zufe gun zai ta shen-shang, haojiao
3sg forceful BA NAME pull-rise NAME roll be.at 3sg body-upon howl
She forced Zufe up by pulling her up. Zufe rolled onto her, howling.

gun dao ‘roll to’: 40 of the first 100 examples contained a proximal goal. Among these, 14 (35%) contained either explicit path descriptions, e.g. with a source phrase, or a more elaborate Ground NP. For instance, the path from the top to the bottom of the bed in (31) should be a short one, but the source location is explicitly encoded. This likely has the effect of making the path of motion salient. In contrast, only 2/22 (9%) directional *gun zai* ‘roll at’ examples contained a source phrase.

- (31) ...cong chuang-shang gun dao chuang-xia ...
...from bed-upon roll to bed-under ...
...roll from the bed to under it ...

Out of the first 100 instances of *gun dao* ‘roll to,’ 25 contained a path description, e.g. with a source phrase. The path described could be short (31), or long (32).

- (32) ta dai-zhe shang **cong shan-ding** gun dao **shan-jiao**
 3sg bring-DUR injury from mountain-top roll to mountain-foot
 He rolled, injured, from the mountain top to the foot of the mountain.

39 examples contained a goal phrase with the spatial clitics *-li* ‘within’ (33) or *xia* ‘under,’ which potentially adds to path complexity by describing continued motion within a container-like object, or along the vertical axis of an object with depth. (8 of these examples overlap those with source phrases, making for a total of 64 examples with elaborate path descriptions.) No such examples were found in the goal phrases of directional *gun zai* ‘roll at.’

- (33) ...gun dao wan zhang shen de shangou-**li** qu
 ...roll to 10,000 *zhang* deep ASSOC valley-within go
 ...roll into the 10,000 *zhang*⁸ deep valley.

Shorter, punctual motion events are likely to involve shorter distances and nearby goals. Class II verbs do not obviously describe short, punctual motion events, but the lower frequency and relative simplicity of path descriptions suggest short-distance motion to proximal goals, facilitating directional interpretations of *V zai*.

2.4 Non-specific manner

Nikitina (2008) noted that directional uses of English *in* are less likely when the verb describes a highly specific manner. This generalization is also supported by the Mandarin facts. First of all, some verbs that do not show directional uses of *V zai* can be said themselves to describe highly specific manners: e.g. *ben* ‘gallop’ is a special case of running, *you* ‘swim’ requires not only moving in water, but requires the swimmer to either be fish, or to move in certain particular manners.

Manner of motion verbs can be compounded to further elaborate the manner:⁹

- (34) ...**fei-ben** zai gong-lu-shang
 ...fly-gallop be.at public.road-upon
 ...galloping fast on the road.

⁸ Unit of measurement

⁹ Path encoding verbs such as *luo* ‘fall’ can also be compounded with a preceding manner verb. The resulting verb compound is also directional:

- (i) ...yi pian-pian meigui huaban **piao-luo** zai ...ren-men shen-shang
 ...one piece-REDUP rose petal drift-fall be.at ...person-PL body-upon
 ...Rose petals drifted down and fell onto people.

All such examples (excluded from the study) do not allow a directional interpretation with *zai* ‘be at,’ showing that highly specific manners disfavour directional interpretations. This point is also illustrated by a contrast between *pa dao* ‘crawl to’ and directional *pa zai* ‘crawl at.’ 32 out of the first 100 examples of *pa dao* ‘crawl to’ contained adverbials modifying the crawling motion, in particular, they described arduous – and thus slow – motion (35). Only one example of directional *pa zai* ‘crawl at’ was modified in this way.

- (35) ta **zhengzha-zhe** pa dao yi ge xiao shandong
3sg struggle-DUR climb to one CL small cave
He crawled, struggling, to a small cave.

2.5 A Narrative sequence favours directionality

Discourse context is also a factor in directional interpretations for *V zai*. 63% (45/71) of the class II directional *V zai* clauses occurred with preceding or following material that together with the motion clause, describe a sequence of events. This effect could arise directly from sequencing adverbials such as *yi ... jiu ...* ‘once ... then ...’ or *xian ... ranhou* ‘first ... and then’ (36).

- (36) ta que **xian** yao pa zai yizi-tui zhijian de hengdang-shang,
he but first must climb at chair-leg between ASSOC horizontal-bar-upon
ranhou cai nenggou pan dao yizi de zuoban
then only.then able climb to chair ASSOC seat
But he had first to climb onto the horizontal bar between the legs of the chair and only then could he climb onto the seat.

Alternatively, this interpretation can arise from a sequence of event-denoting (i.e. non-stative) clauses:

- (37) Gongsun Lü-e yi yao ya, shuang zu zai yan-shang li cheng,
NAME one bite tooth pair foot be.at rock-upon strong push
shenzi yi fei zai ban-kong-zhong
body already fly be.at half-space-upon
Gongsun Lü-e clenched her jaw, her feet pushed hard on the rock, and her body flew halfway into the air.

With locative *V zai* involving the same verbs, however, only 2/195 examples (1%) occurred in a narrative sequence.

The proportion of *V dao* clauses occurring in narrative sequences is overall somewhat lower than that of directional *V zai*, although different frequencies are found for different verbs. This is illustrated in (38).

(38)

	Class I verbs		Class II verbs	
	<i>pu</i> ‘throw self at’	<i>tiao</i> ‘jump’	<i>gun</i> ‘roll’	<i>fei</i> ‘fly’
Dir. <i>V-zai</i>	119/179 = 66%	26/45 = 57.8%	15/22 = 68%	14/18 = 78%
<i>V-dao</i>	70/100	25/100	13/100	46/100

Proportion of narrative sequences with directional *V zai* and *V dao*

(38) shows that the proportion of Class II *V zai* in a Narrative sequence is also slightly higher than that of Class I verbs. Moreover, Class II *V zai* are far more likely to occur in a Narrative sequence than their *V dao* counterparts. That is, the degree of directionality of an expression is inversely related to its likelihood of occurring in a Narrative sequence. *V dao*, which entails directionality, occurs less frequently in this environment than Class I *V zai* which does not entail, but is highly compatible with directionality. Class I *V zai* in turn is less likely to occur in a Narrative sequence than Class II *V zai*. This gradation again supports a pragmatic account for directional *V zai*, as a lexical ambiguity account would in any case have to appeal to pragmatic factors to explain these fine-grained contrasts.

3 Different manner verbs

Different verbs license a directional interpretation to different degrees. I return to the manner verbs in Class II and III below.

3.1 Class II verbs

Class II verbs, while more compatible with directional interpretations than Class III verbs, is not a coherent class. The verbs *fei* ‘fly’ and *gun* ‘roll,’ and especially *liu* ‘flow’ seem more compatible with directional interpretations than *pa* ‘crawl.’

Interestingly, Class II verbs also differ in terms of how directional *V zai* contrasts with *V dao*. Directional *pa zai* ‘crawl at’ seems more to be differentiated from *pa dao* ‘crawl to’ in terms of the manner of motion (e.g. with manner adverbials). *liu dao* ‘flow to,’ *gun dao* ‘roll to’ and *fei dao* ‘fly to’ contrast with their directional *V zai* counterparts in terms of path complexity. Yet all four are more likely to allow directional *V zai* than other manner verbs such as *zou* ‘walk’ and *you* ‘swim.’

I speculate that these verbs share the property of describing more than one kind of manner of motion, none of which is especially salient. For instance, *fei* ‘fly’ and *gun* ‘roll’ can describe the motion of both animate and inanimate themes. As noted in section 2.3.3, *liu* ‘flow’ can describe the motion of small trickles (blood, sweat, tears) or that of fluid systems (rivers, streams, bloodflow).

While *pa* ‘crawl’ can only apply to animates, it can describe the crawling of reptiles, possibly snakes, where the horizontal axis of the Figure is parallel to that of the Ground. It can also describe a climbing motion, e.g. of monkeys climbing up

a tree, or a punctual motion where a change of location is attained in one movement (see Cummins 1996, 1998), or slow, arduous motion when the Figure is in pain or under difficult conditions.

The richer manner description associated with *pa* ‘crawl’ could explain why *pa dao* ‘crawl to’ and directional *pa zai* ‘crawl at’ are differentiated more in terms of manner elaboration via adverbial modification, than in terms of path elaboration as in the case of *fei* ‘fly’ and *gun* ‘roll.’

3.2 Class III verbs

The question of what manners are less compatible with a directional interpretation also arises for other manner verbs such as *zou* ‘walk,’ *pao* ‘run.’ While *ben* ‘gallop’ and *you* ‘swim’ are arguably more specific in terms of the kinds of Figures that may engage in such motion, *zou* ‘walk’ can be used simply to indicate some kind of motion that is not necessarily walking:

- (39) ...qu che zou zai Wenling shi zhongxin de Zhonghua lu
...drive car walk be.at NAME city centre ASSOC NAME street
...cruising in a car along Zhonghua Road in the Wenling city centre.

This suggests for *zou* ‘walk,’ a directional interpretation is disallowed for different reasons from verbs like *ben* ‘gallop.’ It seems more likely that *zou zai* ‘walk at’ is not compatible with directional interpretation because *zou* ‘walk’ canonically describes slow movement, which does not facilitate a directional interpretation.

These observations suggest different verbs with *zai* ‘be at’ allow or disallow directional interpretations based on different factors. I leave for future work this question and its implications for the larger issue of the factors licensing directional interpretations without directional morphemes.

4 Conclusions

The verb, or the nature of the motion described by the verb, seems to be the most important factor determining whether *V-zai* allows a directional interpretation. The motion event properties that favour directional interpretations — punctual motion, ‘short’ paths, and less specific motion — are consistent with what has been observed by others (Cummins 1996, Baicchi 2005, Nikitina 2008). Finally, occurrence in a narrative sequence also facilitates a directional interpretation of *V zai* clauses.

This work indicates that directional interpretations of motion event sentences can arise in more ways than one even in the same language, consistent with recent observations (Cummins 1996, 1998, Asbury et al. 2008, Son 2007, Beavers et al. 2010, among others). This is a more complex picture than the classic two- or three-way typology originating from Talmy (1975).

Mandarin shows verb, satellite, and equipollent-framing options (Chen and Guo 2009:1750).¹⁰ That directional interpretations without directional morphemes are also available to Mandarin indicates these interpretations are not tied to the availability of some motion encoding option, or the lack thereof. The contextual-pragmatic factors licensing these interpretations in Mandarin are the same as those noted in other languages, including both English, traditionally regarded as satellite-framed, and Romance languages, traditionally classified as verb-framed, further pointing to the cross-linguistic generality of such interpretations.

Thus, overall, this work adds to the growing evidence that both language-particular resources and general contextual factors have a part to play in the linguistic encoding of motion events.

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¹⁰The authors argue for an equipollent-framing classification.

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Department of East Asian Languages and Literatures
Wellesley College
106 Central Street,
Wellesley, MA 02481-8203

stham@wellesley.edu