

Mandarin Chinese and Thai expressions of caused motion: Different caused-motion components in verb-serializing languages

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Abstract: This paper contrasts Mandarin Chinese and Thai serial verb constructions expressing caused motion. It shows that compared with Mandarin Chinese, Thai exhibits a lower degree of clausal integration of serial verbs and requires more specific caused-motion components (e.g., the cause, manner, achievement path, accomplishment path, etc., of motion) to describe its basic clausal patterns of caused motion expressions. These two observations suggest that the degree of morphosyntactic integration of caused motion expressions in verb-serializing languages may be inversely proportional to the degree of conceptual separability of caused-motion components. The more strongly serial verbs for caused-motion components are integrated with each other, the fewer caused-motion components are required for the description of expressions. In such cases, types of caused-motion components expressed by serial verbs turn out to be language-specific.

Key words: caused motion, serial verb constructions, morphosyntactic integration, Mandarin Chinese, Thai

1. Introduction

The present paper aims to elucidate commonalities and differences between Mandarin Chinese and Thai serial verb constructions for caused motion in terms of their syntactic and semantic patterns.¹ This study concentrates on mono-clausal constructions encoding a plain event of caused motion. A mono-clausal serial verb construction (single clause) in each of the two languages is a more or less independent structure of predicate with a high degree of pragmatic assertiveness and structural coherence. The structure's high degree of pragmatic assertiveness and structural coherence is verified by the fact that when a modal/aspectual marker or a time-positional adverbial is included in the structure, the whole structure is under the scope of its modification. Discussing bi- or multi-clausal constructions for caused motion is beyond the scope of this study. In particular, this study examines what caused-motion components are specified by serial verbs as core propositional meanings in the two languages. To put it the other way around, the study does not deal with caused-motion

components as periphery propositional meanings that are expressed by adverbial elements including prepositional phrases for static locative notions such as the source, the route, and the goal of motion (as opposed to dynamic motional notions such as leaving, passing, and arriving). Nor does it address caused-motion components as mere background information such as the purpose and various circumstances that are indicated by subordinate clauses (cf. examples (12), (15) and (48)).

Currently familiar versions of the typology of motion expressions—be it binary (verb- vs. satellite-framing (Talmy, 2000)) or ternary (verb- vs. satellite- vs. equipollent-framing (Slobin, 2004))—use the following parametric criteria: (i) whether a lexical element available for encoding a motion component is a verb root or not; (ii) whether a verb root lexicalizes the path or the co-event (manner/cause) of motion.² However, Croft (2003) and Croft *et al.* (2010) contend that the typology using these criteria applies only to languages with a high degree of clausal integration of morphosyntactic elements (in short, morphosyntactic integration). I take a similar view. I believe that the typology has been established based largely on data from languages with a high degree of morphosyntactic integration, and therefore it does not perfectly fit languages with a low degree of morphosyntactic integration such as Mandarin Chinese and Thai. I further suggest that Croft *et al.*'s (2010) typological classification of 'complex event structure constructions' (see Section 2.1) is not elaborate enough. Specifically, the category of 'serialization' construction (co-predications in a single clause) may subsume more elaborate categories.

Mandarin Chinese and Thai are verb-serializing languages that characteristically utilize serialization constructions. However, they differ in the degree of morphosyntactic integration; that is, constituent verbs of serial verb constructions in Mandarin Chinese are more tightly integrated with each other than those in Thai. To effectively demonstrate this nontrivial difference between the two verb-serializing languages, this study focuses on their basic clausal patterns for caused motion. Caused motion is ontologically more complex than spontaneous or self-controlled motion, for it entails an external component of motion event: the cause (energy source) of motion, in addition to the path of motion that is an irreducible, internal component of the motion event. One may think that spontaneous or self-controlled motion is potentially as complex as caused motion, on the grounds that it possibly involves another frequent external component, the manner (elaboration) of motion. However, this is not true. Since spontaneous or self-controlled motion, by definition, excludes the cause of motion, it cannot, as caused motion can, encompass both the cause and the manner of motion. It is expected that clausal patterns for caused motion with more semantic components show a wider variation than those for spontaneous or self-controlled

motion with fewer semantic components.

The present paper tries to show the following. It is adequate to classify the Mandarin Chinese serial verb construction for caused motion as a satellite-framing type, since the degree of morphosyntactic integration of the construction is high enough to detect main verb properties in one of the serial verbs. In contrast, the Thai serial verb construction for caused motion does not fall into any types posited in the currently familiar versions of the typology of motion expressions. Because the Thai construction is a genuine serialization construction with an extremely low degree of morphosyntactic integration, it is not possible to give main-verb status to any of the serial verbs (see Sections 2.1 and 3.2).

Further, the two languages recognize different semantic components of caused motion events that are expressed by motion morphemes serialized in a single clause (in short, caused-motion components).

Table 1. Main caused-motion components in Mandarin Chinese and Thai

Mandarin Chinese	Thai
(i) Cause	(i) Cause
(ii) Path	(ii) Manner
(iii) Deixis	(iii) Achievement path
	(iv) Accomplishment path
	(v) Deixis
	(vi) Arrival

As Table 1 shows, there are three main caused-motion components recognized in Mandarin Chinese: (i) the cause, (ii) the path (non-deictic path), and (iii) the deixis (deictic path). In Thai, the following six main caused-motion components are recognized: (i) the cause, (ii) the manner,³ (iii) the achievement path (source- or goal-related path), (iv) the accomplishment path (passage-related path), (v) the deixis (deictic path), and (vi) the arrival (terminative path or change of state). Thus, caused-motion components expressed in a Thai serial verb construction are more specific and therefore more numerous than those in a Mandarin Chinese serial verb construction (see Section 3.1).

These findings suggest that different degrees of morphosyntactic integration of serial verb constructions for caused motion reflect different degrees of ‘conceptual separability’ (see Section 2.2) of caused-motion components that are denoted by serial motion morphemes (verbs/satellites) and construed as core propositional meanings. It is likely that verb-serializing languages with a high degree of morphosyntactic integration (e.g., Mandarin Chinese) express a small number of caused-motion components as core propositional meanings because they have a small number of morphosyntactic slots for

different caused-motion components in a single clause, while those with a low degree of morphosyntactic integration (e.g., Thai) can express a large number of caused-motion components as core propositional meanings because they are capable of providing many morphosyntactic slots for different caused-motion components in a single clause. Supposing this is true, we may say that conceptualization of caused-motion components as core propositional meanings is language-specific. Put differently, speakers of different verb-serializing languages may conventionally conceptualize and verbalize caused-motion components in different ways.

This paper is organized as follows. Section 2 outlines the theoretical framework of this study. Section 3 examines Mandarin Chinese and Thai caused motion expressions and discusses significant differences between them. The data of motion expressions in the two languages, on which this study is based, are from a number of relevant studies (Chen and Guo, 2009; Ji *et al.*, 2011a, 2011b; Kessakul, 2005; Lamarre, 2007, 2008a, 2008b; Lin and Peck, 2011; Liu *et al.*, 2015; Muansuwan, 2002; Peyraube, 2006; Shi and Wu, 2014; Slobin, 2004; Takahashi, 2009; Talmy, 2000, 2009, 2016; Thepkanjana, 1986; Timyam and Bergen, 2010; Zlatev, 2003; Zlatev and Yangklang, 2004). On the basis of the findings in the previous section, Section 4 considers Croft *et al.*'s (2010) typological hypothesis about the correlation between formal integration and conceptual typicality or naturalness of complex event, namely, that the scale of morphosyntactic integration is paralleled by the scale of how typically or naturally the semantic components of the complex event go together (see Section 2.1). Section 5 offers concluding remarks.

2. The theoretical framework

2.1. The typology of motion expressions

The typology of motion expressions (or event integration in general) usually assumes that a clause expressing a macro-event⁴ (single complex event) consists of a verb root (main verb) and a satellite and/or preposition⁵ (subordinate lexical item), and/or that a verb root must lexicalize either the path (direction, result) or the co-event (manner) in addition to the fact of motion. The latter is sometimes recaptured by the notion of 'manner/path complementarity' (Beavers *et al.*, 2009: 334; Rappaport Hovav and Levin, 2010). Talmy (2000) categorized languages into two main types. He named languages that characteristically express the path with the verb (e.g., Spanish) and languages that characteristically express the path with the satellite (e.g., English) 'verb-framed' and 'satellite-framed' languages, respectively.

Croft (2003) first explicitly pointed out the incompleteness of such a binary typology. He explicated that both verb-framing and satellite-framing are 'asymmetric' strategies

(i.e., one component is head and the other is a satellite or a form that cannot function as a head) but there are a range of ‘symmetric’ strategies found in the world’s languages, such as the ‘serial’ strategy of Mandarin Chinese. In Mandarin Chinese motion expressions, the co-event (cause/manner), the path, and the deixis are expressed in a form which can independently function as a head (ibid, 222).

Likewise, Slobin (2004) disputed Talmy’s binary typology and set forth a ternary typology with a third type called ‘equipollent-framing’ (ibid, 228). In equipollently framed languages including Mandarin Chinese and Thai, both the co-event and the path are expressed by equipollent grammatical forms.⁶ In response, Talmy (2009, 2016) objected to Slobin’s argument for equipollent-framing.⁷ He proposed a wide range of criteria for judging main-verb status. To be specific, he examined a set of factors in six fields, which mark a particular constituent type as a main verb: (a) morphology, (b) syntax, (c) co-occurrence patterns, (d) class size, (e) phonology, and (f) semantics (Talmy, 2009: 391–392; Talmy, 2016 §2). The more factors that converge on a particular constituent type in a language, the more that constituent type is being privileged with main-verb status. He also proposed principles for the degree of overlap of two otherwise distinguishable constituent types (Talmy, 2009: 397; Talmy, 2016 §4.2) and suggested an additional main-verb factor: (g) external similarity (Talmy, 2016 §4.3.3). The judgment that the co-event constituent has main-verb status comes from the factors (c) and (d) in the case of Lahu, and from the factors (b)–(d) and (f) as well as the overlap-degree principles in the case of Mandarin Chinese. Accordingly, he regards these languages as satellite-framed languages.

However, the criteria proposed by Talmy do not apply to Thai. The criteria presuppose that a language must have two different constituent types that can be considered for main-verb status, and that one of them ranks higher for that status. Such constituent types cannot be recognized in Thai.⁸ Thai basic clausal constituents (serial verbs) that form a monoclausal serial verb construction are phonologically and morphosyntactically homogeneous, and their positions in the construction are not fixed. For this reason, Thai does not have fixed constituent types such as ‘V1 (the verb regularly appearing in the first position of the series)’ and ‘V2 (the verb in the second position)’ (see Section 3.1.2). Although the criteria for main-verb status are applicable to verb-serializing languages with a high degree of morphosyntactic integration (like Lahu and Mandarin Chinese), they are not applicable to verb-serializing languages with a low degree of morphosyntactic integration (like Thai).

Croft *et al.* (2010) criticize Talmy’s two-category typology from a different perspective. They, as constructionists, argue that different strategies for encoding semantic components of a complex event are related to different event structure constructions, which

include both symmetric and asymmetric ones. To visualize a continuum of construction types with different degrees of morphosyntactic integration (i.e., formal integration) which iconically reflect different degrees of event integration (i.e., conceptual integration), they present a scale representing the degree of formal integration, from more to less integrated (ibid, 222, 226): (i) ‘double-framing’ construction (in which the path or framing expression is expressed twice, once as a detached satellite and once as part of the verb) and ‘satellite-framing’ construction > (ii) ‘verb-framing’ construction and ‘compounding’ construction (i.e., morphological bound forms in a single clause) > (iii) ‘serialization’ construction (i.e., co-predications in a single clause) > (iv) ‘coordination’ construction (i.e., separate clauses) which includes bi-clausal construction involving subordination (e.g., two clauses linked with the ‘while’ conjunction). They hypothesize that the degree of conceptual typicality or naturalness felt in the combination of manner/process and path/result components in complex motion/resultative events correlates with the degree of morphosyntactic integration of clausal elements for those components; that is, more typical or natural manner/process plus path/result combinations will be encoded in more highly integrated morphosyntactic constructions (ibid, 225). For example, Japanese speakers conceive that a complex event of ‘getting out of a place in a running manner’ is more typical or natural than that of ‘crossing a place in a dancing manner,’ and so they encode the former with a more integrated morphosyntactic construction (compounding) while the latter with a less integrated one (coordination with the ‘while’ conjunction).

In this study, I adopt Croft *et al.*’s typological classification of complex event structure constructions in order to show that Mandarin Chinese and Thai constructions for caused motion are classified into different types (see Section 3). Additionally, it will be shown that Croft *et al.*’s hypothesis regarding the relationship between varying syntactic strategies to encode complex event and varying degrees of semantic typicality or naturalness of complex event seems to hold true both for Mandarin Chinese and Thai caused motion expressions (see Section 4).

2.2. The cognitive-semantic notion of conceptual separability

The notion of ‘conceptual separability’ (Talmy, 2000: 36–37) concerns how cleanly a complex can be partitioned into autonomous components. An ‘autonomous component’ means a component that is separate from the others in its own right. According to Talmy, even though separating a manner co-event from the event of translational motion is sometimes problematic, linguistic structure shows that we conceptualize the manner regularly as a separate event. We may analogically say that Mandarin Chinese and Thai

syntactic structures show that speakers of these languages conceptualize the deixis (deictic path) as an autonomous component separated from the path (non-deictic path). Thai syntactic structures also show that Thai speakers not merely differentiate the deictic path component from the non-deictic path component, but also conceptualize several different components for the non-deictic path (see Section 3.1). It is plausible that the degree of conceptual separability among motion components differs from language to language.

3. Comparison of Mandarin Chinese and Thai caused motion expressions

3.1. The layout of motion morphemes

Before going on to closely examine the systems of Mandarin Chinese and Thai caused motion expressions, let us now take a look at the overall features of these expressions. At the outset, I would like to clarify how path prepositions can be differentiated from path verbs, since the demarcation between these two lexical classes is indispensable for accurate analyses of motion expressions in verb-serializing languages. In verb-serializing languages, path verbs denote a dynamic event of motion along a path (core propositional meaning), whereas path prepositions signify a static reference entity for determining the path of motion (periphery propositional meaning). Though path verbs may or may not take a reference-entity noun phrase, path prepositions are always followed by a reference-entity noun phrase.

Mandarin Chinese has an ablative preposition indicating the starting point of motion (*cóng* ‘from’ in (1) and (2)) and an allative preposition indicating the endpoint of motion (*wǎng* ‘toward’ in (3)). These path prepositions occur before a cause verb in the first position of serial verbs for caused motion (*tuī* ‘push’ in (1) to (3)). Thai also has an allative preposition (*yaŋ* ‘toward/to’ in (4)), which occurs after a path verb in the last position of serial verbs for caused motion (*paj* ‘go’ in (4)) but often is not used especially in oral discourse, for example (5).⁹

- | | | | | | | | | |
|-----|---|--------|----------|--------------|----------|-----------------|-----------|------|
| (1) | tā | bǎ | dōngxi | cóng | nèi bian | tuī-shang | le | shān |
| | PRON | ACC | thing | from | there | push-up | PFV | hill |
| | [Mandarin Chinese] He pushed the suitcase up the hill from there. | | | | | | | |
| (2) | tā | cóng | nèi bian | tuī | dōngxi | shang | le | shān |
| | PRON | from | there | push | thing | up | PFV | hill |
| | [Mandarin Chinese] He pushed a suitcase up the hill from there. | | | | | | | |
| (3) | tā | wǎng | jīa | tuī-qu | | le | ge-dōngxi | |
| | PRON | toward | house | push-thither | | PFV | CLF-thing | |
| | [Mandarin Chinese] He pushed a suitcase away toward the house. | | | | | | | |
| (4) | kháv | khàp | rót | paj | yaŋ | sathǎanii | rót fàj | |
| | PRON | drive | car | go | to | railway.station | | |
| | [Thai] He drove a car away to the railway station. | | | | | | | |

- (5) kháw khàp rót paj sathãanii rót faj
 PRON drive car go railway.station
 [Thai] He drove a car away to the railway station.

In addition, Thai has a few path verbs that function as a path preposition under a particular syntactic environment. The achievement path verb *càak* ‘leave’ in (6) serves as an ablative preposition (*càak* ‘from’ in (7)) when occurring after an accomplishment path or deictic verb, or before an allative preposition. The arrival (terminative path) verb *thuŋ* ‘arrive’ in (6) serves as an allative preposition (*thuŋ* ‘to’ in (7)) when following an ablative preposition. The accomplishment path verb *taam* ‘follow’ in (6) serves as the preposition indicating the passing route (*taam* ‘along’ in (8)) when appearing after a deictic verb or before an allative preposition.

- (6) kháw khàp rót *càak* ʔoosakâa *taam* thaaŋ paj *thuŋ* tookiaw
 PRON drive car *leave* Osaka *follow* road go *arrive* Tokyo
 [Thai] He drove a car away, left Osaka, followed the road and arrived in Tokyo.¹⁰
- (7) kháw khàp rót paj *càak* ʔoosakâa *thuŋ* tookiaw
 PRON drive car go *from* Osaka *to* Tokyo
 [Thai] He drove a car away from Osaka to Tokyo.
- (8) kháw khàp rót paj *taam* thaaŋ
 PRON drive car go *along* road
 [Thai] He drove a car away along the road.

As I said earlier, however, this study is intended as an investigation of basic clausal constituents (i.e. verbs with their argument noun phrases and their satellites) of caused motion expressions, and we are not concerned with adverbial elements such as prepositional phrases.

In examples (1) to (8) above, we can see possible syntactic positions of noun phrases accompanying motion morphemes in the two languages, as follows. In Mandarin Chinese, a reference-entity noun phrase (*shān* ‘hill’ in (1)) follows a path morpheme (*shang* ‘up’); a causer noun phrase (*tā* ‘PRON’ in (1)) precedes a cause morpheme (*tuī* ‘push’); a moved-entity noun phrase (*dōngxi* ‘thing’ in (2); *ge-dōngxi* ‘CLS-thing’ in (3)) follows a cause morpheme (*tuī* ‘push’ in (2)) or a path morpheme (*qu* ‘thither’ in (3)); and, a moved-entity noun phrase led by the accusative marker *bǎ* (*bǎ dōngxi* ‘ACC, thing’ in (1)) precedes a cause morpheme (*tuī* ‘push’). In Thai, a reference-entity noun phrase (*ʔoosakâa* ‘Osaka,’ *thaaŋ* ‘road,’ and *tookiaaw* ‘Tokyo’ in (6)) follows a path morpheme (*càak* ‘leave,’ *taam* ‘follow,’ and *thuŋ* ‘arrive,’ respectively); a causer noun phrase (*kháw* ‘PRON’ in (6)) precedes a cause morpheme (*khàp* ‘drive’); and, a moved-entity noun phrase (*rót* ‘car’ in (6)) follows a cause morpheme (*khàp* ‘drive’).

(9) and (10), respectively, show Mandarin Chinese and Thai patterns of serial motion morphemes for caused motion. Verbs of the two languages do not obligatorily take an argument (subject/object) noun phrase. In a sentence of any speech act type, a verb can occur by itself without being accompanied by noun phrases. The patterns in (9) and (10) lack the slots for noun phrases such as those indicating the causer of motion, the entity moved by the causer ('figure' in Talmy's (2000: 25) terms), or a reference entity for locating the path of motion ('ground' in Talmy's (2000: 25) terms). In the two languages, those noun phrases may not be explicitly expressed.

- (9) Mandarin Chinese patterns for caused motion
- a. Minimum
[cause verb, path satellite], e.g., *ná-chu* 'take-out'
[cause verb, deictic satellite], e.g., *ná-lai* 'take-hither'
 - b. Preferred
[cause verb, path-and-deictic satellite], e.g., *ná-chu-lai* 'take-out-hither'
- (10) Thai patterns for caused motion
- a. Minimum
[cause verb, accomplishment path verb], e.g., *zaw zòk* 'take, exit'
[cause verb, deictic verb], e.g., *zaw maa* 'take, come'
 - b. Preferred
[cause verb, accomplishment path verb, deictic verb], e.g., *zaw zòk maa* 'take, exit, come'
 - c. Maximum¹¹
[cause verb[#], manner verb[#], achievement path verb[#], accomplishment path verb[#], deictic verb, arrival verb], e.g., (16)
- (11) Preferred patterns for spontaneous or self-controlled motion
- a. Mandarin Chinese
[manner verb, path-and-deictic satellite], e.g., *pǎo-chu-lai* 'run-out-hither'
 - b. Thai
[manner verb, accomplishment path verb, deictic verb], e.g., *wīn zòk maa* 'run, exit, come'

Preferred patterns of serial motion morphemes for spontaneous or self-controlled motion are also shown in (11). The preferred clausal patterns of motion expressions in the two languages—(9b) and (10b) for caused motion and (11a) and (11b) for spontaneous or self-controlled motion—are similar in that they are composed of three different types of morphemes: a cause/manner, a path (non-deictic path), and a deictic (deictic path) morpheme.

From examining the clausal patterns for caused motion in Mandarin Chinese (9) and in Thai (10), we can see two conspicuous differences between the two. First, the path and the deictic components are signified by satellites in Mandarin Chinese, whereas they are denoted by verbs in Thai. The satellite status of Mandarin Chinese motion morphemes is, in fact, controversial. We will come back to this issue in Section 3.2.1. Second, cause and manner morphemes in Mandarin Chinese cannot co-occur in a single clause, while those

in Thai can. As seen from the parallel patterns (9b) [cause verb, path-and-deictic satellite] and (11a) [manner verb, path-and-deictic satellite], only one co-event (cause or manner) morpheme is allowed to appear in a Mandarin Chinese single clause.

- (12) Yi ge ren *tui-zhe* xinglixiang *zou-xia* le xiao shanpo
 one CLF man *push-DUR* suitcase *walk-down* PFV small hill
 [Mandarin Chinese] A man walked down the small hill pushing the suitcase. (Ji *et al.*, 2011a: 1062)¹²
- (13) kháw *khǒn* krapǎw *dəən* ʔòk paj
 PRON *carry* suitcase *walk* exit go
 [Thai] He carried his suitcase walking out away.
- (14) kháw *plǎj* lúuk pòŋ *lɔj* khútn paj
 PRON *release* balloon *float* ascend go
 [Thai] He released the balloon which floated up away.
- (15) kháw plǎj lúuk pòŋ *háj* lɔj khútn paj
 PRON release balloon *IRR.COMP*float ascend go
 [Thai] He released the balloon in order (for it) to float up away.

The Mandarin Chinese expression (12) consists of two clauses. The cause morpheme *tui* ‘push’ with the durative aspect marker *zhe* forms an adverbial subordinate clause (*tui zhe xinglixiang* ‘pushing the suitcase’), and the manner morpheme *zou* ‘walk’ and the path morpheme *xia* ‘down’ remain in the main clause (*zou-xia le xiao shanpo* ‘walked down the small hill’). On the other hand, the Thai expressions (13) and (14) contain both the cause and the manner morphemes (*khǒn* ‘carry’ and *dəən* ‘walk’; *plǎj* ‘release’ and *lɔj* ‘float’) and yet comprise a single clause. The former accompanying type of caused motion (13) is encoded by an activity cause verb (*khǒn* ‘carry’) and the latter ballistic type (14) by an achievement cause verb (*plǎj* ‘release’). We may put the irrealis complementizer *háj* after the achievement cause verb of the ballistic type, thereby a mono-clausal expression of caused motion, such as (14), changes into a bi-clausal expression of action for the purpose of causing motion, such as (15). This study does not examine bi-clausal expressions like (12) and (15).¹³

A maximum of six different types of verbs may co-occur in a Thai single clause for caused motion, as in (16). When all the six types of verbs co-occur, their linear order must be that indicated in (10c).

- (16) cháaŋ dan rót lǎj thǎj klàp paj
 elephant push car glide recede return go
cause manner achievement-path accomplishment-path deixis
 còt nâ bân
 stop in.front.of house
arrival
 [Thai] The elephant pushed the car, which glided back away and stopped in front of the house.

3.1.1. The system of caused motion expressions in Mandarin Chinese

Based on data from spontaneous and self-controlled motion expressions in Mandarin Chinese, Lin and Peck (2011: 369) proposed an aspectual hierarchy that predicts the linear order of motion morphemes. A morpheme for instantaneous motion (e.g., *jìn* ‘enter,’ *dào* ‘arrive’) may not precede a morpheme for durative motion (e.g. *huí* ‘return,’ *lái* ‘come’), and a morpheme for bounded motion (e.g., *jìn* ‘enter,’ *huí* ‘return’) may not precede a morpheme for non-bounded motion (e.g., *tuì* ‘recede,’ *shàng* ‘ascend’).¹⁴ However, as they did not deal with caused motion expressions, the conditions of the linear order of a cause morpheme and the other motion morphemes in the expressions were not discussed. Liu *et al.* (2015) analyzed the conceptual structure of Mandarin Chinese motion expressions drawing on the proto-motion event schema. In their analysis, the path component divides into three components: the route, the direction, and the endpoint. However, they, like Lin and Peck (2011), limited the scope of their study to spontaneous and self-controlled motion expressions, and so they did not examine if the path component of a caused motion event also divides into the same three components.

In my view, Mandarin Chinese has three main types of morphemes for caused motion: the cause, the path, and the deictic types. Representative members of each type are listed in (17) to (19).

- (17) Cause morphemes in Mandarin Chinese
- a. Activity cause
ná ‘take,’ *bān* ‘carry, transport,’ *tái* ‘carry (by more than one person),’ *tuī* ‘push,’ *lā* ‘pull, haul,’
kāi ‘drive’
- b. Achievement cause
tī ‘kick,’ *rēng* ‘throw, toss,’ *tóu* ‘throw, hurl,’ *diū* ‘throw,’ *jì* ‘send, post’
- c. Accomplishment cause
fàng ‘put, place,’ *gē* ‘put, place,’ *jiān* ‘pick up,’ *tāo* ‘pick, take, pull’
- (18) Path morphemes in Mandarin Chinese
shàng ‘ascend,’ *xià* ‘descend,’ *jìn* ‘enter,’ *chū* ‘exit,’ *huí* ‘return,’ *guò* ‘cross,’ *dào* ‘arrive,’ *qǐ* ‘rise,’ *kāi* ‘part, open,’
rù ‘enter,’ *diào* ‘fall’
- (19) Deictic morphemes in Mandarin Chinese
qù ‘go,’ *lái* ‘come’

There are many path morphemes besides those listed in (18). Examples include *shēng* ‘rise,’ *chén* ‘sink,’ *zuān* ‘make one’s way into,’ *tuì* ‘recede,’ *chuān* ‘pass through, traverse,’ *lí* ‘leave, part,’ and so forth. However, only those in (18) can be used in a clause expressing caused motion (see Section 3.2.1). What has to be noticed is that Mandarin Chinese path morphemes, being in combination with a cause morpheme, have a varying degree of satellite status. Take the two path morphemes *xià* ‘descend’ and *diào* ‘fall,’ for example. Both may follow a cause morpheme (e.g. *chuī-xià* ‘blow-down,’ *chuī-diào* ‘blow-

fall’), but unlike *xià* (e.g. *chuī-xia-lai* ‘blow-down-hither’), *diào* cannot combine with a deictic morpheme (e.g. **chuī-diao-lai*) (Lamarre, 2008a: 74). This fact leads us to consider that some combinations of a cause and a path morpheme in Mandarin Chinese, including *chuī-diào* ‘blow-fall,’ are in fact compound verbs, which have derived from serial verb constructions or resultative constructions. Shi and Wu (2014: 1241) point out that the two path morphemes *chū* ‘exit’ and *rù* ‘enter,’ when following a manner (co-event) morpheme (e.g. *zǒu* ‘walk’), show different syntactic and phonological properties, as follows. First, the negative polarity item *bù* ‘not’ can be inserted between *zǒu* and *chū* (*zǒu bù chū* ‘cannot walk out’) but not between *zǒu* and *rù*. Second, *chū* but not *rù* is typically pronounced as a neutral tone. Third, the collocation of a manner morpheme and *chū*, but not the collocation of a manner morpheme and *rù*, is quite productive. Shi and Wu suggest that *zǒu rù* shows some degree of diachronic lexicalization in the sense that compared with *chū*, *rù* is rarely used independently in modern Mandarin Chinese.

As shown in (9) above, a Mandarin Chinese clause for caused motion has two slots: one for a verb of cause and the other for a satellite of path/deixis. It requires that a cause verb co-occurs with a path/deictic satellite. Examples (20) and (21) illustrate the minimum pattern (9a) and the preferred pattern (9b), respectively.

- (20) Nanhai ba qiu *tui-shang* le shan
 boy ACC ball *push-up* PFV hill
 [Mandarin Chinese] The boy pushed the ball up the hill. (Ji *et al.* 2011a: 1048)
- (21) Nanhai ba qiu *gun-xia-lai* le
 boy ACC ball *roll-down-hither* PFV
 [Mandarin Chinese] The boy rolled the ball down toward (us). (Ji *et al.* 2011a: 1047)

A deictic satellite may be absent, e.g. (20), only when a path satellite is followed by a noun phrase for moved entity or reference entity. Actual tokens of Mandarin Chinese caused motion expressions reveal that the pattern with three motion morphemes (a cause, a path, and a deictic one), such as (21), is more frequently and preferably used than the patterns with two motion morphemes (a cause and a path or deictic one), such as (20) (Lamarre, 2007: 13).¹⁵

As serial motion morphemes in Mandarin Chinese caused motion expressions are highly integrated and together form a relatively solid unit, as seen in *tui-shang* ‘push-up’ in (20) and *gun-xia-lai* ‘roll-down-hither’ in (21), a noun phrase naming a moved entity is usually placed outside the unit, as in (20), (21) and (22). It is possible, though uncommon, for a noun phrase referring to a moved entity to occupy other positions than that before or after the unit (Lamarre, 2008b: 120–121). To be specific, a noun phrase for a moved

entity may occur between a cause morpheme and the combination of a path and a deictic morpheme, e.g. (23), or between a path and a deictic morpheme, as seen in (24). In the latter case, the cause morpheme (*tāo* ‘take’) and the path morpheme (*chu* ‘out’) seem to form a compound verb (*tāo-chu* ‘take-out’).

- (22) *tā* *lā-chu-lai* *le* *ge-dōngxi*
 PRON *haul-out-hither* PFV CLF-thing
 [Mandarin Chinese] He dragged a suitcase out.
- (23) *tā* *lā* *ge-dōngxi* *chu-lai* *le*
 PRON *haul* CLF-thing *out-hither* PFV
 [Mandarin Chinese] He dragged a suitcase out.
- (24) *tā* *tāo-chu* *ge-dōngxi* *lai* *le*
 PRON *take-out* CLF-thing *hither* PFV
 [Mandarin Chinese] He took a thing out.

The preverbal noun phrase accompanied by the accusative marker *bǎ* in (20) and (21) indicates a specific object, while the post-verbal noun phrase accompanied by the classifier *ge* in (22), (23), and (24) refers to a non-specific object.

3.1.2. The system of caused motion expressions in Thai

Thai has six main types of verbs for caused motion. Their representative members are given in (25) through (30).

(25) Cause verbs in Thai

a. Activity cause

khǒn ‘load, transport, carry,’ *cuuŋ* ‘pull, lead by hand,’ *nam* ‘lead, carry,’ *phaa* ‘guide someone,’ *lāak* ‘drag’

b. Achievement cause

phlāk ‘push,’ *diit* ‘flick,’ *tèʔ* ‘kick,’ *húan* ‘slide,’ *yoon* ‘throw, toss,’ *pa* ‘throw, hurl,’ *khwāaŋ* ‘throw, fling,’
phát ‘blow,’ *plǎj* ‘release, let go’

c. Accomplishment cause

waan ‘place, put,’ *yip* ‘pick,’ *yók* ‘lift,’ *sàj* ‘put in,’ *yát* ‘stuff,’ *duŋ* ‘pull,’ *chùt* ‘pull,’ *krachāak* ‘jerk’

(26) Manner verbs in Thai

klīw ‘roll,’ *khlaan* ‘crawl,’ *khūuup* ‘creep,’ *dəən* ‘walk,’ *bin* ‘fly,’ *lɔʔj* ‘float,’ *wīŋ* ‘run,’ *lǎj* ‘flow, glide,’ *kāaw* ‘step,’
kraden ‘hurtle,’ *tàj* ‘clamber,’ *thalák* ‘spurt out,’ *phèn* ‘rush out of,’ *phūŋ* ‘spout, dart,’ *traween* ‘wander,’ *bùŋ*
‘speed,’ *pliw* ‘flutter’

(27) Achievement path verbs in Thai

rúan ‘drop off,’ *tòk* ‘fall off,’ *yóʔn* ‘turn back,’ *thǎj* ‘start to move backward, recede,’ *càak* ‘leave (from),’ *lòn* ‘drop onto,’ *com* ‘sink onto’

(28) Accomplishment path verbs in Thai

khāw ‘enter,’ *ʔòʔk* ‘exit,’ *khūm* ‘ascend,’ *loŋ* ‘descend,’ *kláp* ‘return,’ *khāam* ‘cross, pass over,’ *taam* ‘follow,’
phàan ‘pass over, pass by,’ *phón* ‘pass, escape,’ *lɔʔt* ‘pass through, move under,’ *lōŋ* ‘follow along,’ *lát* ‘cut across,’
lɔʔ ‘move along,’ *liap* ‘move along,’ *lám* ‘move off a boundary,’ *lǎj* ‘move beyond,’ *súan* ‘pass each other,’ *ʔòʔm*
‘take a roundabout way’

(29) Deictic verbs in Thai

paj ‘go,’ *maa* ‘come’

(30) Arrival verbs in Thai

a. Terminative path verbs

thũŋ ‘reach, arrive,’ *chon* ‘bump,’ *tõŋ* ‘meet,’ *thũuk* ‘touch,’ *doon* ‘hit,’ *patház* ‘collide,’ *krathóp* ‘strike against,’
hãa ‘seek, approach and meet,’ *yũt* ‘halt, stop and stay,’ *sũu* ‘arrive and stay,’ *cáp* ‘catch and hold’

b. Change-of-state verbs

tèek ‘break,’ *phay* ‘tumble down, fall to the ground,’ *kõŋ* ‘pile up, stack up’

Achievement path verbs (27), such as *rũaŋ* ‘drop off’ and *com* ‘sink onto,’ represent an event of ‘motion along a path relative to the starting point or the endpoint.’ Such a motion event entails an achievement aspect. As achievement path verbs represent a punctual motion event (e.g. dropping off a tree), they cannot take an adverbial for duration of motion on their own except when an iterative reading is possible.

Accomplishment path verbs (28), such as *loŋ* ‘descend’ and *khãam* ‘cross, pass over,’ express an event of ‘motion along a path relative to the passage or a path arising from interaction with a reference object other than the source and the goal.’ Such a motion event entails an accomplishment aspect. Accomplishment path verbs are compatible with an adverbial for duration of motion because they denote a durative motion event with the salient terminal boundary (e.g. crossing a river).

As shown in (10) above, the combination of a cause verb and an accomplishment path or deictic verb is indispensable to Thai caused motion expressions. The minimum pattern (10a) and the preferred pattern (10b) are exemplified in (31) and (32), respectively.

- (31) *khãw* *cuuŋ* *khon* *taa* *bõot* *khãam* *thanõn*
 PRON *lead.by.hand* blind.man *cross* street
 [Thai] He led the blind man across the street. (Kessakul, 2005: 87–88)
- (32) *khãw* *yoon* *suã* *loŋ* *paj*
 PRON *throw* shirt *descend* *go*
 [Thai] He threw his shirt down away.

Verbs contained in the maximum pattern (10c) express as many as six different types of caused-motion components (Takahashi, 2009): (i) the cause, (ii) the manner, (iii) the achievement path, (iv) the accomplishment path, (v) the deixis, and (vi) the arrival. The arrival, in turn, subsumes (vi.a) the terminative path (path at the end of locomotion) and (vi.b) the change of state (change after locomotion). The linear order of verbs encoding the six components (i) to (vi) is fixed. To express a single event of caused motion with more than one type of verb, the verbs must be serialized in the order of (i) to (vi). A clause with verbs serialized in a wrong order, such as (33), cannot properly express a single event of caused motion.

- (33) cháaŋ dan rôt lǎj klàp thǒj paj
 elephant push car glide return recede go
 [Thai] The elephant pushed the car, which glided back to (some place and then) receded (from that place) away.
- (34) cháaŋ dan rôt lǎj thǒj klàp paj
 elephant push car glide recede return go
 [Thai] The elephant pushed the car, which glided back away.

In (33), (iv) the accomplishment path verb *klàp* ‘return’ precedes (iii) the achievement path verb *thǒj* ‘start to move backward, recede.’ The two verbs in this order (*klàp thǒj*) represent two separated, though continuing, routes (to glide back to some place and then recede from that place away). To express a single route (to glide back away), the two verbs must be reversed (*thǒj klàp*), as in (34). Example (33) serves as evidence to show that the achievement path is a caused-motion component distinct from the accomplishment path (typical path). If the two verbs designate the same component, both the two orders (*klàp thǒj* and *thǒj klàp*) must express a single route.

Although the linear order of verbs for caused-motion components is fixed, the whole construction composed of the verbs is variable. This is because it is not obligatory that a verb of every type be present, with the exception of the cause type which must be present. Moreover, more than one verb of each of the four types (i) to (iv) (i.e. cause, manner, achievement path, and accomplishment path types) may appear in the construction, for the cause of motion, the manner of motion, the initial or pre-completing phase of motion, and the durative phase of motion can each be described from more than one perspective. In other words, these caused-motion components can be multi-dimensionally described. For example, (35) contains two cause verbs (*zaw* ‘take’ and *yát* ‘stuff’) and (36) two accomplishment path verbs (*khâam* ‘cross’ and *klàp* ‘return’).

- (35) kháw zaw phâa yát khâw paj naj krapǎw
 PRON take cloth stuff enter go in bag
 [Thai] He took the clothes and stuffed them into the bag.
- (36) kháw cuuŋ khon taa bòot khâam thanǒn klàp paj
 PRON lead.by.hand blind.man cross street return go
 [Thai] He led the blind man across the street back away.

By contrast, the number of deictic verbs and arrival (terminative path or change-of-state) verbs used in the construction is limited to only one,¹⁶ for only one value of the relative relation between the mover and the deictic center and the completion of motion can be designated for a single caused motion event.

Strictly speaking, Thai expresses caused-motion components with serial verb phrases rather than serial verbs. In (36), for example, the cause verb (*cuuŋ* ‘lead by hand’) takes

a noun phrase for the moved entity (*khon taa b̀̀̀̀t* ‘blind man’), and the accomplishment path verb (*khâam* ‘cross’) also takes a noun phrase for the reference entity (*thanõn* ‘street’). Hence, each verb in Thai caused motion expressions has not yet lost its verbiness and behaves in quite an independent manner (see Section 3.2.2).

3.2. Satellites versus verbs for path and deixis

3.2.1. Path and deictic morphemes in Mandarin Chinese

When used in caused motion expressions, path and deictic morphemes in Mandarin Chinese function as a motion satellite (or ‘directional complement’ in the traditional terms) in relation to a cause (co-event) verb preceding them. Mandarin Chinese has developed a fixed paradigm of those motion satellites, which are a closed-class category consisting of only eight core members (*-shang*, *-xia*, *-jin*, *-chu*, *-hui*, *-guo*, *-lai* and *-qu*) as well as their pairings, plus a few peripheral members. Table 2 indicates common members of Mandarin Chinese motion satellites (Lamarre, 2007: 9; Lamarre, 2008a: 72).¹⁷

Table 2. Mandarin Chinese motion satellites (or directional complements)

	up (goal-oriented) <i>-shang</i>	up (source-oriented) <i>-qi</i>	down <i>-xia</i>	in <i>-jin</i>	out <i>-chu</i>	back <i>-hui</i>	over, through <i>-guo</i>	to <i>-dao</i>
hither <i>-lai</i>	up-hither <i>-shang-lai</i>	up-hither <i>-qi-lai</i>	down-hither <i>-xia-lai</i>	in-hither <i>-jin-lai</i>	out-hither <i>-chu-lai</i>	back-hither <i>-hui-lai</i>	over-hither <i>-guo-lai</i>	to-hither <i>-dao...lai</i>
thither <i>-qu</i>	up-thither <i>-shang-qu</i>		down-thither <i>-xia-qu</i>	in-thither <i>-jin-qu</i>	out-thither <i>-chu-qu</i>	back-thither <i>-hui-qu</i>	over-thither <i>-guo-qu</i>	to-thither <i>-dao...qu</i>
thither (source-oriented) <i>-zǒu</i>								

These satellites are typically unstressed and atonal, such as *-chu* ‘out’ in (37) (but not *chū* ‘exit’ in (38)). In present-day Mandarin Chinese, verbal encoding of the path and the deixis is available only for autonomous or self-controlled motion events, as seen in (38) and (39) (Lamarre, 2008a: 75).

- (37) tā bǎ qú rēng-*chu-qu*
PRON ACC ball throw-out-thither
[Mandarin Chinese] He threw the ball out away.

- (38) tā *chū-qu*
 PRON *exit-thither*
 [Mandarin Chinese] He went out.
- (39) tā *qù* Běijīng
 PRON *go* Beijing
 [Mandarin Chinese] He went to Beijing.

Though some scholars maintain that motion morphemes in Mandarin Chinese essentially retain their verbiness (e.g. Tai, 2003: 311), their data are exclusively from spontaneous or self-controlled motion expressions. If we examine caused motion expressions, we will find good evidence in support of the view that motion morphemes used in caused motion expressions function as a satellite, but not a full verb. First, when appearing after a cause morpheme, motion morphemes typically lose their tonal contrast and become unstressed, and therefore they are pronounced in the same prosodic unit as a cause morpheme that precedes them (Lamarre, 2007: 11). This is phonetic evidence in favor of their satellite status. Second, a single deictic morpheme can take a post-verbal noun phrase for goal, as in (39), while a deictic morpheme in a caused motion expression cannot, as in (37). This means that when a deictic morpheme follows a cause morpheme, its original argument structure is lost (Lamarre, 2007: 15). This is syntactic evidence supporting its satellite status. Third, there are strict rules constraining the combination of a cause morpheme and motion morpheme(s). Specifically, only the motion morphemes listed in Table 2 can freely combine with a cause morpheme. They have a characteristic of a typical satellite category: they constitute a close-class category.

As such, Mandarin Chinese caused motion expressions show the characteristics of a satellite-framing type. Lamarre (2007: 20) characterizes the lexicalization patterns of motion components in Mandarin Chinese as the ‘split’ or ‘complementary’ type, borrowing from Talmy (2000: 64–66). That is, Mandarin Chinese can use path and deictic verbs to encode spontaneous or self-controlled motion events on one hand, but can only use the combination of a cause verb and a motion satellite to express caused motion events on the other hand. Related to this is Ji *et al.*’s (2011a: 1070) idea of ‘parallel system.’ Having examined some types of caused motion expressions in Mandarin Chinese, they acknowledge that Mandarin Chinese shows both satellite-framing and verb-framing properties, and suggest that Mandarin Chinese has a parallel system of motion descriptions. It is also worth mentioning that relying on diachronic corpus data, Peyraube (2006: 121) argues that Chinese underwent a typological shift from a verb-framed language to a satellite-framed language some ten centuries ago. Taking issue with this opinion, Shi and Wu (2014: 1237, 1247–1249) argue, based on both language structure and language usage, that the typological shift has not yet

been achieved, though contemporary Mandarin Chinese is, indeed, in a transitional state from a verb-framed to a satellite-framed language.¹⁸

3.2.2. Path and deictic morphemes in Thai

In contrast with path and deictic morphemes in Mandarin Chinese, those in Thai have not yet fully acquired satellite functions, although some of them have a satellite function in a limited syntactic environment. Thai motion morphemes that are capable of functioning either as a verb or as a satellite (modal/aspectual marker) are listed in (40). Even when these morphemes are used as a satellite, normally their phonological weight will not be reduced.

- (40) Versatile motion morphemes in Thai
 a. Versatile path morphemes
kháw ‘enter,’ *zòk* ‘exit,’ *khún* ‘ascend,’ *loŋ* ‘descend’
 b. Versatile deictic morphemes
paj ‘go,’ *maa* ‘come’

For instance, *loŋ* ‘descend’ following the stative verb *phǒm* ‘be thin’ in (41) functions as an inceptive aspect marker.

- (41) *chán* *phǒm* *loŋ*
 PRON be.thin INC
 [Thai] I got thin.

Thai versatile motion morphemes listed in (40) have satellite functions. Nonetheless, I maintain that they do retain their status as motion verbs when used in motion expressions. I also argue that none of motion verbs co-occurring in a clause for caused motion has the privileged status of the main verb. Supporting evidence is as follows.

In (42) to (44), for instance, the versatile motion morphemes *loŋ* ‘descend’ and *maa* ‘come’ appear to be functioning as a satellite in relation to the cause verb *thíj* ‘throw.’

- (42) *kháw* *thíj* *mùak* *loŋ* *maa*
 PRON throw hat descend come
 [Thai] He threw the hat down toward (us).
- (43) *kháw* *thíj* *mùak* *loŋ* *bon* *phúun*
 PRON throw hat descend on the.ground
 [Thai] He threw the hat down onto the ground.
- (44) *kháw* *thíj* *mùak* *maa*
 PRON throw hat come
 [Thai] He threw the hat toward (us).

However, more verbs may be added, as seen in (45). The manner verb *pliw* ‘flutter’ and

the achievement path verb *càak* ‘leave’ are used in (45) to specify the manner of the hat’s motion and the initial phase of the motion, respectively. This reveals that Thai motion morphemes have not yet formed a fixed paradigm.

- (45) *kháw* *thíj* *mùak* *pliw* *càak* *chán bon* *loj* *maa*
 PRON throw hat flutter leave upstairs descend come
 [Thai] He threw the hat, which flew from the upstairs down toward (us).

The crucial point is that Thai motion verbs in a single clause expressing caused motion each hold enough independence to freely take a noun phrase. Apart from manner verbs, for example, *pliw* ‘flutter’ in (45) and *phûj* ‘dart’ in (46), that predicate only of the subject noun phrase representing a mover, motion verbs in the Thai clause may take their own object or complement noun phrase referring to a moved entity or a reference entity. To illustrate, look at (46) and (47), where the cause verb *khàp* ‘drive’ takes the moved-entity noun phrase *rót* ‘car’; the arrival (terminative path) verb *chon* ‘collide with’ takes the goal noun phrase *sǎw faj fáa* ‘light pole’; the achievement path verb *càak* ‘leave’ takes the source noun phrase *ʔosakáa* ‘Osaka’; the accomplishment path verb *taam* ‘follow’ takes the passing-route noun phrase *thaaŋ* ‘road’; and, the deictic verb *paj* ‘go’ takes the goal noun phrase *tookiaw* ‘Tokyo.’

- (46) *kháw* *khàp*.....*rót* *phûj* *ʔòk* *paj* *chon*.....*sǎw faj fáa*
 PRON drive car dart exit go collide.with light.pole
 [Thai] He drove a car rushing out away and collided with the light pole.
- (47) *kháw* *khàp*.....*rót* *càak*.....*ʔosakáa* *taam*.....*thaaŋ* *paj*.....*tookiaw*
 PRON drive car leave Osaka follow road go Tokyo
 [Thai] He drove a car away from Osaka along the road to Tokyo.

Recall that six caused-motion components (the cause, the manner, the achievement path, the accomplishment path, the deixis, and the arrival) can be expressed in a Thai serial verb construction, cf. Table 1 and (16). Verbs in series designating these six components equally retain their status as fully fledged verbs, as seen from the illustration above. On this basis, it is justifiable to say that the Thai serial verb construction for caused motion is a genuine serialization construction (viz. co-predications in a single clause). In addition, the constraint on the linear order of serial verbs for caused motion, cf. (10c), yields evidence to support the claim that the six caused-motion components are construed as equally autonomous ones; otherwise, they need not be provided with particular slots in the construction. It is especially remarkable that the construction demonstrates a syntactically specified pattern with as many as four verb slots for path-related components (the

achievement path, the accomplishment path, the deictic path, and the terminative path). Thai speakers conceptualize that the four components each denote different phases, which are specified in terms of aspect and event structure, of a single path.

To summarize this section, we have discussed the following two points. First, the layout of basic clausal elements for caused-motion components in Thai is quite loose by contrast with that in Mandarin Chinese which is entrenched and looks very compact. Thai motion morphemes co-occurring in a clause expressing caused motion all retain their verb status and are equal constituents of the clause. Second, the caused-motion components distinguished in Thai are more diverse than those in Mandarin Chinese. The Mandarin Chinese construction for caused motion has only one verb slot for the cause and one satellite slot for the path/deixis, while its Thai counterpart contains in total six verb slots: one for the cause, one for the manner, and four for the path and the deixis (the achievement path, the accomplishment path, the deictic path, and the terminative path).

4. Hypothesis on the correlation of formal unity and conceptual coherence

Having examined the significant characteristics of Mandarin Chinese and Thai caused motion expressions in the preceding section, this section discusses Croft *et al's* (2010) hypothesis on the correlation of the degree of syntactic unity and that of semantic coherence in complex event expressions, which in essence corresponds to Givón's (1980) theory of the bidding hierarchy of sentential complement constructions. They posit that the correlation be seen for any type of complex event expressions. The data of caused motion expressions in the two languages constitutes partial evidence of plausibility of their hypothesis.

Mandarin Chinese speakers preferentially express a caused motion event with two or three semantic components ('the cause and the path,' e.g. (1); 'the cause and the deixis,' e.g. (3); or, 'the cause, the path, and the deixis,' e.g. (37)) by means of the satellite-framing construction consisting of a cause verb and its path/deictic satellite. However, the satellite-framing construction cannot encode a caused motion event with more than three components or with both of the two co-event (cause and manner) components. The speakers, therefore, employ the coordination construction to express a caused motion event comprising more than three components, say, 'the cause, the manner, the path, and the deixis,' as seen in (12). In Thai, the serialization construction is available for encoding a caused motion event with two components ('the cause and the accomplishment path,' e.g. (31), or 'the cause and the deixis,' e.g. (5)) up to six components ('the cause, the manner, the achievement path, the accomplishment path, the deixis, and the arrival,' e.g. (16)). Thai speakers use the coordination construction only when they need to mention other semantic

components than these six, such as the purpose and the attendant circumstances, as in examples (15) and (48).¹⁹

- (48) kháw thǐj mùak loŋ maa phlaaj thák raw
 PRON throw hat descend come simultaneously greet PRON
 [Thai] He threw the hat down toward (us), simultaneously greeting us.

Even though the two languages utilize different syntactic strategies for expressing complex events of caused motion, the expressions of caused motion they have in common show the correlation between the degree of syntactic integration and the degree of semantic typicality or naturalness. That is to say, more integrated constructions express more typical or natural combinations of caused-motion components; or conversely, less integrated constructions express less typical or natural combinations of caused-motion components. Specifically, the Mandarin Chinese satellite-framing construction and the Thai serialization construction, which are highly integrated constructions for caused motion in the respective languages, express a caused motion event with two or three components ‘the cause plus the path and/or the deixis,’ which speakers of the two languages take to be typical combinations of caused-motion components. On the other hand, the coordination constructions of the two languages, which are less integrated constructions, express a caused motion event containing a less central caused-motion component, say, ‘the associated action’ or ‘the purpose of caused motion.’

Of particular interest is that the two languages differ from each other when expressing a caused motion event with two co-event components, for example, an event with the components of ‘the cause, the manner, the path, and the deixis.’ Such an event is expressed in Mandarin Chinese by means of the coordination construction on the one hand, and in Thai by means of the serialization construction on the other hand. This may be explained by assuming that the two languages differ in the range of natural combinations of caused-motion components. Mandarin Chinese speakers consider that the combination of ‘the cause, the manner, the path, and the deixis’ is less natural than the combination of ‘the cause, the path, and the deixis,’ but Thai speakers regard both of them as natural. Furthermore, Thai speakers consider the combination of up to six components as natural, too, as long as their linear order is correct.

5. Conclusion

Mandarin Chinese mono-clausal expressions for caused motion consist of clausal constituents for caused-motion components that are rather strictly conditioned by each

other, and their syntactic patterns are relatively highly restricted. The expressions exhibit the characteristics of a satellite-framing type. It is possible to posit two constituent types of these expressions: ‘V: cause verb’ and ‘S: path/deictic satellite.’ In contrast, serial verbs in Thai mono-clausal expressions for caused motion show quite a low degree of morphosyntactic integration, and it is impossible to posit only two constituent types of the expressions, such as ‘V1: cause verb’ and ‘V2: path verb.’ The semantic structure of the Thai expressions is complicated; six caused-motion components are recognized. Evidently, caused-motion components expressed by Thai serial verbs are finer-grained than those expressed by Mandarin Chinese serial verbs/morphemes (cf. Table 1).

These observations suggest that the degree of morphosyntactic integration of caused motion expressions in verb-serializing languages may be inversely proportional to the degree of conceptual separability of caused-motion components. The more firmly serial verbs for caused-motion components are integrated, the fewer caused-motion components as core propositional meanings (as opposed to periphery propositional meanings represented by adverbial elements) are recognized. If this is the case, conceptualization of caused-motion components as core propositional meanings is possibly language-specific, and verb-serializing languages can vary in the division of caused-motion components as core propositional meanings.

Notes

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- ² In Talmy’s (2000: 26, 217–218) terms, the manner and the cause of motion are ‘co-events’ in relation to the ‘framing event’ (i.e. the main event as a unitary event considered by itself) of motion. The path of motion (i.e. the path alone or the path together with its ground locations) is the ‘core schema’ of the framing event.
- ³ The component of ‘manner’ here means ‘the manner of motion by which the figure moves along a path’ (such as running and fluttering) and does not mean ‘the manner of causation of motion’ that is a specific type of ‘the cause of motion’ (such as pushing and leading by hand).
- ⁴ A ‘macro-event’ is a fundamental and recurrent type of complex event that consists of a pair of cross-related Figure-Ground events; it can be conceptualized as composed of two simpler events and the relation between them (Talmy, 2000: 213).
- ⁵ A ‘satellite’ is a constituent in construction with the main verb (root) and syntactically

subordinate to it as a dependent to a head; a ‘preposition’ is a constituent in construction with an NP that could consist of a preposition and/or a postposition and/or an affix on the noun of the NP (Talmy, 2016 §1.1.2).

- ⁶ Note that not only the binary typology but also the ternary one favors the prevailing, albeit implicit, view that motion components should be basically dichotomized into the path and the co-event. I doubt the validity of this view, however (see Section 3).
- ⁷ However, Talmy (2009: 398–400; 2016 §4.3.1) admits that there are Mandarin Chinese serial verb constructions of the equipollence type. Examples mentioned in his studies include: *tā zǒu jìn le gōng-yuán* ‘She/He walked into the park’ and *tā pǎo jìn qù le* ‘She/He ran in’.
- ⁸ For the sake of argument, let us suppose that Thai clauses for motion events have only two constituent types commonly assumed: V1 for the co-event (consisting of the cause and the manner) and V2 for the path (consisting of the achievement path, the accomplishment path, the deixis and the arrival). The two factors (c) and (d) can be used as the criteria for estimating the main-verb status of these constituent types. The other factors are simply not available for that purpose. Judgments of the main-verb status on the basis of the two factors do not coincide. Based on the factor (c) (co-occurrence patterns), V2 seems more main verb-like than V1. It is likely that the path constituent (V2) is required across a wider range of construction types than the co-event constituent (V1). In contrast, based on the factor (d) (class size), V1 seems more main verb-like than V2. It is likely that the co-event constituent (V1) has more morpheme members than the path constituent (V2). Hence, neither V1 nor V2 can be privileged with main-verb status.
- ⁹ The following abbreviations are used in the glosses. ACC: accusative; CLF: classifier; DUR: durative; INC: inceptive; IRR.COMP: irrealis complementizer (complementizer preceding complement clause for irrealis situation); PFV: perfective; PRON: pronoun.
- ¹⁰ The order of serial verbs in (6) (cause verb *khàp* ‘drive,’ achievement path verb *càak* ‘leave,’ accomplishment path verb *taam* ‘follow,’ deictic verb *paj* ‘go,’ arrival verb *thuŋ* ‘arrive’) is in accord with the order of serial verbs for a single motion event, cf. (10c). For the definitions of ‘achievement path,’ ‘accomplishment path,’ and ‘arrival,’ see Section 3.1.2.
- ¹¹ The sharp # means that one or more verbs of the type may appear in this pattern.
- ¹² I keep Ji *et al*’s transcriptions intact.
- ¹³ Example (12) includes the subordinate clause representing the person’s action, i.e., pushing the suitcase, associated with his walking down the small hill. Example (15) contains the subordinate clause denoting the person’s intention, i.e., for the balloon to float up and away, in his releasing the balloon. These subordinate clauses provide certain background information related to motion or action expressed by the main clause. The main clause of (12) encodes the

person's self-controlled motion but not the suitcase's motion caused by the person, and so (12) is not a caused motion expression proper. (15) is not a caused motion expression proper, either, since what the main clause expresses is the person's action rather than the balloon's motion caused by the person.

- ¹⁴ It is interesting to note that Mandarin Chinese motion morphemes and their Thai counterparts may differ in the aspectual nature. For example, deictic verbs in Mandarin Chinese are considered bounded motion verbs, while those in Thai are regarded as neutral in lexical aspect (they do not have any typical lexical aspects) and can be interpreted as either bounded or non-bounded. The Mandarin Chinese verb *jìn* 'enter' is considered non-durative, but the Thai verb *khâw* 'enter' can be interpreted as durative (accomplishment path verb) or non-durative (terminative path verb). And so on.
- ¹⁵ Lamarre (2007) gathered data of Mandarin Chinese motion expressions from the dialogue of a TV series (about five hours in total) and found that the pattern composed of a cause, a path, and a deictic morpheme is the most frequent pattern for caused motion.
- ¹⁶ There is one exception. That is, the combination of the two deictic verbs (*paj maa* 'go, come') may be added to motion verbs to express moving back and forth in a confined space.
- ¹⁷ The satellite *-qi* 'up (source-oriented)' is less prototypical. The satellite *-dao* 'to' must be followed by a reference-entity noun phrase, and so it is sometimes treated as a preposition. The satellite *-zǒu* 'go away (source-oriented)' cannot follow path morphemes, and so it is generally considered, not as a directional complement, but as a resultative complement.
- ¹⁸ So far Mandarin Chinese motion expressions in general have been categorized as a satellite-framing type (Peyraube, 2006), primarily a verb-framing type and secondarily a satellite-framing type (Tai, 2003), an equipollent-framing type (Slobin, 2004; Chen and Guo, 2009), a type of split system (Lamarre, 2007), a type of parallel system (Ji *et al.*, 2011a), or a serialization type (Croft *et al.*, 2010). Thai motion expressions in general, on the other hand, have been classified as an equipollent-framing type (Zlatev and Yangklang, 2004).
- ¹⁹ The subordinate clause with the connective *phlaaŋ* 'simultaneously' in (48) represents the person's communicative and verbal action, i.e. greeting us, while throwing his hat down.

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