

Decomposing Directional Serial Verb Constructions in Mandarin: A Preliminary Study

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Abstract

This study investigates directional constructions in Mandarin Chinese from inner aspect perspective by focusing on decomposing complex adjacent directional serial verb constructions and their variants. Past studies have often categorized them as directional complement or verb compounds. A major analysis treats serial verb constructions by internal argument sharing approach, though lacking clear motivation. Some other influential analysis adopts Ramchand's (2008) First Phase Syntax, propose various pre-assumptions to account for linear order or situation type (cf. Hu 2022, Chen 2023). Embracing Sybesma (1999)'s view of aspectual projection s between vP and VP, this study posits that adjacent directional serial verb constructions (pre-object type) reside in inner aspect while split directional serial verb constructions (post-object type) do not. This work extends the hypothesis to directionals and enhances the idea that Aktionsart in Mandarin emerges not solely from the lexicon, but significantly from syntactic structures. This work also assist in sub-categorization of Mandarin directional constructions.

Keywords: directionals, serial verb construction, inner aspect, situation types

1 Introduction

“Directional verb compounds” (see Li and Thompson,1989) or “directional constructions” (V+(V₁V₂), e.g. *ban chu lai* ‘transport exit come’ = ‘bring out (towards the speaker)) in Mandarin Chinese exhibit two key characteristics. First, these constructions have multiple verbs in a single surface string. Second, they present high flexibility in surface as directionals can either be pre-object (adjacent to the matrix verb) or post-object (split from the matrix verb).

To provide fundamental concepts, we'd better start with the three verb classes:

Matrix Verbs (V_m): An open class involving displacement or manner verbs, including transitive verbs like *ban* ‘transport’, *reng* ‘throw’ and intransitive verbs such as *pao* ‘run’, *pa* ‘climb’.

V₁: The directional/manner type of verbs (a closed class of 6 to 8 words, e.g. *jin* ‘in’)

V₂: The deictic/orientational type of verbs (closed class of *lai* ‘come’ and *qu* ‘go’)

Directional Serial Verb Constructions (DSVCs) can be further separated into simple and complex constructions. DSVCs also allow being categorized by object

positioning relative to V₁ and V₂. This study starts from simple versus complex DSVCs, and delves into the variations within these categories.

(1) Simple directional constructions
 Zhangsan na jin/lai le ta de diannao.
 3SG carry in/come PERF his computer
 ‘Zhangsan has carried his computer inside.’

In this pattern, either V₁ or V₂ co-occur with a manner verb in a clause. Complexity arises in terms of post-object conditions. While V₂ can appear after the object, V₁ cannot unless it is combined with V₂ or with a directional complement.

- (2) a. Zhangsan na le ta de diannao
 *jin/lai.
 3SG carry PERF his computer
 *in/come
 ‘Zhangsan has carried his computer inside.’
 b. Zhangsan na le ta de diannao
 jin wu
 3SG carry PERF his computer
 into room
 ‘Zhangsan has carried his computer into the room.’

In the complex directional constructions, V_m co-occurs with both V₁ and V₂, giving rise to three paradigms:

(3) Adjacent complex directional construction - 1
 Zhangsan na chu lai le ta de diannao.
 3SG take out come PERF his computer
 ‘Zhangsan has taken out his computer.’

(4) Adjacent complex directional construction - 2¹

Zhangsan na chu le ta de diannao lai.
 3SG take out PERF his computer come
 ‘Zhangsan has taken out his computer.’
 (5) Split complex directional construction-2
 Zhangsan na le ta de diannao chu lai.
 3SG take PERF his computer out come
 ‘Zhangsan has taken out his computer.’

This paper focuses on decomposing the adjacent structures through Inner Aspect Approach and will further argue that split structures and adjacent structures are two different configurations. In the second part, we will go through some mainstream discussions. Section 3 presents the data, tests and generalizations while section 4 provides a detailed analysis of adjacent structures through an inner aspect approach.

2 Literature review

Recent analyses have different calls towards DSVCs. Paul (2022) distinguishes complex constructions from simple constructions, proposing that simple constructions are verb compounds. Following Collins’ (1997) sense, she believes that complex directional constructions are genuine object sharing serial verb constructions (hereafter SVCs):

(6) [Asp0 V₁-V₂-V₃-Asp⁰[_{vP1}[_{v1} V₁V₂V₃ v₁[_{VP1} O[_{v1} V₁ [_{vP2} [_{v2} v₂[_{VP2} pro_i[_{v2} V₂[_{VP3} pro_i[_{v3} V₃]]]]]]]]]]]]]]]]]]]]]

(In her proposal, “V₁” stands for the “V” in my proposal, module V₂ and V₃) To derive the flexible surface forms, she claims that V₂ can either choose to move up independently or along with V₃ without providing a clear rationale for this optionality.

Some other researchers adopt a constructivist approach based on Ramchand’s (2008) First Phase Syntax. Both Hu (2022) and Chen (2023) treat V₁

¹ Some researchers (Hu 2022, Chen 2023) refer this variant as split construction. I hold different opinion and believe that its linguistic property is more similar to adjacent construction. This will be further proved in section 3. Here, I name it as adjacent complex directional construction for there is a directional morpheme adjacent to the matrix verb.

and V_2 in complex constructions as V_1 - V_2 compound. Hu argues that the directional items merge as Root and take different categories in different syntactic positions. His analysis of complex adjacent DSVCs is as follows:

(7) [_{vP} Agent [_v V_1 - V_2] [_{PpathP} Theme[_{Ppath} V_1 - V_2]]]]

While Hu's proposal provides great insights into Chinese Root property, it does not adequately address situation type distinctions.

Chen (2023) reorders Ramchand's subevent hierarchy, analyzing adjacent DSVCs as resultatives, distinct from split DSVCs and proposes the following analysis:

(8) [_{InitP} S [_{Init} V_1 - V_2 [_{ProcP} O [_{Proc} V_1 - V_2 [_{ResP} O [_{Res} V_1 - V_2]]]]]]]]

Chen's analysis, however, provides limited explanation of the adapted structural assumptions and stipulations of constraints.

This paper aligns with Paul (2022)'s idea that V_1 and V_2 in complex constructions are not compounds and supports Chen's (2023) argument that adjacent DSVCs are resultatives. Moreover, this paper proposes that both simple and complex adjacent constructions belong to the same configuration while split constructions belong to another. Building on the Inner Aspect Hypothesis, the study further decomposes adjacent DSVCs.

3 Linguistic data

In this part, I will provide three pieces of linguistic evidence to present the semantic and syntactic differences among different variants.

3.1 Situation types

Situation type, in other words, aspectual nature of directional compounds has drawn interest from certain researchers. Starting at least back to Lu (1977) who observes the

resultative effect and directional features of directional constructions in Mandarin. Different researchers have proposed their ideas on the aspect nature of directional constructions. But a unanimous agreement is that directional constructions (at least on [V_1 + V_2 +O] structures) carry [+telic] feature and this telicity is assumed as a part of "resultative aspect" (Kimura 1984), "perfective aspect particles" (Fang 1992), or "aktionsart marker" (Kang 2001).

This paper believes that situation type differences are a crucial point in exploring the nature of DSVCs and proposes that adjacent DSVCs are achievements while split DSVCs are accomplishments. Following Vendler (1967)'s classification, this analysis considers both achievements and accomplishments to have [+telic] feature. Accomplishments have [+durative] feature while achievements possess [-durative] feature. We apply IN-X-TIME test and FAILED-RESULT test to assess the [\pm telic] feature. FOR-X-TIME test and ALMOST test are applied to evaluate the [\pm durative] feature.

FAILED-RESULT test is known to be sensitive to [\pm telic] feature based on the entailment relationship.

(9) a. Zhangsan pai le [na ge changjing],
ke shi mei pai xia lai.

3SG shoot PERF PRN scene
but Neg shoot down come

'Zhangsan shot that scene, but (he) hasn't shot (the scene) down.'

b. *Zhangsan pai chu (lai) le
[na ge changjing], ke shi mei pai xia lai.

3SG shoot down (come) PERF
PRN scene, but Neg shoot down come

c. *Zhangsan pai le [na ge changing] chu lai, ke shi mei pai xia lai.

3SG shoot PERF PRN scene down come, but Neg shoot down

The above comparison clearly shows that the object in example (9b) and (9c) is influenced when a V_1 follows *pai* “shoot”, the result of *pai chu* “shoot out” becomes irreversible. While without the telic point, the sentence in (9a) remains grammatical even if the result is failed since it is an open-ended event.

IN-X-TIME test can also assess the telic feature in Mandarin Chinese by checking if the action can be completed within a specific time frame:

(10) a. *Zhangsan yi-xiaoshi-nei na le jufaxue-keben.

3SG in-an-hour carry PERF the syntax-textbook

b. Zhangsan yi-xiaoshi-nei na jin (lai) le jufaxue-keben.

3SG in-an-hour carry in (come) PERF syntax-textbook

‘Zhangsan has carried the syntax textbook inside in an hour (and has come to the speaker’s position).’

c. Zhangsan yi-xiaoshi-nei na le jufaxue-keben (jin) lai.

3SG in-an-hour carry PERF syntax-textbook (in) come.

‘Zhangsan has carried the syntax textbook inside in an hour.’

Examples above show that DSVCs can occur with IN-X-TIME test while (10a) cannot. Noticeably the event structure in (10a) is activity which forms an open-ended event. This further enhances the fact that both adjacent and split structures in DSVCs have telic features.

The above tests only prove to the extent that DSVCs can either be achievements or

accomplishments. Hence FOR-X-TIME test and ALMOST test are applied to evaluate the [\pm durative] feature.

In Mandarin, with accomplishments, the FOR-X-TIME test elicits two interpretations while with achievements it yields one interpretation only (Peck, Lin and Sun 2013). When modifying accomplishments, the formed construction can express the amount of time after the telic point is achieved; I refer to this as the result interpretation. It can also express the amount of time the process of achieving the end takes; hence is referred to as process interpretation. With achievements, only result interpretation can be offered.

(11) a. Baba duan shang (lai) wanfan wu fenzhong le.

3SG bring up (come) dinner five minutes PERF

Result reading: ‘It has been five minutes since dad brought the dinner up.’

b. Baba duan shang wanfan lai wu fenzhong le.

3SG bring up dinner come five minutes PERF

Result reading: ‘It has been five minutes since dad brought the dinner up.’

c. Baba duan wanfan (shang) lai wu fenzhong le.

3SG bring dinner (up) come five minutes PERF

Result reading: ‘It has been five minutes since dad brought the dinner up.’

Process reading: ‘Dad has been bringing up the dinner for five minutes. (he is still in the process of bringing the dinner up, the dinner is still not ready).’

The interpretation contrast between (11a) and (11c) tells us that adjacent structures present achievements feature while split structures showing accomplishments feature by possessing two readings. The interpretation in (11b) suggests that when there is a directional item adjacent to matrix verb, it shows alignment property with typical adjacent structure (10a), even with a split directional item resides after the object.

Lastly, by applying ALMOST test, achievements would entail unambiguous reading while accomplishments ambiguous readings. It is suggested that event modifier ALMOST can either elicit counterfactual interpretation or incomplete interpretation. The former refers to “almost start the event” and the latter refers to “almost completed the event”. Statistics show that adjacent structures behave like achievements while split structures vice versa.

(12) a. Mama jihu ban chu (lai)
le zhuozi.

3SG almost move out (come)
PERF desk

Incomplete: ‘Mom moved the desk
and almost moved the desk out.’

b. Mama jihu ban chu le zhuozi
lai.

3SG almost move out PERF desk
come

Incomplete: ‘Mom moved the desk
and almost moved the desk out.’

c. Mama jihu ban zhuozi (chu) lai
le.

3SG almost move desk (out) come
PERF

Counterfactual: ‘Mom almost begun
moving the desk out.’

Incomplete: ‘Mom moved the desk
and almost moved the desk out.’

The ambiguity contrast between (12a) and (12c) further supports the generalization that adjacent structures present achievements feature while split structures showing accomplishments feature. The reading in (12b), further supports the idea that so long as some directional item α adjacent to matrix verb, it shows achievement features even with a split directional item β which resides after the object.

3.2 Thematic relationships

By examining the thematic relationship between the verb in the main clause and the object of directional construction, it is observed that different variants take different thematic relationships.

In adjacent structures, no direct thematic relationship exists between V_m and object. Rather, the “objects” function as the argument of adjacent directionals components, reflecting an affectedness relation:

(13) Nolan pai chu le Oppenheimer de
chenggong yu beiju.

3SG shoot out PERF 3SG POS
success CON tragedy

‘Nolan has shot out Oppenheimer’s
success and tragedy.’

On the contrary, there is direct thematic relationship between V_m and Object in split structures:

(14) Zhangsan na keben chu lai le.

3SG take textbook out come PERF
‘Zhangsan has taken the textbook out.’

The textbook here is the direct object of matrix verb, and it takes patient theta role, with or without V_1V_2 .

3.3 Linear relationship with viewpoint aspects

The placement of the perfective marker *le* in relation to adjacent and split DSVCS

highlights a structural distinction. In adjacent structures, *le* can only appear after the entire directional phrase and cannot intervene between the serial verbs (cf. Yang 2009):

(15) a. *Zhangsan duan le shang lai [yi wan tang].

3SG serve PERF up come 1-CL-soup

b. *Zhangsan duan shang le lai [yi wan tang].

3SG serve up PERF come 1-CL-soup

c. Zhangsan duan shang lai le [yi wan tang].

3SG serve up come PERF 1-CL-soup

‘Zhangsan has served the soup up to the table.’

This distribution suggests that the matrix verb and the directional components are syntactically cohesive in adjacent structures, preventing perfective aspect markers from intervening. Cartographically, this restriction also implies that the syntactic position of outer aspect occupies a projection higher than that of directional serial verbs in adjacent DSVCs.

4. A preliminary proposal

Building on the linguistic facts presented in Section 3, this study proposes that adjacent DSVCs function as resultatives. The current analysis is that adjacent and split directional constructions are two different configurations and therefore require separate syntactic analysis. In the following parts, I will first introduce Inner Aspect Hypothesis which investigates how Aktionsart plays a role in Mandarin. And then, a detailed analysis of complex adjacent structures will be provided.

4.1 Inner aspect hypothesis

Inner aspect hypothesis in Mandarin investigates “what sort of substructures events are composed of” (Verkuyl 1988). It is proposed by Sybesma (1999), developed by the spirit of Travis (2010), modified by the joint effort of Xuan (2008, 2011), Shen and Sybesma (2012), Sybesma (2015, 2017):

(16) [_{VP} [_v v⁰ [_{Asp3P} [_{Asp3} Asp3⁰ [_{Asp2P} [_{Asp2} Asp2⁰ [_{Asp1P} [_{Asp1} Asp1⁰ VP]]]]]]]]]]

There are three aspectual projections involved between VP and *v*P. This proposal mainly utilizes Asp2P(PhasalP) and Asp1P(TelicityP). Asp1P(TelicityP) marks the structure as telic (cf. Xuan 2008) Asp2P helps “reducing the multi-point telicity scale to a two-point scale” (Lu et al. 2019) Asp3P (RealizationP), denotes realization of the projected endpoint of the event, is occupied by perfective *le* or vice versa, is not the main issue in this proposal, yet still presented for a clearer structure of the whole inner aspect (cf. Sybesma 1999). Object is derived at [spec Asp1P]: Theta-role assignment has been considered as a Spec-Head relationship (Chomsky 1993, Xuan 2008, Travis 2010).

4.2 The structure

Drawing on the evidence presented in Section 3, this study proposes that in adjacent structures, V₁ occupies the head of Asp1P, marking the event’s telic point, while the object is merged in [spec Asp1P]:

(17) Zhangsan na jin le jufaxue-keben.
3SG carry in PERF the syntax-textbook

‘Zhangsan has carried the syntax textbook inside.’

[_{vP} Zhangsan [_v v⁰ [_{Asp3P} [_{Asp3} le [_{Asp1P} jufaxue-keben [_{Asp1} jin] na]]]]]]]]

Unlike the head of Asp1P which defines the telic endpoint for the event, V₂ presents different features by contributing a distinct aspectual layer. The analysis below provides three key arguments regarding semantic dependency, progressive compatibility and A-bar movement restriction to support this claim.

Semantically speaking, in (18), the object *kuzi* ‘pants’ cannot be directly interpreted as the object of *qu* ‘go’. Namely, (18) cannot be interpreted as “There is a wearing event and the result is that the pants is went”. Moreover, if V₁ is placed aside, a construction like *kuzi qu* ‘pants go’ is semantically uninterpretable in Mandarin. This dependency supports the hypothesis that V₂ functions to enhance the event’s completion that the telic point is achieved, rather than to serve as an independent verb.

(18) Zhangsan ba kuzi chuan jing qu
le.
3SG ba pants wear into go
PERF
‘Zhangsan has worn the pants.’

Moreover, complex adjacent structures exhibit different aspect interpretation, rendering them incompatible with progressive aspect marker:

(19) a. Zhangsan na jin lai le jufaxue-keben.

3SG carry in come -PERF syntax-textbook
‘Zhangsan has carried the syntax textbook inside (and has come to the speaker’s position).’

b. *Zhangsan zhengzai na jin lai jufaxue-keben.

3SG PRG carry in come the syntax-textbook

Attempts to modify complex adjacent structures with the progressive marker *zhengzai* results in ungrammaticality in (19b) while simple adjacent structures remains grammatical in (19a).

Thirdly, VV₁O structure resists operations involving A-bar movement such as passivization, topicalization, or relativization, while VV₁V₂O structures readily accommodate these. Here I illustrate this restriction through topicalization:

(20) *Diannaο, Zhangsan na jin le.

Computer 3SG carry in PERF

On the contrary, VV₁V₂O structures are grammatical in these cases:

(21) Diannaο, Zhangsan na jin lai le.

Computer 3SG carry in come PERF

‘Zhangsan has carried the computer inside.’

However, there’s a challenge from split structures since they present similar linear structure if undergo the a-bar movements stated above. Again, this similarity is presented in topicalization context:

(22) a. Zhangsan na le diannaο jin lai.

3SG carry PERF computer in come

‘Zhangsan has carried his computer inside.’

b. Diannaο, Zhangsan na jin lai le.

Computer 3SG carry in come PERF

‘Zhangsan has carried the computer inside.’

As stated in (2) VOV₁ pattern is not grammatical, hence it naturally cannot be a-bar bound which seemingly explains the ungrammaticality in (20), making independent A-bar movement test on adjacent structures impossible to be applied.

To avoid this problem, we use sentences that have asymmetrical distribution of adjacent and split variants as the example:

- (23) a. Zhangsan ku chu le yan lei.
 3SG cry out PERF tears
 ‘Zhangsan cried out tears.’
 b. Zhangsan ku chu lai le yanlei.
 3SG cry out come PERF tears
 ‘Zhangsan cried out tears.’
 c. *Zhangsan ku le yanlei chu.
 3SG cry PERF tears out
 d. *Zhangsan ku le yanlei chu lai.
 3SG cry PERF tears out come

(23a, b) only has adjacent configuration but not split configuration which is shown in (23c, d). Interestingly, A-bar movement is still restricted in asymmetrical cases, suggesting that adjacent structures are indeed restrained:

- (24) a. *Yanlei, Zhangsan ku chu le.
 Tears, 3SG cry out PERF
 b. Yanlei, Zhangsan ku chu lai le.
 Tears, 3SG cry out come PERF
 ‘Tears, Zhangsan cried out.’

To sum up, the current generalization is that the object in VV_1O configuration cannot be a-bar bound but vice versa in VV_1V_2O configuration. Hence V_2 must sit in another projection to provide a landing site for the object to move. This fact further supports the assumption that V_1V_2 cannot be a compound that derives in the same syntactic position.

My preliminary analysis of this phenomenon is that spatial items (directional deictic verbs) can also serve as phasal verbs (phase complement in Chao (1968)). By carrying the semantic meaning of point of view from which a speaker perceives an event, they occupy $Asp2P^0$ to close off the event. Hence V_2 is in the head

of $Asp2P$:

(25) [_{VP}Zhangsan[_v v⁰[_{Asp3P}[_{Asp3} le[_{Asp2P}[_{Asp2} lai[_{Asp1P}jufaxue-keben[_{Asp1}jin]na]]]]]]]]

Under my hypothesis, V_1 resides in $Asp1P$, while V_2 occupies in $Asp2P$. Moreover, to explain why A-bar movement is blocked when only $Asp1^0$ is occupied, we need to recall the Barrier condition (cf. Baker 1988):

Barrier (final version): For every α included in XP , XP is a barrier iff (a) and (b) hold.

a. α does not occupy an escape hatch in XP .

b. X is distinct from Y , where Y is the head of YP , and YP is the minimal maximal projection which does not exclude XP .

Based on my hypothesis, $Asp2P$ and $Asp1P$ are two different functional projections, satisfying principle (b), we now need to satisfy principle (a). However, since a standard spec to spec movement is used to move the object up, the object can always occupy the escape hatch. Hence certain constraints need to be developed here to block the A-bar movement of object. My preliminary analysis to this is to propose the Directional Stranding Constraint:

For directional constructions, any α that possesses [_{spec} $Asp1P$] will be stranded in $Asp1P$, unless it is governed by some other functional projection $Asp2P$.

5. Conclusion

This study examines the composition of Directional Serial Verb Constructions (DSVCs) in Mandarin Chinese. Serial verb constructions have been an essential topic in linguistic research due to the complex interaction of serial verbs and their flexibility in surface structure. Focusing on the aspectual properties of DSVCs, this

analysis contributes to a clearer understanding of Mandarin event structure and offers a more precise categorization of directional constructions.

The finding extends Inner Aspect Hypothesis to directionals, supporting the discovery that situation type distinctions in Mandarin are not solely lexically computed but are also deeply embedded with syntactic layers. This framework is also in line with Roberts and Roussou's (2003) hypothesis on grammaticalization, allowing directionals to move up and be integrated to encode inner aspect values.

While the analysis presented here mainly addresses adjacent DSVCs, further research is needed to clarify the structure and constraints of split DSVCs. Based on the situation type difference and thematic difference discussed in previous sections, the current proposal hypothesizes a structural position for split constructions as follows:

(26) [_{VP} S [_v v [_{VP} O [_v V] GoalP]]]

It is proposed that the directionals in split constructions are Goal Phrase, bearing the intention of goal position instead of directional information, merged as the complement of the matrix verb. Future research will investigate into the nature of split DSVCs to expand this preliminary model.

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