

Mandarin verbal reduplication and the one-delimitation principle

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Abstract. It has long been observed that an eventuality may be associated with at most one delimitation. This paper argues that the incompatibility between Mandarin verbal reduplications and several post-verbal result-denoting elements is one of the cases to which the one-delimitation principle applies. The discussion of Mandarin verbal reduplication contributes to our understanding of the one-delimitation principle by showing that (i) the one-delimitation principle not only applies to resultatives but also other result-denoting elements; (ii) *vP* is the domain for the one-delimitation principle.

Keywords. verbal reduplication; the one-delimitation principle; results; Mandarin Chinese

1. Introduction. It has long been observed that an eventuality may be associated with at most one delimitation (Goldberg 1991; Tenny 1987, 1994; Levin 1995; Tortora 1998; Rappaport Hovav 2008, 2014). This constraint on event delimitations has been formulated in different ways, such as the Single Delimiting Constraint by Tenny (1994), the Unique Path Constraint by Goldberg (1991), and the Further Specification Constraint by Tortora (1998). Hereafter, I will call it the one-delimitation principle for convenience.

A widely-discussed example of the one-delimitation principle is that two resultatives cannot co-occur in a single clause in English. For instance, in (1a), a single clause cannot include a change-of-state resultative (*black and blue*) and a change-of-location resultative (*out of the room*) at the same time. Also, a verb encoding an endpoint of the action, e.g., achievement verbs, cannot co-occur with another resultative. As in (1b), the achievement verb *broke* is not allowed to co-occur with the resultative *worthless*.

- (1) a. *Sam kicked Bill black and blue out of the room. (Goldberg 1991:368)
 b. *The vase broke worthless. (Jackendoff 1990:240)

So far, most studies of the one-delimitation principle have been focusing on English resultatives and achievement verbs whereas how this principle applies in other constructions and in other languages has not been well studied. Against this backdrop, this paper examines verbal reduplication in Mandarin Chinese (hereafter Mandarin) and its (in-)compatibilities with other (non-)result-denoting elements. This paper argues that this one-delimitation principle not only delimits the number of the resultatives and achievement verbs in (1a) and (1b), but also other types of elements encoding results. Furthermore, drawing on the pattern that all result-denoting elements considered for the one-delimitation principle in Mandarin are all post-verbal, this paper argues that *vP* is the domain for the one-delimitation principle.

The rest of this paper is organized as follows. Section 2 introduces the empirical pattern that Mandarin verbal reduplication is only compatible with limited elements and proposes that it is one case to which the one-delimitation principle applies. Section 3 discusses two implications of Mandarin verbal reduplications for the one-delimitation principle. Section 4 concludes.

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2. Mandarin verbal reduplication is compatible with limited elements. Mandarin has four forms of verbal reduplication for a monosyllabic verb base. They include VV, V-*yi*-V, V-*le*-V and V-*le*-*yi*-V, where *yi* means ‘one’ and *le* is a perfective aspect marker. This paper focuses on VV and V-*yi*-V. Following Yang & Wei (2017), I assume that VV and V-*yi*-V are two phonological variants of one syntactic object and they share identical syntactic properties. I also assume that the properties discussed in this paper are also shared with V-*le*-V and V-*le*-*yi*-V where the reduplicated verb further combines with the perfective aspect marker *le*. The further combination with *le* and its related issues are beyond the scope of this paper and I leave this topic for future research. I will use imperative examples as much as possible throughout this paper but add a perfective aspect *le* (V-*le*-V) or use declaratives when a specific example is pragmatically odd in the form of imperatives.

Verbal reduplication in Mandarin has a diminishing function. Reduplicated verbs convey ‘delimitative or ‘tentative aspect (Chao 1968; Li & Thompson 1981), meaning to do something ‘a little bit/for a while’ (Li & Thompson 1981: 29) or, by extension, to do something quickly, lightly, casually or just for a try. For example, *kan-kan* ‘look-look’ in (2b) is usually translated as ‘have a look’ or ‘look for a little bit’ and the action of looking often comes with a casual flavor, compared to its non-reduplicated form in (2a).

- (2) a. ni kan ta
 you look him
 ‘You look at him.’ [Non-reduplicated verb]
- b. ni kan-kan ta
 you look-look him
 ‘You have a look at him.’ [Reduplicated verb]

2.1. BASIC EMPIRICAL FACTS. Different from their non-reduplicated counterparts, reduplicated verbs are only compatible with limited elements. Tang (1976) suggests that verbal reduplication is not compatible with any post-verbal elements indicating that the action has a result, such as quantized objects, post-verbal locative PPs, post-verbal time intervals, and resultative DE-Phrases. This subsection introduces reduplication-incompatible post-verbal elements in Mandarin. Their reduplication-compatible counterparts are included for comparison when necessary.

First, reduplicated verbs are incompatible with quantized direct objects (e.g., three apples). As the baseline example in (3a) shows, the quantized direct object *san-ge-pingguo* ‘three apples’ can follow a non-reduplicated activity verb *chi* ‘eat’ by default. In contrast, the reduplicated verb *chi-chi* ‘eat-eat’ does not accept the same quantized object as in (3b).¹²

- (3) a. ni chi san ge pingguo
 you eat three CL apple
 ‘You eat three apples.’
- b. *ni chi-chi san ge pingguo
 you eat-eat three CL apple

¹ Abbreviations used in this paper: CL: classifier; DUR: durative aspect; FP: final particle; PERF: perfective aspect.

² Demonstrative quantized direct objects (e.g., those three apples) are not to be discussed here as they empirically behave differently from bare quantized direct objects (3) in terms of resultivity (Zhang 2018).

The ungrammaticality in (3b) does not indicate that reduplicated verbs cannot take any direct objects. As in (4a), a reduplicated verb is compatible with a bare noun object *pingguo* ‘apples’.

- (4) a. ni chi-chi pingguo
 you eat-eat apple
 ‘You eat apples.’

Second, reduplicated verbs are incompatible with post-verbal durative time-interval phrases (e.g., ten seconds). As shown in (5b) and (5c), verbal reduplication and post-verbal time intervals cannot co-occur, no matter whether the perfective aspect marker *le* appears between two reduplicants or follows the second reduplicant, in contrast with the non-reduplicated counterpart in (5a), where time-interval phrases can naturally follow the verb.

- (5) a. wo chi le shi miaozhong
 I eat PERF ten second
 ‘I eat (it) for ten seconds.’
 b. *wo chi-le-chi shi miaozhong
 I eat-PERF-eat ten second
 c. *wo chi-chi-le shi miaozhong
 I eat-eat-PERF ten second

Third, reduplicated verbs are also not compatible with post-verbal locative PPs. As shown in (6a) versus (6b), the post-verbal locative PP *zai keting* ‘at the living room’ becomes ungrammatical when the verb *zuo* ‘sit’ is reduplicated. However, when the locative PP precedes the verb with the meaning that the sitting action happens in the living room, the sentence turns out to be grammatical, as shown in (6c).

- (6) a. ni zuo zai keting
 you sit at living-room
 ‘You have a seat at the living room.’
 b. *ni zuo-zuo zai keting
 you sit-sit at living-room
 c. ni zai keting zuo-zuo
 you at living-room sit-sit
 ‘You take a seat at the living room.’

Another post-verbal element incompatible with verbal reduplication is resultative DE-phrase, where the morpheme DE introduces a result brought out by the action. For example, in (7a), *qichaunxuxu* ‘breathe heavily’ is the result of the action of running. When the verb *pao* ‘run’ is reduplicated, the DE-phrase is not acceptable as in (7b).

- (7) a. ta pao-de qichaunxuxu
 he run-DE breathe.heavily
 ‘He ran into the state of breathing heavily.’
- b. *ta pao-pao-de qichaunxuxu
 he run-run-DE breathe.heavily

The reduplication-incompatible post-verbal elements and their reduplication-compatible counterparts are summarized below in (8).

(8)

Syntactic elements	Reduplication-compatible
Quantized objects	✗
Bare noun objects	✓
Post-verbal time intervals	✗
Pre-verbal locative PPs	✓
Post-verbal locative PPs	✗
Post-verbal resultative DE-P	✗

2.2. THE NATURE OF REDUPLICATION-INCOMPATIBLE ELEMENTS. Although the post-verbal quantized objects, time intervals, locative PPs, and resultative DE-Ps are incompatible with verbal reduplication, they are distinct from each other in terms of syntactic categories and inner structures: a quantized object is distinct from a locative PP in terms of syntactic categories; a quantized object has a different inner structure from a resultative DE-phrase and so on. To explain their incompatibilities with verbal reduplication, an important question to ask is what property could group them together and exclude other reduplication-compatible elements.

I argue that these post-verbal reduplication-incompatible elements share one property: being result-denoting. Encoding a result is defined as an event producing a salient consequent state (Moens & Steedman 1988). Conceptually speaking, quantized objects map their physical boundaries of entities to mark the boundaries of states (telicity); post-verbal locative PPs denote the spatial result of the event (to some place); post-verbal time intervals denote the temporal result of the event (to some time); post-verbal resultative DE-Ps denote the result state of the event (ending up with a specific state).

This subsection applies two tests (the *still-not-able-to-(make it)* test and the durative aspect *zhe* test) to reduplication-incompatible elements, reduplication-compatible elements, and reduplicants respectively. The results show that the reduplication-incompatible elements and reduplicants are result-denoting, while their reduplication-compatible counterparts are non-result-denoting.

2.2.1. TEST-1: ‘STILL NOT ABLE TO (MAKE IT)’. MacDonald (2008) adopts the adverb *almost* to test the resultivity of an event.³ If there is a result of the event, the adverb *almost* can

³ MacDonald (2008) argues that the *almost* test is used for the endpoints of the event, which I adapted it for the resultivity of an event. Note that the endpoint in MacDonald’s work is different from the endpoint defined in other studies on telicity (e.g., Borer 2005) since he differentiates event structure from the object-to-event mapping. His definition of endpoint is closer to the resultivity of events, the definition used in this paper.

modify the result and derives a started-but-unfinished reading. As in (9), the result of the pitcher of beer being totally consumed is measured by the adverb *almost* and derives the reading that Phil has started the action of drinking (started), drank most of the pitcher of beer but just a small amount of beer was left (but unfinished).

(9) Phil almost drank the pitcher of beer. [started-but-unfinished reading]

In contrast, if a sentence is not encoded with a result, the started-but-unfinished reading is not unavailable and instead, a not-started-yet reading is derived. As shown in (10), when there is no result of the event available to modify, the adverb *almost* can only modify the beginning of the event and derives the reading that the action of drinking has not started yet.

(10) Phil almost drank beer. [not-started-yet reading]

In line with the idea that *almost*-like modifiers can derive a started-but-unfinished reading only when a result is available, I adopt the Mandarin phrase *haishi mei-neng* ‘still not able to (make it)’ as the test for resultivity. If a sentence with *haishi mei-neng* ‘still not able to (make it)’ can derive a started-but-unfinished reading, then this sentence is considered as encoding a result. Applying this *still-not-able-to-(make it)* test to the four reduplication-incompatible elements, it turns out that they all can have a started-but-unfinished reading. As shown in the examples from (11a) to (11d), the started-but-unfinished reading is available for quantized objects, post-verbal locative PPs, post-verbal time intervals, resultative-DE phrases. In these examples, Zhangsan has started the actions of visiting three museums, landing, remaining quiet and running but the result states of visiting all three museums, landing at the center, remaining quiet for one minute, and sweating heavily are not achieved respectively.

- (11) a. Zhangsan haishi mei neng canguan san ge bowuguan
 Zhangsan still not able-to visit three CL museum
 ‘Zhangsan (tried but) was still not able to visit all three museums.’ [quantized object]
- b. Zhangsan haishi mei neng luo zai zhongxindian shang
 Zhangsan still not able-to land at center on
 ‘Zhangsan (tried but) could still not land on the center.’ (The action of landing on the center started but the expected result was not achieved although Zhangsan might fall at some point in the end.) [post-verbal locative PP]
- c. Zhangsan haishi mei neng anjing yi fenzhong
 Zhangsan still not able-to (remain)-quiet one minute
 ‘Zhangsan (tried but) was still not able to remain quiet for one minute.’ [time interval]
- d. Zhangsan haishi mei neng pao-de dahanlinli
 Zhangsan still not able-to run-DE sweat-heavily
 ‘Zhangsan (tried but) was still not able to run into the state of sweating heavily.’ [resultative-DE phrase]

In contrast, a bare noun, which is compatible with verbal reduplication, can only derive a not-started-yet reading when occurring with *haishi mei-neng* ‘still not able to (make it)’ as shown in (12a), where the action of visiting museums did not start. Moreover, pre-verbal locative PPs also can only derive the not-started-yet reading, as in (12b), where the action of reading did not start. These results also show that pre-verbal locative PPs and bare nouns are not result-denoting.

- (12) a. Zhangsan haishi mei neng canguan bowuguan
 Zhangsan still not able-to visit museum
 ‘Zhangsan (tried but) was still not able to start to visit museums.’ [bare noun]
- b. Zhangsan haishi mei neng zai keting kan shu
 Zhangsan still not able-to at living-room read book
 ‘Zhangsan (tried but) was still not able to start to read books in the living room.’ [pre-verbal locative PP]

2.2.2. TEST-2: THE DURATIVE ASPECT *zhe*. The Mandarin durative aspect marker *zhe* provides a test for the non-existence of result. Smith (1994) argues that the untuned verb suffix *-zhe* expresses an imperfective viewpoint that presents a continuous and stable situation without regard to endpoints. As shown in (13a), the action of playing games is required to be continuous and has no endpoint. The temporal schema of the durative aspect marker *zhe* is given in (13b), where *I* is the initial of the situation, *F* as the final stage of situation is absent, the dots indicate internal stages of the situation and */////* is the viewpoint span. This temporal schema shows that *zhe* disallows the appearance of the final state of the situation, which implies a state transition from the ongoing state to a subsequence state.

- (13) a. quan shijie de ertong dou wan-zhe tongyang de youxi
 whole world DE child all play-DUR same-kind DE game
 ‘All the children in the world are playing the same games.’ (Smith 1994:123)
- b. *I*
 /////

(Smith 1994:124)

With the presence of a subsequence state being defined as resultivity in this paper, the durative aspect *zhe* is predicted to be incompatible with an event with a result. As shown in (14a) to (14d), the durative aspect *zhe* is not compatible with quantized direct objects, post-verbal locative PPs, post-verbal time intervals, and resultative-DE phrases. Importantly, their bare verbs (the V verbs in resultative verb compounds) are compatible with *zhe* if these post-verbal elements are removed.

- (14) a. ??Zhangsan zheng canguan zhe san ge bowuguan
 Zhangsan right-now visit DUR three CL museum

[quantized objects]

- b. *Zhangsan zheng tang zhe shi fenzhong
Zhangsan right-now lie DUR ten minutes

[time-interval]

- c. *Zhangsan zheng zuo zhe zai yizi shang
Zhangsan right-now sit DUR at chair on

[post-verbal locative PP]

- d. *Zhangsan zheng pao zhe de dahanlinli
Zhangsan right-now run DUR DE sweat.heavily

[resultative-DE phrase]

In contrast, pre-verbal locative PPs are compatible with the durative aspect marker *zhe* as in (15a). The same compatibilities with *zhe* are also attested for bare nouns as in (15b). These results also again show that pre-verbal locative PPs and durative aspect marker *zhe* are not result-denoting.

- (15) a. Zhangsan zai keting zheng kan zhe shu
Zhangsan at living-room right-now read DUR book

[pre-verbal locative PP]

- b. Zhangsan zheng canguan zhe bowuguan
Zhangsan right-now visit DUR museum

[bare noun]

The durative aspect *zhe* test can also be applied to reduplicants. The verbal reduplicant (one)-V is not compatible with the durative aspect *zhe* while its non-reduplicated verb is compatible with *zhe*, as shown in (16a) and (16b). This contrast shows that reduplicant is result-denoting.

- (16) a. *Zhangsan zheng kan zhe kan ne
Zhangsan right-now look DUR look FP

- b. Zhangsan zheng kan zhe ne
Zhangsan right-now look DUR FP

However, the verbal reduplicant (one)-V cannot derive a started-but-unfinished reading as expected when appearing with *haishi mei-neng* ‘still not able to (make it)’ as in (17). This unavailability might be due to the abstract semantic result property of (one)-V, which doesn’t even have its own phonological form and needs to copy the phonological form from the base verb. Since there is no specific result, *haishi mei-neng* ‘still not able to (make it)’ cannot semantically measure the degree or progress of (one)-V.

- (17) *Zhangsan haishi mei neng kan kan
Zhangsan still not able-to look look

Intended: ‘Zhangsan (tried but) still could not have a full look.’

The result-denoting/non-result-denoting and reduplication-compatible/incompatible properties of the elements of interest are summarized in (18). The reduplication-incompatible elements share one property: result-denoting. In contrast, their reduplication-compatible counterparts are across-the-board non-result-denoting. The pattern shows a systematic correlation between reduplication-incompatibility and resultivity. Since the reduplicant is result-denoting, the above pattern could be interpreted as: whenever a result-denoting element (the reduplicant) appears, another result-denoting element is disallowed while non-result-denoting elements are allowed to appear. This only-one-result pattern exactly fits with the spirit of the one-delimitation principle. Thus, I argue that Mandarin verbal reduplication is one of the cases to which the one-delimitation principle applies.

(18)

	result-denoting	reduplication-compatible
(One)-V	✓	–
Quantized objects	✓	✗
Bare noun objects	✗	✓
Pre-verbal locative PPs	✗	✓
Post-verbal locative PPs	✓	✗
Post-verbal time intervals	✓	✗
Post-verbal resultative DE-P	✓	✗

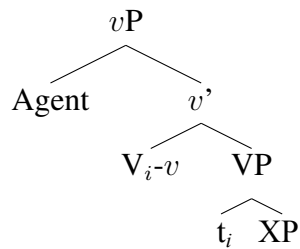
3. Implications for the one-delimitation principle. There are two implications for the one-delimitation principle if we consider Mandarin reduplication as one case to which the one-delimitation principle applies.

3.1. MORE RESULT-DENOTING ELEMENTS ARE INCLUDED. Mandarin verbal reduplication shows that not only resultatives and result verbs (what the discussion of English contributes) but also direct objects and other post-verbal elements (e.g., quantized objects, time intervals, etc.).

3.2. DOMAIN FOR THE ONE-DELIMITATION PRINCIPLE. As the empirical coverage of the one-delimitation principle expands, does it mean that all elements in sentences can join the one-delimitation competition? The answer seems to be no. As shown in (18), all result-denoting elements that join the one-delimitation competition appear after the verb. I argue that this is not a coincidence. In particular, this linear order between main verbs and resulting-denoting elements implies that the domain for the one-delimitation principle is *vP*.

It has been long argued that there exists a V-to-*v* movement in Mandarin since Huang (1994)'s work. This movement is illustrated in (19). Assuming a V-to-*v* movement, V moves to *v* position, and the surface position of verbs thus marks the boundary of *vP*. According to Linear Correspondence Axiom (Kayne 1994), if a nonterminal category A asymmetrically c-commands another nonterminal category B, all the terminal nodes dominated by A must precede all of the terminal nodes dominated by B. In the present case, the surface verb c-commands and thus should linearly precede all elements in the *vP*. Considering the result-denoting elements are all post-verbal, it means that all result-denoting elements are c-commanded by the surfaced verb. As a result, all of the elements joining the one-delimitation competition are within the *vP*.

(19)



This proposal predicts that an element will not join the one-delimitation competition if it appears in a pre-verbal position. This prediction is borne out. As I have shown, a pre-verbal locative PP is compatible with verbal reduplication while the same locative PP is incompatible with verbal reduplication if it appears post-verbally.

4. Conclusion. This paper examines the incompatibilities between Mandarin verbal reduplication and several post-verbal result-denoting elements. The post-verbal reduplication-incompatible elements including quantized objects, post-verbal locative PPs, post-verbal time intervals, and resultative DE-phrases and reduplicants are result-denoting while their reduplication-compatible counterparts, bare nouns and preverbal locative PPs, are non-result-denoting.

Based on the correlation between resultivity and reduplication-incompatibility, this paper argues that Mandarin verbal reduplication is one of the cases where the one-delimitation principle applies. The case of Mandarin verbal reduplication implies that the one-delimitation principle not only applies to resultatives but also other result-denoting elements and *vP* is the domain for the one-delimitation principle.

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