

Parallelism between nominal and verbal domains: Evidence from verbal classifiers*

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Kim, Kyumin. 2019. Parallelism between nominal and verbal domains: Evidence from verbal classifiers. *Linguistic Research* 36(2), 183-212. Since Chomsky's (1970) observation that clauses and arguments can project parallel syntactic structures, the parallelism between the nominal and verbal domains has been explored in many studies. This paper addresses a particular parallelism between two functional projections in the nominal and verbal domains: Num(ber)P and Asp(ect)P. Specifically, NumP in the nominal domain is proposed to be parallel to AspP in the verbal domain, and in an English-type language this parallelism is represented by having the same feature, such as [bounded], on both heads. However, it is questionable to what extent the parallelism proposed for an English-type language can be applicable to a classifier language such as Mandarin where CL(assifier)P is known to be the locus of number. By examining the properties of verbal classifiers in Mandarin to address this issue, this paper not only shows that there is a parallelism in Mandarin similar to that in English, but also demonstrates that the parallelism is subject to cross-linguistic micro-variation. In Mandarin, for instance, there is a correspondence between CLP and AspP, but the relevant feature for the parallelism is [class(ification)], which is not the same as the [bounded] feature proposed for English. (Cheongju University)

Keywords verbal classifier, event, semelfactive, nominal classifier, parallelism

1. Introduction

Chomsky (1970) observes that clauses and arguments can project parallel syntactic structures. Since this observation, there have been numerous studies that have developed the parallelism in various directions (e.g., Abney 1987; Grimshaw 1990; Szabolcsi 1983; Rijkhoff 1991; Wiltschko 2012 among many others). Although the details differ, an insight from these studies suggests that there is a direct correspondence between the functional projections in the noun

* I would like to thank the anonymous reviewers of this journal for their helpful comments, and the native speakers of Mandarin Chinese for sharing their language with me. All errors are mine.

phrase and verb phrase structures (see section 5 for the discussion). For example, Num(ber) in the nominal domain corresponds to Asp(ect) in the verbal domain (e.g., Travis 1992; Verkuyl 1993; Borer 1994).

This parallelism between Num and Asp has been instantiated in terms of the same feature, such as [\pm bounded], being present on both heads (see section 5 for more discussion). In English, an N head realized by a count noun is considered to project Num [$+$ bounded], but an N head realized by a mass noun to project Num [$-$ bounded] (Jackendoff 1990). In the verbal domain of the same language, when an event denoted by the VP is considered to be (un)bounded, Asp, the locus of event, bears [\pm bounded]. The boundedness property of the object in the VP significantly contributes to the event boundedness; for example, an event is bounded when the quantity of the object in the VP is known, as with a numeral object 'three apples'. In contrast, an event is unbounded when the quantity of the object is unknown, as with a mass noun. The former type of the event is represented by Asp [$+$ bounded] while the latter type is represented by Asp [$-$ bounded].

This type of parallelism between Num and Asp is well documented in an English-type language. However, it is questionable to what extent this manner of parallelism can be applied to a language that is known to lack a mass-count distinction, e.g., a classifier language such as Mandarin. In Mandarin, a formal distinction in mass/count is lacking (e.g., Chierchia 1998), and a noun can be quantized by a numeral classifier, which is absent in English.¹ In addition, Mandarin has verbal classifiers that quantify events, which are also absent in English. This paper examines Mandarin data on verbal classifiers and nominal classifiers, and demonstrates that in Mandarin (i) there is a similar parallelism between the nominal and verbal domains, and (ii) it is not the feature [bounded], but the feature [class(ification)] that plays a role in the parallelism. The consequences of this paper thus suggest that the parallelism between the nominal and verbal domains is subject to cross-linguistic micro-variation: the correspondence between the nominal and verbal domains can be realized in

1 These properties are also true with other classifier languages such as Korean or Japanese (e.g., Kim and Melchin 2018), and thus the same question can be posed with these languages. However, unlike Mandarin, these languages do not have verbal classifiers. Thus, a parallelism in these languages may not be turn out to be identical to that proposed for Mandarin in this paper. See section 5 and footnote 14 for further discussion.

different manners cross-linguistically, represented by different features, e.g., [bounded] vs. [class]. Furthermore, this view on the variation is consistent with the different manners in which nouns and verbs are generally organized in each type of language (to be detailed in section 5).

This paper is organized as follows. Section 2 provides relevant background on verbal classifiers in Mandarin that is necessary to understand the discussion in this paper. Section 3 is a brief note on some recent approaches to verbal classifiers in the language. Section 4 provides an analysis of verbal classifiers: it is proposed that a verbal classifier realizes an Asp head. This section also provides some assumptions on event classification. Section 5 discusses the consequences of the proposed account with respect to the role of nominal classifiers in the nominal domain, and how the results of this paper contribute to the ongoing discussion on the parallelism between the nominal and verbal domains. Section 6 concludes the paper.

2. Basic background on verbal classifiers

It is well known that Mandarin is a classifier language; for example, a classifier has to appear in order for a noun to be counted by a numeral (e.g., Tang 1990; Cheng and Sybesma 1999), as shown in (1). Interestingly, the language also has classifiers that quantify events (e.g., Cao 1968; Zhu 1982; Deng 2013), as illustrated in (2). Following the convention in the Mandarin literature (Zhu 1982; Deng 2013; Zhang 2017), I refer to the type of classifier in (2) as a verbal classifier. In this paper, I notate verbal classifiers as CL_v in distinction to nominal classifiers CL_n such as in (1).²

- (1) san *(ben) shu
 three CL_n book
 'three books'

2 As for the verbal classifiers in the data cited from Deng (2013) or Zhang (2017), they are glossed as CL_v in this paper. Moreover, some verbal classifiers CL_v (such as in (4)) have a superscript that indicates the meaning of the CL_v adopting Zhang (2017). For consistency, tones are omitted in the examples cited from Zhang (2017).

- (2) Xiaobao ti le Aobai san xia.
 Xiaobao kick PERF Aobai three CL_v
 'Xiaobao gave Aobai three kicks.' (Deng 2013)

In the Mandarin literature, two types of verbal classifiers are recognized (e.g., Deng 2013; Zhang 2017). One type is illustrated in (2) above and another type is exemplified in (3) below. As the gloss in (2) indicates, the verbal classifier *xia* in (2) indicates the frequency of the event in one occasion: on one occasion, the event of kicking Aobai took place three times. Thus, the event quantified by a numeral classifier such as *xia* in (2) is understood such that the event happened in a continuous manner. By contrast, the type of verbal classifier exemplified by *hui* in (3) indicates the frequency of the event that takes place in a discontinuous manner. In (3), thus, with the numeral *san* 'three', the event of Xiaobao's crying is understood to have taken place on three occasions.

- (3) Xiaobao jintian ku le san hui.
 Xiaobao today cry PERF three CL_v
 'Xiaobao cried on three occasions today.' (Deng 2013)

Morphemes such as *jiao*, *bu*, *sheng*, and so on belong to the same type of verbal classifier as *xia* (2); they are illustrated in (4). The only slight difference between *xia* and those in (4) is that *xia* is considered having no specific meaning, while those in (4) have a specific meaning (e.g., Cao 1968; Zhu 1982). For example, *jiao* in (4a) means 'foot' and *sheng* in (4b) means 'sound/voice', as indicated by superscripts on CL_v in the morpheme gloss. These are often viewed as instruments to the event denoted by the VP; e.g., in (4a), the event of kicking Yuru took place via 'foot' as an instrument which is denoted by the verbal classifier. The main focus of this paper is on the distribution and analysis of *xia*-type verbal classifiers, as exemplified in (2) and (4), and *hui*-type verbal classifiers as in (3) will not be discussed (see section 3 for some studies on this type of verbal classifier).

- (4) a. Dalin ti-le Yuru liang jiao.
 Dalin kick-PRF Yuru two CLV^{foot}
 ‘Dalin kicked Yuru two times.’
 b. Dalin jiao-le Yuru liang sheng.
 Dalin shout-PRF Yuru two CLV^{voice}
 ‘Dalin called Yuru two times.’ (Zhang 2017)

It is well known that *xia*-type verbal classifiers appear to the right of a predicate only, as shown in (5a) (e.g., Soh 1998; Zhang 2017). In (5a), the verbal classifier *quan* quantifies the event of ‘punching Yuru’ and it is preceded by the predicate, *da-guo Yuru* ‘beat Yuru’. It cannot precede the predicate *da-guo Yuru* ‘beat Yuru’ as shown in (5b), and it cannot appear between the verb *da-guo* ‘beat’ and the object ‘Yuru’ as shown in (5c).

- (5) a. Dalin cengjing da-guo Yuru san quan.
 Dalin before beat-EXP Yuru three CLV^{fist}
 ‘Dalin punched Yuru three times before.’
 b. *Dalin cengjing san quan [da-guo Yuru].
 c. *Dalin cengjing da-guo san quan Yuru. (Zhang 2017)

According to previous studies on this issue, it has been suggested that a *xia*-type verbal classifier originally appears in a preverbal position (e.g., Soh 1998; Zhang 2002), as schematically illustrated in (6a). Although details differ, these studies suggest that a complement of the verb, the object, raises to a higher position past a verbal classifier, CLV, after the movement of V to v as proposed in Huang (1993) takes place. I assume the core of these approaches in which the V that follows a CLV, as illustrated in (6a) for instance, moves to v, as shown in (6b). Subsequent to this movement, the object moves to a position to the left of the CLV.³ The subject in the specifier of vP will move outside of

3 In these studies, the exact landing site of the movement of the object was left for further research, which I do not question further. However, the motivation for the movement of the object seems to be discourse-oriented. For example, in Zhang (2002), a verbal classifier indicates foreground information, and as such it triggers other elements in the same clause to be topic information. The object as in (6a) can be a topic by moving to a higher position. As this issue does not significantly affect the main proposal of this paper, I do not question this issue.

vP later in the derivation (Huang1993).

- (6) a. CL_V [_{VP} V DP_{Obj}]
 b. [_{VP} DP_{subj} v-V DP_{Obj} [_{XP} X CL_V [t_v t_{Obj}]]]

In section 4, I propose that XP in (6b) is Asp(ect)P, and a *xia*-type verbal classifier instantiates an Asp head that bears the feature [class(ification): semel(factive)]. For example, it will be shown that a *xia*-type verbal classifier can quantify only an event denoted by a VP that belongs to the semelfactive class, in the sense of Smith (1991). Before I proceed to the analysis of *xia*-type verbal classifiers, I briefly discuss some of the previous studies on verbal classifiers in Mandarin.

3. Brief remarks on the previous studies on verbal classifiers

As mentioned earlier, in Mandarin, two types of verbal classifiers are recognized (see (2) vs. (3)). In this section, I briefly discuss how these verbal classifiers have been analyzed in recent studies within the generative framework, and how this paper is different from those studies.

The focus of the previous studies has been on the comparison and contrast of the two types of the verbal classifiers (e.g., Sybesma 1999; Soh 1998; Jeong 2002; Deng 2013; Zhang 2017; Kim 2018).⁴ For example, in order to capture the interpretational differences between the two types of verbal classifiers discussed in the previous section, Zhang(2017) proposes that a *xia*-type verbal classifier (e.g., (2)) merges above VP but lower than vP, consistent with the current paper. On the other hand, a verbal classifier such as *hui* (see (3)) is proposed to merge above vP. In Zhang (2017), both types of the verbal classifiers project UnitP

4 There are other studies on verbal classifiers, such as a complement analysis in Sybesma (1999), and an adjunct analysis in Soh (1998). As pointed out by Zhang (2017), these studies cannot account for the selectional restrictions of verbal classifiers: both types of verbal classifiers show certain semantic restrictions on the meaning of the events denoted by the verb. For example, the verbal classifier *dun*, a *hui*-type classifier, is for meals but not for an eating event that does not count as a meal, e.g., eating ice cream. For more details on these previous studies, see the above references; for a summary, see Zhang (2017). For the purpose of the paper, I do not replicate them.

where the head Unit is realized by the verbal classifier. A UnitP projected by a verbal classifier is proposed to be the same UnitP as that projected by a nominal classifier. The proposed UnitP differs in the category of their complements: it takes a VP complement when the head Unit is realized with a verbal classifier, while it takes an NP complement when the head is realized with a nominal classifier.

However, in Zhang (2017), no further details on a Unit head has been provided, e.g., the semantics or function of the head, which remains unclear. The main concern of Zhang (2017)'s study is on the syntax of the two types of the verbal classifiers discussed in section 2; for example, the word order differences and different positions of the verbal classifiers. There was no discussion on the issue of a parallelism between the nominal and verbal domains with respect to nominal and verbal classifiers, which is the main concern of this paper. Assuming Zhang's (2017) proposal on UnitP, one might argue that, similar to the conclusion of this paper (see section 5), the nominal and verbal domains appear to show a certain parallelism via having the same head. However, this account is not sufficient to elucidate a core underlying nature of the parallelism in Mandarin revealed by the data on verbal and nominal classifiers discussed in section 4 and 5; for example, it provides neither shared featural content nor function of a Unit head in the nominal and verbal domains, unlike the current paper that argues that a relevant head in the two domains has a similar function, namely classification, represented by the same feature [class] (see section 4 and 5 for detail). Moreover, the proposed account of Zhang (2017) cannot capture the fact that a *xia*-type verbal classifier can quantify only a particular class of event (i.e., semelfactive (Smith 1991)), as proposed in this paper (see section 4). In particular, in Zhang (2017), UnitP is viewed to be a phrase syntactically different from AspP proposed for a *xia*-type verbal classifier in this paper; for example, it merges in a different position from AspP. Under this account of Zhang (2017), the observed association between a *xia*-type classifier and a particular event type that the type of classifier quantifies remains unaccounted.⁵

5 An anonymous reviewer suggested that UintP with [semelfactive] feature may equally capture the provided data in this paper. However, as mentioned in the text, a UnitP in Zhang (2017) is a separate phrase from an aspectual phrase (i.e., AspP), and thus it would be anomalous for a Unit

Another study is Deng (2013), who also compares the two types of verbal classifiers and proposes different syntactic structures for them, but his study is centered on the verbal classifiers that occur with nominals that denote events, unlike the current paper that examines the distribution of verbal classifiers that appear with verbs. In another recent study (Kim 2018), these two types of verbal classifiers in Mandarin are compared to certain frequency adverbials in other languages such as Russian. In Russian, frequency adverbials are accusative-marked only when the event that they modify is bounded, i.e., when it has an inherent endpoint (Pereltsvaig 2000) (see section 4.1 for a discussion of boundedness). The core proposal of Kim (2018) is that despite having a similar meaning to frequency adverbials in other languages, the verbal classifiers in Mandarin are not associated with event boundedness, which is in line with this paper. However, in Kim (2018), no further discussion on how the verbal classifiers in Mandarin should be analyzed is provided.

Similar to the proposed account in this paper, some of these previous studies (Deng 2013; Kim 2018) recognize that a *xia*-type verbal classifier is associated with semelfactive events in the sense of Smith (1991) (see section 4.1 for more detail). However, unlike the present study, neither has proposed a formal aspectual account as proposed in this paper: no studies, including those mentioned earlier in this section, have provided an account of the verbal classifiers in terms of an Asp(ect) head. Moreover, no discussion on the implications for the parallelism between nominal and verbal domains has been provided. Thus, despite building on similar data to the previous studies, the present paper proposes a novel analysis for *xia*-type verbal classifiers different from those in previous studies, and the consequences for the parallelism emerging from this paper (see section 5) open up a new way to look at verbal classifiers in the language.

head to bear an aspectual feature.

4. The analysis of *xia*-type verbal classifiers

4.1 Theoretical assumption: aspect and event classification

Aspect in this paper refers to lexical aspect. Before discussing the proposal made for verbal classifiers, thus, some background on lexical aspect is in order. Lexical aspect (henceforth, aspect) refers to the internal temporal properties of the event described by the predicate (e.g., Verkuyl 1972; Tenny 1994), which has also been referred to as situation aspect (Smith 1991) or inner aspect (Travis 2010). Events are generally classified into four aspectual types (e.g., Verkuyl 1972; Dowty 1979; Tenny 1994; Travis 2010), which is often referred as the Vendler-type verb classification. The four classifications are presented in (7a-d).

(7)		process	definite
	a. Accomplishment	yes	yes
	b. Activity	yes	no
	c. Achievement	no	yes
	d. State	no	no

(Vendler's 1967 classification as represented in Verkuyl 1989)

The four types are classified by two criteria: process and definite properties. Process denotes whether an event unfolds in time and indicates whether an event is durative or non-durative. The definite property indicates whether an event has a temporal endpoint or not. Each of the event types is exemplified in (8). In the examples, a time span PP 'in X time' and a durative PP 'for X time' are presented together: these PPs are often employed to test whether a given event has inherent endpoint or not, i.e., whether it has the definite property of events (Vendler 1957). The time span PP 'in X time' is compatible with an event that has an inherent endpoint, as exemplified with an accomplishment in (8a). In (8a), the event of eating three apples unfolds in time, and it is completed when all of the three apples are consumed. Thus, an accomplishment is not compatible with a durative PP 'for X time'. Rather, a durative PP is compatible with an event without an endpoint, such as an activity as shown in (8b). In (8b), the event of pushing the cart unfolds as the time progresses, but there is no

indication when the event would be completed. As such, activity is compatible with a durative PP. The example in (8c) exemplifies the achievement class. Achievements are similar to accomplishments in having an endpoint, as indicated by the compatibility with the time span PP 'in X time' phrase and the incompatibility with the duration PP 'for X time'. However, they are different from accomplishments in that they are non-durative. That is, achievements do not have the process property: they do not unfold in time, as their compatibility with the time span PP such as 'in a second' as in (8c) indicates. For instance, the accomplishment event in (8a) 'eating three apples' took some time, while the achievement event 'catching a bear' in (8c) is instantaneous, being non-durative. As soon as one catches a bear, the event is done. States, as in (8d), neither unfold in time nor have an inherent endpoint; thus, no time PP diagnostic applies.

- | | | |
|--------|--|----------------|
| (8) a. | John ate three apples (in an hour/*for an hour). | Accomplishment |
| b. | John pushed the cart (*in an hour/for an hour). | Activity |
| c. | John caught a bear (in a second/*for a second). | Achievement |
| d. | John likes Mary. | State |

Although the four aspectual classes in (7) are usually assumed in studies of verbal aspect, there has been much debate on how many types of eventuality there are. For example, there is another aspectual class called semelfactive (Smith 1991). In Smith (1991), verbs are classified into durative and punctual events based on their semantic properties. Durative verbs indicate a situation or a process that lasts for a certain period of time. In contrast, events denoted by punctual verbs are instantaneous, and thus there is no duration to measure. For example, verbs such as 'kick', 'cough' or 'knock' typically belong to the semelfactive class in English, as illustrated in (9). The event of knocking at the door in (9a) is considered to be semelfactive, as it is punctual without duration: it is a single stage-event by indicating that there was single knocking at the door. Being a non-durative event, a semelfactive event is incompatible with progressive aspect, as exemplified in (9b).

- (9) a. John knocked at the door.
 b. *John was knocking at the door.

Note that the example in (9b) is only ungrammatical when the interpretation of the event VP is understood as semelfactive, being instantaneous. It is grammatical when it is understood as an activity, one of four types of events in Vendler's classification. In an activity reading, the example in (9b) is read as describing a series of knockings at the door, i.e., iterative or repetitive, not a semelfactive reading such as a single knock at the door.

Semelfactive events are typically identifiable by certain adverbials such as 'twice' or frequency adverbials such as 'three times' in English, as illustrated in (10). According to Kiss (2011), the compatibility with those adverbials is due to the semantic properties of semelfactives: semelfactives describe a 'countable', punctual event.

- (10) a. John coughed twice.
 b. John blinked three times.

Semelfactives denote a single-stage event, which is punctual/instantaneous without duration, similar to an achievement; however it does not have an endpoint, unlike an achievement or accomplishment. For example, in (8a), which represents the accomplishment event class, the event is that of eating three apples, and the apples are in the result state being eaten up after the event was completed. An event of knocking at the door in (9a) does not indicate such a result state. Under this view, a semelfactive event has no endpoint, which I assume in this paper. As will be shown with *xia*-type verbal classifiers in section 4.2, this type of verbal classifier is not compatible with a resultant event typically indicated by an unaccusative verb in Mandarin.

As with Smith (1991), I assume that semelfactive is another type of eventuality in addition to those four types in Vendler's classification (7), and it is characterized as being punctual and instantaneous without duration or endpoint. As will be shown in the next section, a *xia*-type verbal classifier in Mandarin quantifies only events that belong to the semelfactive class.

4.2 The proposal: CL_v as an Asp head

In this section, I propose that a verbal classifier (CL_v) realizes an Asp(ect) head projected between vP and VP. This type of Asp is represented as an Inner-Asp (Travis 2010) in distinction to Outer-Asp, which marks (im)perfectivity. In this paper, I use Asp instead of Inner-Asp as the paper is concerned with Inner-Asp only, and thus no distinction is needed. Asp represents the properties of an event which are determined by the verb and its internal argument, that is, by VP (Verkuyl 1972; Dowty 1979; van Voorst 1988; Tenny 1994; Travis 2010). The event denoted by the VP can be classified into those five event types discussed in the previous section. In Travis (2010), whose proposal is built on Vendler's event classification (see (7)), the Asp head is the locus of the feature [\pm definite], and a verbal head (V in her structure) above the Asp head bears [\pm process]. By having two such features on two syntactic heads, Travis's (2010) analysis captures the four-way event classification as in (7). A similar type of approach making use of some features on relevant heads (e.g., Asp) has been proposed in a recent approach (MacDonald 2008) which also assumes the four event types as in Vendler's classification; for instance, the feature [f(inal)e(vent)] is present on the Asp head if there is an end to the event.

In this section, I also make use of features in order to account for the properties of *xia*-type verbal classifiers. I propose that a verbal classifier (CL_v), by realizing an Asp head, licenses one of the five aspectual classes discussed in the previous section. In particular, as will be demonstrated shortly, CL_v does not quantify any of Vender's classifications, but quantifies only the semelfactive event type (Smith 1991) (see section 3.1). As such, as shown in (11b), the Asp head realized by CL_v has a feature [class(ification): semel(factive)]: the role of CL_v is to restrict an event type denoted by the VP that it classifies, and it restricts the event type to semelfactive class. As discussed in section 2, V moves to v, and the object will subsequently move to a higher position, which will result in the correct word order, i.e., the clause-final position of the numeral and the verbal classifier, as exemplified in (11a).⁶

6 The V-v sequence will move up a higher position, e.g., I, which the perfective marker *le* realizes (Huang 1993).

- (11) a. Xiaobao *ti* *le* Aobai *san* *xia*.
 Xiaobao kick PERF Aobai three CLv
 ‘Xiaobao gave Aobai three kicks.’ (Deng 2013)
- b. [_{VP} *Xiaobao*_i [_V v [_{AspP} Nml [_{Asp} Asp CLv [class:semel] [_{VP} t_i *Aobai*]]]]]
san *xia*

A numeral that appears with a verbal classifier appears in the specifier of AspP, and it quantifies over the event, indicating the frequency of the event denoted by the VP. Below, I provide pieces of evidence that support the proposal in which a CLv instantiates an Asp head that restricts the type of an event denoted by the VP to semelfactive.

Recall that the CLv in question is a *xia*-type verbal classifier. The fact that a *xia*-type verbal classifier can appear only with a particular type of a verb provides evidence for the proposed analysis that CLv imposes a selectional restriction on the event denoted by the VP. In this section, I demonstrate the selectional restriction of *xia*-type verbal classifiers. The first support is found from the fact that the verbs that can appear with the verbal classifier *xia* are grouped by their lexical semantics, which belong to the semelfactive class (Deng 2013). For example, *xia* appears with the following types of verbs, classified in terms of their lexical semantics (not an exhaustive list; for more examples, see Deng 2013), as shown in (12).

- (12) a. verbs denoting actions involving body parts
qiao ‘to knock’; *reng* ‘to toss’; *shan* ‘to slap’; *ti* ‘to kick’; *tiao* ‘to jump’ etc.
- b. verbs denoting movements of inanimate objects
bai ‘to sway; to swing’; *dong* ‘to (slightly) move’; *tan* ‘(balls, rubber bands etc.) to bounce’ etc.
- c. verbs of sound emission
di ‘(cars) to honk’; *ding* ‘(bells) to ring’; *du* ‘(clarion etc.) to toot’ etc.
 (Deng 2013)

These verbs belong to the semelfactive class proposed in Smith (1991). In particular, according to Deng (2013), when the events denoted by the verbs in (12) appear with verbal classifier *xia*, the events are always interpreted as being

punctual and instantaneous, which are the core meanings of semelfactive events (see section 4.1). The numeral that appears with *xia* further specifies the number of punctual instances of the events. For example, consider the following examples illustrated with the verbs in (13). Examples in (13a-b) are illustrated with the verbal classifier *xia*, and the examples in (13c-d) are illustrated with the verbal classifiers that belong to the *xia* type of verbal classifiers.

- (13) a. Xiaobao tui le na liang che san *(xia).
 Xiaobao push Perf that CL cart three CLv
 'Xiaobao gave three pushes to that cart.'
- b. ta qiao le san *(xia) men.
 s/he knock PERF three CLv door
 'S/he made three knocks on the door.'
- c. Xiaobao wang qian tiao le san *(bu).
 Xiaobao toward front jump PERF three CLv^{step}
 'Xiaobao jumped three steps forward.'
- d. Xiaobao han le san *(sheng).
 Xiaobao yell PERF three CLv^{sound}
 'Xiaobao made three yells.'
- (Adapted from Deng 2013)

In (13a) where the event is quantified by the verbal classifier *xia*, the event of pushing the cart has a semelfactive interpretation: there were three instances of pushing that cart. The examples in (13c-d), where the event VPs are counted by the classifier *bu* 'step' (13c) or *sheng* 'sound' (13d) respectively, show the same type of interpretation. The event VPs modified by *xia* as in (13a-b) or by *bu* or *sheng* as in (13c-d) are able to be counted by a numeral, which is exactly expected for semelfactive events (see section 4.1). The numerals that appear with the verbal classifiers cannot appear by themselves to count the event, as indicated in each of the examples in (13) by the obligatoriness of the verbal classifiers. This property of numerals is similar to numerals that appear with nominal classifiers (see section 5). As such, in the verbal domain, I propose that a numeral appears in the specifier of AspP where the head Asp is realized by a CLv as in (11b), which is also proposed for a numeral that appears with a CLn in section 5.

The fact that *xia*-type verbal classifiers cannot quantify other types of events, the four types of events in Vendler's classification, further supports the current proposal that this type of verbal classifier has a selectional restriction on the event denoted by its VP complement. For example, a *xia*-type verbal classifier such as *jiao* or *yan* cannot co-occur with other types of events that do not belong to the semelfactive class, as illustrated in (14). The interpretations of the examples in (14a-c) are not provided in Zhang (2017), but they are added after the consultation with native speakers of Mandarin who also provided examples (e.g., (17)) that appear in this paper without citation.

- (14) a. *Liliqu-le Bali san {jiao/xia}.
 Lili go-PRF Paris three CL^{foot}/CL_v
 'Lili went to Paris three times.'
- b. *Lili du-le na benshu san {yan/xia}.
 Lili read-PRF that CL book three CL^{eye}/CL_v
 'Lili read that book three times.'
- c. *Lili tou-tong-le san xia.
 Lili head-pain-PRF three CL_v
 'Lili had three head pains.' (Zhang 2017)
- d. *na ge wenti ta-men taolun le san xia, rengjiu
 that CL_n problem they discuss PERF three CL_v still
 mei-you jieju-banfa.
 not-have solution
 '(As for) that problem, they discussed it three times, still did not
 have a solution.' (Adapted from Deng 2013)

In (14a), the event of going Paris denotes an achievement, and in (14b) the event of reading the book is an accomplishment. In (14c), the event denoted by the VP 'having head pain' is a state. In (14d), the event of discussing the problem is an activity and it is incompatible with the verbal classifier *xia*. Note further that *xia* is also ungrammatical in the position of verbal classifiers of *jiao* in (14a) and *yan* (14b). The data in (14) has shown that *xia*-type verbal classifiers cannot co-occur with the event types in Vendler's classification, namely activity, accomplishment, achievement, or state.

Another piece of evidence that *xia*-type verbal classifiers are only compatible with the semelfactive class is the fact that they cannot co-occur with events denoted by unaccusative verbs. Events denoted by unaccusative verbs are viewed as having an inherent endpoint (e.g., Levin and Rappaport 1995), and are thus considered part of the accomplishment class. Thus, the proposed analysis (11b) predicts that a *xia*-type verbal classifier will be incompatible with events denoted by unaccusative verbs, which is borne out by the data in (15). The verbs *po* ‘break’ (15a) and *dao* ‘fall down’ (15b) are typical unaccusatives in Mandarin (Deng 2013). As the ungrammaticality of (15) indicates, *xia* cannot quantify events that have inherent endpoints. This type of data supports the proposed account that *xia*-type verbal classifiers are compatible only with the semelfactive class, which does not bear an inherent endpoint.

- (15) a. **chuanghu po le san xia.*
 window break PERF three CL_v
 ‘The window broke three times.’
- b. **yizi dao le san xia.*
 chair fall.down PERF three CL_v
 ‘The chair fell down three times.’
- (Adapted from Deng 2013)

The data discussed thus far supports the proposed account in which CL_v realized by a *xia*-type verbal classifier has a selectional restriction on the type of event denoted by the VP. I implement the selectional restriction with a feature [class], and in particular the relevant event classified by CL_v is the semelfactive type, represented as [class:semel]. As discussed in section 4.1, a semelfactive event is a punctual event without duration. This predicts that the verbal classifiers under discussion cannot appear with durative events, which is borne out by the data. In (16), the verb is suffixed with a durative marker *-zhe* and a verbal classifier *quan* ‘CL_v^{frist}’, and the sentence is ungrammatical.

- (16) **Dalin da-zhe Yuru san quan.*
 Dalin beat-dur Yuru three CL_v^{frist}
 Intended meaning: ‘Dalin was beating Yuru three times.’
- (Adapted from Zhang 2017)

This is also true with other verbal classifiers that belong to the same group as *xia*, as shown in (17).⁷

- (17) a. *Dalin ti-zhe Yuru liang jiao.
 Dalin kick-dur Yuru two CL_v^{foot}
 Intended meaning: 'Dalin was kicking Yuru two times.'
- b. *Dalin jiao-zhe Yuru liang sheng
 Dalin shout-dur Yuru two CL_v^{sound}
 Intended meaning: 'Daline was calling Yuru two times.'
- c. *Dalin duizhe xiao niaoda-zhe si qiang
 Dalin to small birdbeat-dur four CL_v^{gun}
 Intended meaning: 'Dalin was shooting the small bird four times.'

In the proposed account, an Asp head instantiated by CL_v projects between vP and VP. The position of the Asp head suggests that CL_v, together with a numeral, quantizes the event denoted by the VP. Consequently, CL_v scopes over VP, but it cannot scope over an event larger than the VP. This prediction is borne out by the data in (18). In (18), the verbal classifier *quan* appears, and it quantizes the event of punching me via the numeral *liang* 'two'. As indicated in the meaning, the scope of the numeral and verbal classifier is the event denoted by the VP, as also pointed out by Zhang (2013). The event of punching me took place twice, which denotes that the event happened in a continuous manner, resulting in the meaning in the parenthesis in (18a): I got two punches at one time. It cannot scope over a phrase larger than VP such as vP (or perhaps TP), quantifying the whole clause, as the semantically anomalous interpretation in (18b) indicates. The event of 'his punching me' quantified by the classifier *quan* in (18a) cannot be interpreted as having happened twice discontinuously, yesterday and today, as shown in (18b). That is, the verbal classifier cannot quantify an event denoted by a phrase larger than the VP, which this paper will not question further.

⁷ Examples whose sources are not cited are from the consultation of 7 native speakers of Mandarin.

- (18) a. Ta da-le wo liang quan.
 3SG beat-PRF 1SG two CLv^{1st}
 ‘He punched me two times.’ (= ‘He gave me two punches.’)
- b. #Zuotian da-le yi quan, jintian da-le yi quan.
 yesterday beat-PRF one CLv^{1st} today beat-PRF one CLv^{1st}
 #‘He punched me yesterday and today.’ (Adapted from Zhang 2017)

The verbal classifier *xia* shows the same pattern, as illustrated in (19).

- (19) a. Ta qiao le san xia men.
 s/he knock PERF three CLv door
 ‘On one occasion, s/he made three knocks on the door.’
- b. #Zuotian qiao le yi xia men,
 Yesterday knock PERF one CL door
 jintian qiao le liang xia men
 today knock PERF two CLv door
 ‘She made one knock on the door yesterday and two knocks today.’

In (19a), the event quantified by the numeral and verbal classifier, *san xia*, indicates that the event of knocking on the door happened three times on one occasion. However, this event cannot have taken place discontinuously, once yesterday and twice today, as indicated in (19b). The facts discussed in (18)-(19) provide support for the proposed account (11b) that CLv merges between vP and VP.

In what follows, I discuss the consequences of the proposed account, namely a parallelism between the nominal and verbal domains.

5. Consequences: the parallelism between the nominal and verbal domains

Under the proposed account in this paper, in the verbal domain of Mandarin, a verbal classifier has a function of classifying (events). Specifically, CLv restricts the event type of the VP that it classifies. This function appears to

be similar to the function of nominal classifiers (CL_n) in the nominal domain in the language. As will be discussed later in this section, CL_n has the function of classifying (nouns). In particular, CL_n restricts the (countable) units of the NP that it classifies (to be detailed below).

The similarity between CL_v and CL_n in their formal functions emerging from the analysis proposed in this paper supports the dominant view in the literature in which there is a parallelism between the nominal and verbal domains. For example, in Chomsky (1970), it is observed that clauses and arguments can project parallel syntactic structures. Since then, in numerous studies, a parallelism between the nominal and verbal domains has been proposed for certain categories between the domains, such as D and I, Num and Asp, and so on (e.g., Abney 1987; Grimshaw 1990; Szabolcsi 1983; Travis 1991; Megerdoomian 2008; Wiltschko 2012 among many others) (see (25) in this section).

Relevant to the current discussion is the proposed correspondence between Num in nominal domain and Asp in verbal domain in an English-type language (e.g., Travis 1992, 2001; Wiltschko 2012). In this type of approach to the parallelism between the nominal and verbal domains, the correspondence between a Num head and an Asp head in each domain is represented by the same feature. For example, the feature [\pm bounded] has been proposed to be shared by a Num and Asp head, as illustrated in (20).



An NP is viewed to be quantified when NumP as in (20a) is projected, and the quantified NP can affect aspectual properties of the VP. For instance, as is well known in the literature (e.g., Verkyul 1972; Dowty 1974; Tenny 1987, 1994; MacDonald 2008), a VP can be interpreted as being bounded when the quantity of the object in the VP domain is known, as the contrast shown between (21a) and (21b) suggests. In (21a), the event of eating three apples is completed when the object's 'three apples' are all consumed, as discussed in section 4.1. In

contrast, it is unknown when the event of eating apples in (21b) is completed, as the quantity of the object ‘apples’ is not known. The type of event as in (21a) is referred to as bounded, while the type of event as in (21b) is referred to as unbounded (Jackendoff 1983, 1990). The mass-count distinction in nominals is also referred to as unbounded-bounded (Jackendoff 1991).⁸ Assuming this view on nominals, a nominal which can be counted such as ‘three apples’ in (21a) is considered bounded, but an uncountable nominal such as ‘apples’ in (21b) is considered unbounded.

- (21) a. I ate three apples.
 b. I ate apples.

Thus, a bounded event as in (21a) has a bounded object, but an unbounded event like in (21b) has an unbounded object. This correspondence is viewed as a parallelism between Num in the nominal domain and Asp in the verbal domain, which is represented by having the two heads bear the same formal feature, [\pm bounded], as presented in (20).

Assuming that the parallelism between the nominal and verbal domains proposed in the literature is right on the track, it is predicted that there may be a similar type of parallelism between Num and Asp in the two domains of a Mandarin-type language to that just discussed for an English-type language. Note that the parallelism proposed in the literature should not be understood as having the same linguistic exponent in each domain, but be understood at the abstract level in terms of the shared feature (or function, see the discussion later in this section) by the relevant head in each domain (e.g., see (20)), which is also proposed for Mandarin below (see (24)). For example, although it is true that Mandarin has a noun classifier, the parallelism discussed in the literature does not mean to suggest that Mandarin should have a corresponding verbal classifier.

The consequences of this paper suggest that the specific feature shared by

8 The bounded and unbounded distinction has also been referred to as telic vs. atelic (e.g., Verkuyl 1972), culminated vs. non-culminated (Moens and Steedman 1988), or delimited or non-delimited (Tenny 1994). For the purpose of the paper, I abstract away from the differences among the terminologies.

Num in the nominal domain and Asp in the verbal domain in a Mandarin-type language cannot be the same feature as in an English-type language. The current paper proposes that in the verbal domain of Mandarin an Asp head realized by CL_v has the feature [class] which imposes a selectional restriction on the event denoted by the complement VP. Apparently, the feature [class] is not the same feature as [bounded] on Asp in an English type language (20): it does not have the function of organizing an event as bounded or unbounded, but instead it restricts the type of the event complement denoted by the VP to a certain type, e.g., semelfactive. Thus, the corresponding head in the nominal domain of Mandarin is predicted to have a similar feature to [class] on Asp. This prediction is borne out, as discussed below.

In the nominal domain in Mandarin, unlike in English which lacks classifiers, a CL head is proposed to be projected (Tang 1990; Cheng and Sybesma 1999), as illustrated in (22a). In Mandarin, unlike English, both count and mass nouns require a classifier in order to be counted, as shown in (22b) and (22c) respectively. Following the literature on the structure of nominals in Mandarin, I assume that CLP, not NumP, is the locus of number.⁹ Under this view, a numeral appears in the specifier of CLP, whose head CL_n has an NP complement. For instance, in (22b), the noun *shu* 'book' can be quantified by the numeral *san* 'three' only in the presence of the classifier such as *ben*. That is, without the classifier, the noun cannot be quantified by the numeral. In terms of the structure in (22a), this fact can be captured as follows: without projecting a CL_n head, a nominal cannot be quantified by a numeral.

(22) a. [_{CLP} Nml *san* [_{CL'} CL_n *ben* [_{NP} *shu*]]]

- b. *san* *(ben) *shu*
 three CL_n book
 'three books'
- c. *san* *(ping) *jiu*
 three CL_n liquor
 'three bottles of liquor'

9 In some studies (e.g., Li 1999), a Num head, in addition to CLP, is proposed for Mandarin, and the plural morpheme *-men* is realized under Num. For the purpose of this paper, I abstract away from the type of Num head instantiated by plural *-men* in Mandarin.

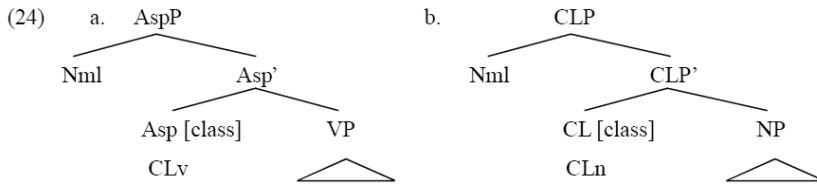
I propose that the role of a CLn head instantiated by a nominal classifier is that of imposing a selectional restriction on the nouns with which it can appear, by specifying the unit of the noun. Compare the example in (22b) to the example in (23) below. In (22b), the noun *shu* ‘book’ can appear with a classifier *ben*, and the noun *bi* ‘pen’ in (23a) appears with a classifier *zhi*. However, as shown in (23b), the noun *shu* ‘book’ cannot appear with a classifier *zhi* that appears with the noun ‘pen’. That is, a classifier in the nominal domain shows selectional restrictions on the nominal in its complement, which is exactly the same function as verbal classifiers in the verbal domain. Building on the selectional restrictions shown by nominal classifiers in Mandarin, I propose that a nominal classifier bears the feature [class(ification)], as also proposed in Cowper and Hall (2012) and Kim (2017). I further propose that a nominal classifier specifies the countable units of the complement nominal that it classifies. For example, a CLn head realized by a classifier *ben* has a [class] feature such as volume that may be represented as [class: volume], as suggested in Kim (2017).¹⁰ Under this view, the noun ‘book’ classified by the classifier *ben* is individualized by the unit ‘volume’. Once a noun is individualized by a proper classifier (CLn), it can be counted via a numeral which appears in the specifier of CLP (22a).¹¹

- (23) a. *san zhi bi*
 three CL pen
 ‘three pens’
 b. **san zhi shu*
 three CL book
 ‘three books’

10 Cheng and Sybesma (1998) propose that classifiers in Mandarin are classified into two different types – i.e., massifier and count classifier – and further propose that they have different structures and semantics, which is not a concern of this paper. In any case, the proposal made in this paper does not hinge on the differences between the classifiers proposed in Cheng and Sybesma (1998).

11 In this sense, the CL head in (22a) is similar to the Div(ision) head proposed in Borer (2005) in that it provides a unit to the complement noun, which is pointed out by Kim (2017). In fact, Borer (2005) proposes that her Div head can be realized by a classifier in a language like Mandarin. For more details, see Borer (2005) or Kim (2017).

In the proposed structure for verbal classifiers repeated as (24a) below, a CLv head is realized as an Asp head. Importantly, similar to a CLn head in the nominal domain repeated as (24b), it classifies an event in its complement, and the classified event VP can be counted by a numeral in the specifier of AspP (24a), just like the NP in (24b), which is counted by a numeral in the specifier of CLP. Thus, in Mandarin, we have a parallelism between verbal and nominal domains as illustrated in (24) similar to that proposed for English-type languages (20): in Mandarin, an Asp head in the verbal domain corresponds to a CL head in the nominal domain and the correspondence is represented in terms of the same feature, namely [class].¹² Note that further specification of the [class] feature, such as *semelfactive* in the verbal domain or *volume* in the nominal domain, does not undermine the proposed parallelism between (24a) and (24b). Those sub-features are indeed expected from the inherent nature of the complement of each head, namely being verbal vs. nominal.



The proposed parallel for a Mandarin-type language as in (24) is thus similar to the parallel proposed for an English-type language in (20). The relevant heads in each domain in both types of language share the same feature, which seems to be subject to cross-linguistic variation, [bounded] vs. [class], as suggested by this paper.¹³

12 A recent study (Cho 2008) provides several pieces of evidence from Korean that nominal and clausal structures do not behave in a parallel way. The main focus of Cho (2008) is on the discourse domain above IP/DP in Korean, differently from this paper that is concerned with AspP/NumP in Mandarin. At the moment, it is not clear whether or how the conclusion in Cho (2008) can be applicable to the current study on Mandarin, which is beyond the scope of this paper.

13 An immediate prediction made by the current proposal may be that there will be a parallelism between the nominal and verbal domains across languages in terms of a similar function or feature shared by the two domains. However, it remains as a question what function or feature

The fact that in Mandarin, a noun phrase quantified via a numeral classifier does not affect event boundedness further supports the proposed account illustrated in (24). Consider the Mandarin data in (25). In (25a), the object *xin* ‘letter’ is quantified as the presence of a numeral and classifier *yi feng* indicates. The event of writing a letter in (25a) can be cancelled as illustrated in (25b): the clause in (25b) denies the completion of the event in (25a) and it is grammatical to follow the event expressed in (25a). The grammaticality suggests that an event with a quantified object via a numeral classifier such as in (25a) does not entail event completion, which is well known fact in Mandarin (e.g., Smith 1997; Woo 2013).

- (25) a. Lisi xie-le yi feng xin
 Lisi write-le one CL letter
 ‘I wrote one letter,
 b. … keshi zhi xie-le yi ban.
 … but only write-le one half
 ‘but only half of it.’ (Woo 2013)

In order for an event to be bounded in Mandarin, for example, a separate morpheme on the verb such as *wan* ‘finish’ has to appear, as shown by the first conjunct clause in (26): the event of writing a letter is understood to have been completed, as the gloss indicates. Moreover, the event expressed by the first conjunct clause cannot be cancelled, unlike the same event in (25a) expressed without the morpheme *wan*, as the ungrammaticality of the second conjunct clause that cancels the completion of the event indicates. The contrast between (25) and (26) suggests that only in the presence of the morpheme such as *wan* that indicates event completion, an event in Mandarin can be associated with a bounded interpretation. Put differently, in Mandarin, the quantity of an object noun indicated by a numeral classifier does not appear to affect event boundedness. Thus, the data discussed here constitutes strong evidence that CLn in Mandarin is not associated with [boundedness] feature and supports the proposed account in this paper in which Asp in the verbal domain and CLn in

is involved in the parallelism between the two domains in given languages, which is subject to differences or similarities among languages (e.g., Mandarin vs Korean/Japanese, see footnote 14).

the nominal domain in Mandarin are not organized in terms of boundedness (see (24)).¹⁴

- (26) Lisi xie-wan-le yi feng xin, *keshi zhi xie-le yi ban.
 Lisi write-finish-le one CL letter but only write-le one half
 'Lisi finished writing a letter, *but only wrote half of it.' (Woo 2013)

In a broader sense, the features [bounded] and [class] can be understood as features diverging from the same function of the corresponding heads, Asp-Num/CL. Let us consider the broader functions of functional heads that show parallelisms between nominal and verbal domains discussed in recent studies. As schematically illustrated in (27), it has been proposed that there are several pairs of correspondences between the nominal and verbal domains (not

14 In this respect, other classifier languages such as Japanese or Korean behave differently from Mandarin. As pointed out by an anonymous reviewer, it is well known that Japanese patterns similarly to English in the aspectual domain in that a nominal classifier in Japanese is associated with boundedness (i.e., telicity) of the event denoted by a verb phrase (e.g., Gunji and Hasida 1998; Miyagawa 2013), as illustrated in (i).

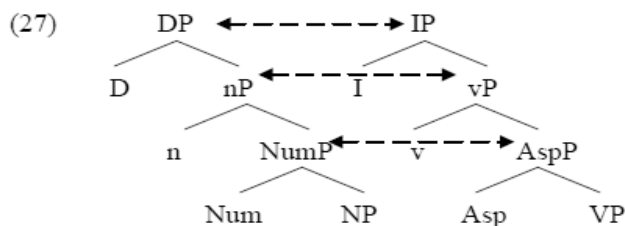
- (i) a. *Tomodati-ga zyup-pun futa-ri odotta.
 friend-NOM ten minutes two-CL danced
 'Two friends danced for 10 minutes.' (cf. Tomodati-ga futa-ri zyup-pun odotta.)
 b. Tomodati-ga zyup-pun-no-uti-ni futa-ri odotta.
 friend-NOM ten minutes-in two-CL danced
 'Two friends danced in 10 minutes.'

Korean is mentioned to be similar to Japanese by the reviewer, as the following data may suggest (the data in (ii) is provided by the reviewer):

- (ii) a. ??Cheli-ka sakwa-lul han sikan-maney mek-ess-ta
 Cheli-NOM apple-ACC onehour-within eat-PAST-DEC
 'Cheli ate apples in an hour.'
 b. Cheli-ka sakwa twu-key-lul han sikan-maney mek-ess-ta
 Cheli-NOM apple two-CL-ACC one hour-within eat-PAST-DEC
 'Cheli ate two apples in an hour.'

However, as shown in the text (see (25) and (26)), an NP quantified by a numeral classifier in Mandarin is not associated with event boundedness, unlike in Korean or Japanese. As the contrast among the classifier languages suggests, it appears that not all classifier languages indicate event boundedness by quantifying a noun via a numeral classifier. Consequently, a parallelism between the nominal and verbal domains will not be identically characterized across classifier languages, which I leave for future research.

all corresponding phrases are shown).



As illustrated in (27), for example, DP in the nominal domain corresponds to IP, and nP corresponds to vP. Abstracting away from details, the correspondence as in (27) means that the core function of corresponding phrases in each domain is similar (e.g., Wiltschko 2014). For example, DP and IP share the core function of anchoring. In the verbal domain, IP has the role of connecting the event situation (denoted by vP) to the utterance situation (e.g., denoted by the higher phrase, CP). The nominal counterpart of IP is DP in that D also has a function of anchoring, by associating an individual (denoted by nP) to the utterance (denoted by a higher phrase such as KP, not indicated in (27)).

Likewise, it is suggested that NumP in the nominal domain corresponds to AspP in the verbal domain, and both phrases share a core function, namely classification. In other words, each head has the function of classifying nouns and verbs, respectively. In an English-type language, nouns and verbs are formally classified in terms of (un)boundedness. A nominal is classified as mass (unbounded) vs. count (bounded) (see the discussion in section 4.1). In the same type of language, verbs are formally classified in terms of event boundedness (e.g., the Vendler types, see (7)), e.g., activity (unbounded) vs. accomplishment (bounded). The Mandarin case discussed in this paper can be understood in terms of the same core function, classification, similar to the English case. However, this paper suggests that Mandarin is different from English in that it shows a difference in the specific manner of classification from that of English-type languages. The difference is that, in Mandarin, nouns are not formally classified in terms of boundedness such as mass vs. count, as has been well supported by the literature (e.g., Chierchia 1998; Borer 2005). The fact that

both mass and count nouns can be quantified via a classifier phrase (see (22b) and (22c)) further supports the view that a formal distinction between mass and count is lacking in Mandarin. Rather, nouns are classified in terms of the unit specified by a classifier, which is represented by the feature [class] on a CLn head, as proposed in this paper along with other literature on the nominal structure of Mandarin. This paper suggests that we also find a similar type of classification in the verbal domain in the language. The events denoted by the VP in Mandarin as examined in this paper are also not organized by event boundedness.¹⁵ For example, a *xia*-type verbal classifier cannot appear with the event types in Vendler's classification, but it can only appear with the semelfactive class. That is, Asp realized by a *xia*-type verbal classifier distinguishes events into two categories: semelfactive vs. other events that belong to Vendler's types. Importantly, this division of the events into semelfactive vs. Vendler's types is not based on boundedness, which seems to suggest that a formal distinction between bounded and unbounded events is lacking in the language, similar to the nominal domain. For now, I conclude that events in Mandarin may be classified in terms of punctual vs. non-punctual, which corresponds to semelfactive vs. Vendler's classes.¹⁶

6. Conclusion

This paper examined the distribution of a particular type of verbal classifier, the *xia* type, in Mandarin, and proposed that this type of verbal classifier (CLv) realizes an Asp head in the verbal domain. Building on the fact that *xia*-type verbal classifiers impose a selectional restriction on the event denoted by the VP, this paper provided a formal analysis that a CLv has the feature [class: semel]. An interesting consequence of this proposal is that CLv in the verbal domain patterns with CLn in the nominal domain in that CLv bears the same feature

15 This does not mean that Mandarin cannot express event boundedness. As shown in (26), event boundedness can be expressed by a separate morpheme on the verb (e.g., *wan* 'finish').

16 This is a tentative conclusion, and more work needs to be done, which cannot be conducted within the scope of this paper. For instance, it remains to be seen whether other types of verbal classifiers such as *hui* (see section 2) select 'other events' excluding the semelfactive class, and if so how the characterization of such facts should proceed, which is well beyond the scope of this paper.

[class] as CL_n, and as such CL_v can be viewed as a verbal counterpart of CL_n in the nominal domain. In Mandarin, thus, the parallelism between Asp in the verbal domain and Num/CL in the nominal domains can be established in a similar way as proposed for an English-type language.

The parallelism in a Mandarin-type language shown in this paper supports the current views on the parallelism between nominal and verbal domains. This paper suggested that the core function of the pair CL-Asp shown by a Mandarin-type language is that of classification, similar to the pair Num-Asp in an English-type language; however, it is shown that the manner of classification shows micro-variation cross-linguistically (e.g., bounded vs. class), which is consistent with the organization of nouns and events in each type of language.

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Received: 2019. 01. 17.

Revised: 2019. 05. 30.

Accepted: 2019. 06. 07.