

Structures under nominalization

A parametric variation in Mandarin and English

Chen Wang

Nanjing University of Science and Technology

This paper means to make a comparative study of the nominals denoting an event in Mandarin and English. I propose that although English has three types of eventive nominals – simple event nominal, Referential (R-) nominal, and Argument Structure (AS-) nominal – Mandarin has only simple event nominals. The category shifting, which is required in the derivation of R-nominals and AS-nominals in English, is an operation unavailable in Mandarin, a result caused by the lack of categorial (c-) functors by assumption. I propose that a Mandarin eventive nominal enters syntax as a category-less root and immediately gets an N category by merging as the complement to a semantic (s-) functor from the extended projection of N. It thus projects no argument structure and undergoes no V-N shift, resulting in its incapability of taking post-nominal arguments. The DPs interpreted as arguments are merged external to the nominal and are thus flexible in terms of their thematic roles. The analysis shows that there is a parametric variation based on the inventory of c-functors between Mandarin and English.

Keywords: syntax, eventive nominal, Mandarin, exo-skeletal model, argument structure

1. Introduction

1.1 The Mandarin eventive nominals

Due to the lack of overt category markers, quite a number of words in Mandarin can swing freely between a noun and a verb in terms of their use, as in (1a–b).¹

1. The judgements of the Mandarin examples used in this paper, except those whose source have been indicated, are based on the native speaker intuition of the author and of four other consultants, who are mostly from mainland China with their ages ranging from 30 to 50. It should be noted that dialectal variations may lead to different judgements to some of the examples.

This flexibility in category is also found with words in many other languages, including English, as shown in (2a–b).

- (1) a. *Zhangsan hui* [_V *lingdao*] *san-zhi duiwu*.
 Zhangsan will lead three-CLF team
 ‘Zhangsan will lead three teams.’
 b. *Zhangsan shi duiwu de* [_N *lingdao*].
 Zhangsan COP team DE leader
 ‘Zhangsan is the leader of the team.’
- (2) a. John will [_V guide] the team to the church.
 b. John is a [_N guide] to the team.

The behaviors of Mandarin and English diverge, however, when we use these words in a supposedly nominal status to extend an event with semantically associated arguments. Such words in Mandarin can perform this task without any morphological change. In this case, both the argument assuming an agent role and the one with a patient role (which is often introduced by the preposition *dui*), occur before the modification marker *de*, as in (3). Also note that this preposition *dui* is not used exclusively for eventive situations, as in (4).

- (3) *Tamen zhichi Zhangsan dui duiwu de lingdao*.
 They support Zhangsan to team DE lead
 ‘They support Zhangsan’s leading of the team.’
- (4) *Dui Zhangsan de ruma hen nanting*.
 To Zhangsan DE insult very unpleasant-sounding
 ‘The insult to Zhangsan sounds very unpleasant.’

In (4), Zhangsan is obviously the one being affected by the insultation, thus a theme argument in the semantic sense. There is, for sure, an event of insulting Zhangsan, too. However, the word *ruma* (‘insult’) is not even an eventive nominal—it is an expression referring to the specific words used for the insultation, since it is modified by *nanting* (‘unpleasant-sounding’). This shows that even though there are arguments on the semantic level, there may not be an event on the syntactic side.

But in English, as is observed in Grimshaw (1990), Borer (2013; 2014a; 2014b), *et al.*, nominalizing affixes such as *-tion* and *-ing* are always required, with

or without the help of the preposition *of*, and the patient argument stays behind the nominal as it does in the verbal case, as in shown in (5a–c).²

- (5) a. *John's form of the team
- b. John's formation of the team
- c. John's forming of the team

In the study of Mandarin, this use of a noun to express an event is generally called “nominalization” (*mingwuhua* 名物化), a term implicitly based on the assumption that the word shifts into N from another category, presumably V, although there have been great disputes over core issues such as whether it is a noun or whether there is such a shift in category even if it is (See Zhu 1984; Hu & Fan 1994; Si 2002, 2004; Shen 2009; Zhou 2012; Lu & Pan 2013; Ye 2020, among many others). In English, such words used in (5b–c) are more frequently referred to as derived nominals, event nominals, or AS-nominals: nominals encoding an argument structure. (See Williams 1981; Abney 1987; Grimshaw 1990; Bowers 2010, 2011; Borer 2013, 2014a, 2014b, *et al.*). To avoid invoking presumptions of specific analysis caused by the term, I refer to these words as eventive nominals in this paper: nominals semantically interpreted as events.

Considering the lack of direct evidence for the original lexical category of Mandarin eventive nominals, in this paper I shall concentrate on the syntactic side of the problem and investigate the syntactic derivation process of the eventive nominals in Mandarin based on differences between Mandarin and English. The paper will particularly focus on the general question of why Mandarin cannot have nominal structures like (5b–c) as in English. This question can break down into three more specific ones, as shown in (6a–c):

- (6) a. Why can't eventive nominals in Mandarin take post-nominal arguments?
- b. Why don't Mandarin nominals have morphological change in encoding events?
- c. Is there a category shift, especially a V-N shift, in Mandarin eventive nominals?

2. Note that the configuration in (3) is different from the English compounds (e.g. John's mountain-climbing/boat-sailing), where the “object” also seems to precede the verb denoting an event. In English compounds the “object” is not a DP argument: *John's [a/that mountain]-climbing, *John's [a/that boat]-sailing, while in Mandarin, the object in front of the verb is a full DP:

- (i) *Zhangsan dui na-zhi duiwu de lingdao*
 Zhangsan to that-CLF team DE lead
 ‘Zhangsan's leading of that team.’

These questions to some extent overlap with each other, as they all directly relate to the syntactic structure of eventive nominals in Mandarin.

1.2 The central claim

Answers to the questions in (6a–c) constitute the major claim of this paper: Eventive nominals in Mandarin originate as category-less roots and directly acquire a nominal status by merging into the complement space of a functional morpheme which requires its complement to be N, such as the modification marker *de*. Note that category-less roots are also prevalent in English, so the derivation routes for eventive nominals in Mandarin and English in fact have the same departure point. The disparity results from the variation of a parameter: the availability of categorial functors in morphology, which determines whether category-shifting is a possible option in derivation.

To be specific, I argue that there is no category shift from verb to noun in Mandarin eventive nominals. This means they follow a derivation process fundamentally different from that of their English counterparts as proposed in Hale & Keyser (1993), Marantz (2013), Borer (2013; 2014a; 2014b), *et al.*, which, although varying in details, invariably assume that English eventive nominals are derived from a syntactically encoded argument structure. The process of “nominalization” still happens in the proposed analysis of Mandarin, but what acquires the nominal status is not a verb, but a root. Since there is no verbal stage before the root becomes a noun, the “arguments” are introduced in a way different from those in the case of a verb. The interpretation as an event and the thematic roles only exists on the semantic level as a result of encyclopaedic knowledge. In other words, (5c) is the essential question out of the three, and the answer is NO, while the situation described in (5b) is its precondition and that in (5a) is its consequence. I propose that this strategy to use eventive nominals is expected of a language short of both overt category markers and covert categorizers.

Arguments in support of this view include insufficiency of the object position to be the semantic target of resultatives, the flexibility of roles for the subject, and the capability of certain idiom phrases to be used as event nominals. These phenomena will be first addressed in §2, and then get their explanations in §4.

In the next section, I shall first discuss the questions in (6a–c) in detail and illustrate them with more examples to show how the Mandarin cases are different from those in English. In §3, I shall briefly introduce the exo-skeletal model established in Borer (2013; 2014a; 2014b), especially the categorization through categorial (c-) functors and semantic (s-) functors, since it is the analytical framework I use to solve the problems in this paper. §4 will proceed to the details of how the Mandarin eventive nominals acquire their status from a category-less root, and

why the process yields a series of results which make them deviate from English eventive nominals in terms of syntactic behaviors. § 5 concludes the paper.

2. The problems

In this section I shall discuss in detail the three major problems in this paper: (a) Mandarin eventive nominals are not followed by any arguments; (b) the subject before modification marker *de* can assume various thematic roles in most cases; and (c) certain compositional readings are blocked in eventive nominals. The first problem is often visited in literature, as I shall subsequently mention, while the other two are less so. I shall focus on the special meaning of these problems on the level of syntax, with frequent reference to English as a comparison.

2.1 The object position problem

As is shown in (3), the most striking difference in the configurations of eventive nominals in Mandarin and in English is in the word order, particularly the position of the argument which is supposed to be the object of the verb in the supposedly corresponding verbal structure. In English, an eventive nominal is sandwiched between its two arguments (if there are two), so the two arguments are generally referred to as the pre-nominal and the post-nominal argument. The pre-nominal argument is marked by the Saxon genitive 's, and the post-nominal one follows the preposition *of*, as in (5b–c). In Mandarin, however, both arguments occur before the nominal, and even the modification marker *de*, as in (7a). The second argument is not allowed to occur after the eventive nominal whether with the preposition *dui* or not, as shown in (7b), although it looks parallel to the verb phrase in (7c).³

3. The observation that Mandarin eventive nominals do not take post-nominal arguments has been reported and discussed in a series of works, such as He & Wang (2007), Jin (2019), etc. But there are also works which present opposite judgements for such examples, e.g. Si (2002; 2004), Lu & Pan (2013), *et al.* Since my consultants show a consensus on the ungrammaticality of such examples as (7b) (despite a varied degree of acceptability in different contexts and styles of speech), I shall base my analysis on this judgement throughout this paper. It should be noted, however, that there may be a significant dialectal variation concerning this use. Meanwhile, Zhang (1999) claims that the phrase after *de* can be of categories other than nominals, which is based on a different judgement of its compatibility with the negative marker *bu* (不) and certain adverbs and modals.

- (7) a. *Zhangsan dui duiwu de zujian*
 Zhangsan to team DE form
 ‘Zhangsan’s formation/forming of the team’
- b. **Zhangsan de zujian (dui) duiwu*
 Zhangsan DE form to team
 Intended reading: The same as (7a).
- c. *Zhangsan zujian duiwu.*
 Zhangsan form team
 ‘Zhangsan forms a team.’

For convenience sake, I shall refer to them respectively as subject position and object position, both in Mandarin and English. Then the first problem emerges as to why the argument in object position must occur before the eventive nominal in Mandarin, especially considering that English, as another language with default SVO word order, allows a post-nominal object argument. This is a significant threat to the approaches which try to make a completely parallel analysis between English and Mandarin by embedding a full VP under the nominalizing node, as in Lu & Pan (2013), Ye (2020), *et al.* (although some of them are based on a different judgement, for example as in (7b). See Footnote 1). These proposals are generally based on an analysis of English, in which the stem of the eventive nominal originates as a verb taking an object DP. The verb head then raises to combine with the suffixes *-ation/-ing* (or other such morphemes) and changes into an N head. It should be noted that the preposition *of* in this case is not the head of PP, but just another realization of accusative case on the object, as is discussed in Adger (2003), Borer (2013), *et al.* The structure further projects into a DP with the subject as its specifier and the genitive case marker *’s* realizing the agreement between the subject and D head, as is shown in the simplified structure (8a). This derivation, however, cannot be straightforwardly repeated in Mandarin, even if we assume the existence of an invisible nominalizer *-(N)*, because it yields ungrammatical results, as shown in (8b).

- (8) a. English: [_{DP} John’s [_{NP} form *-ation/-ing* [_{VP} ~~form~~ [_{DP} (of) the team]]]]
- b. Mandarin: *[[_{DP} *Zhangsan de* [_{NP} *zujian*-(N) [_{VP} ~~*zujian*~~ [_{DP} (*dui*)
 Zhangsan DE form form to
duiwu]]]]
 team
 Intended: ‘Zhangsan’s formation/forming of the team.’

Fu (1994), which is probably the first systematic work on Mandarin eventive nominals from a syntactic perspective, attributes this word order problem to the fundamental difference between nouns and verbs in terms of their abilities in case assignment: objects occur post-verbally because they need to get case while nouns

do not have complements to the right since they do not assign case. But this is a claim based on the assumption that Mandarin is a head final language with case assigned from left to right, which I shall not follow in this paper.

A possible way to fix this problem is allowing the object to merge after the verb is nominalized, in which case the argument must get its interpretation as a participant of the event via a way different from that in the VP. But this solution at the same time also severely weakens the very motivation of a V-N shift analysis, because if the event interpretation and thematic roles are obtainable even without a VP, then there would be little reason left to start the derivation with a VP structure. I shall continue with the issues of interpretation in § 2.2.

2.2 The subject interpretation problem

So far the discussion is based on the most typical case of Mandarin eventive nominals, that is, the transitive structure with two arguments before the nominal, with the subject marked by *de* and the object by the preposition *dui*. But Mandarin eventive nominals can occur in a variety of argument structures other than the standard transitive one, as in (9a–d). In such cases the object is missing and the subject has an open interpretation in terms of its thematic role as a participant of the event.⁴

(9) Argument interpretation in Mandarin eventive nominals

- | | | |
|----|-----------------------------------|--------------------------------|
| a. | <i>Zhangsan de benpao/tiaoyue</i> | (unergative) |
| | Zhangsan DE run jump | |
| | ‘Zhangsan’s running/jumping’ | |
| b. | <i>lunchuan dechenmo/daoda</i> | (unaccusative) |
| | ship DE sinkarrive | |
| | ‘the ship’s sinking/arrival’ | |
| c. | <i>Zhangsan de goumai</i> | (transitive with only agent) |
| | Zhangsan DE buy | |
| | ‘Zhangsan’s buying’ | |
| d. | <i>shuji de chuban</i> | (transitive with only patient) |
| | book DE publish | |
| | ‘the book’s publication’ | |

The English translations for (9a–b) and their resemblance to their Mandarin counterparts show that such a degree of flexibility in subject interpretation is also

4. It is true that for a particular nominal the role of the subject may not be completely free, due to the influence of world knowledge and other pragmatic issues. But the fact that the subject position in eventive nominals in general *can* be filled by various roles is the question of concern here.

available in English, which seems to support a unified analysis of the derivation process in the two languages: the subject originally merges as an argument in a VP and raises to [Spec, DP] for case reasons, and its thematic role is decided by its original merging position, as in (10a–b) for English and (11a–b) for Mandarin (with irrelevant details omitted, see Adger 2003; Borer 2013; Ye 2020, *et al.* for more).

- (10) a. [_{DP} John's [_{NP} buy/run -ing [_{VP} [_{DP} John] buy/run]]]
 b. [_{DP} the book's/ship's [_{NP} publish/arrive-ation/-al [_{VP} publish/arrive [_{DP} the book/ship]]]]]
- (11) a. [_{DP} Zhangsan de [_{NP} benpao/goumai-(N) [_{VP} [_{DP} Zhangsan]
 Zhangsan DE run/buy Zhangsan
 benpao/goumai]]]]]
 run/buy
 'Zhangsan's running/buying'
 b. [_{DP} lanchuan/shuji de [_{NP} daoda/chuban-(N) [_{VP} daoda/chuban
 ship/book DE arrive/publish arrive/publish
 lanchuan/shuji]]]]]
 ship/book
 'the ship's arrival/the book's publication'

This analysis expects the raising of the argument to follow the locality condition: the object argument raises to yield structures like (9b) and (9d) only when there is no agent argument, since an agent argument is supposed to be closer to [Spec, DP].

One problem arises, however, when we turn to examples whose subject assumes a thematic role other than agent and patient, as in (12). Words interpreted as time, location, and instrument are generally not considered arguments selected by a verb in the syntactic sense, but they can nonetheless serve as the subject of eventive nominals.

- (12) a. bayue (dui fangjian) de yuding (time)
 August to room DE book
 'the booking (of the room) in August'
 b. qian-xian (dui shigu) de baodao (location)
 front-line to accident DE report
 'the reporting (of the accident) in the frontline'
 c. jiaoshui (dui boli) de guding (instrument)
 glue to glass DE fix
 'the fixation (of the glass) with glue'

Configurations similar to (12a–c), in fact, are not impossible in English. (see Williams 1981; Grimshaw 1990, *et al.*) But as Borer (2013) observes, they fail to exhibit certain properties that are typical of nominals with an underlying argument structure, such as the compatibility with purpose clauses and time duration phrases, as is shown in (13a–c).

- (13) a. yesterday's (unexpected) outbidding (*in order to undermine the new trader)
 b. this year's (new) craving (*for several months) (Borer 2013: 160)

This observation goes against the assumption that suffixes like *-ing* on nominals always entail a syntactically complex event structure (or complex event nominal structures, as in Grimshaw 1990). The event-related nominals in (13a–b) are termed Referential (R-) nominals in Borer (2013), which means nominals with individual reference. It is only that this reference *can* be an event, but not necessarily an event. R nominals, even with an event interpretation, acquire its nominal category without taking any arguments. That means they are not derived from structures as in (10a–b). The subject position therefore accommodates DPs which are not raised from an embedded VP, but are directly merged at [Spec, DP]. The subject then is assigned a thematic role according not to its syntactic status in a corresponding verbal projection, but to its semantic relation to the nominal under the given context, which is expected to provide more flexibility in the interpretation of the subject. This seems to happen also in such Mandarin cases as (12a–c).

A relevant issue comes from the event nominals involved in a resultative structure. It is obvious that the emergence of a resultative element such as *flat* and *black* in (14a–b) does not affect the grammaticality of the eventive nominal structure, because whatever the syntactic status of the resultative elements is, they semantically target the object as they do in the VP. This greatly supports the argument structure analysis since it is in perfect parallel with the VP cases.

- (14) a. Kim's hammering of the metal flat
 b. Mary's burning of the kitchen walls black (Borer 2013: 134)

The Mandarin cases, on the other hand, are a little complicated. The typical eventive nominal structure with arguments marked by *de* and *dui* respectively does not go well in a resultative context, as shown in (15a–b). Meanwhile, (16) shows that the object cannot be simply missing, probably because the resultative elements still need their semantic target. (See Shen & Sybems (2012) for the point that resultative compounds are all unaccusative structures in Mandarin, which by definition require a theme argument.)

- (15) a. **Zhangsan dui qiangbi de shua bai*
 Zhangsan to wall DE paint white
 Intended: ‘Zhangsan’s painting of the wall white’
 b. **Zhangsan dui zhuozi de ca gan*
 Zhangsan to table DE wipe dry
 Intended: ‘Zhangsan’s wiping of the table dry’
- (16) **Zhangsan de shua bai /ca gan*
 Zhangsan DE paint white wipe dry
 Intended: ‘??Zhangsan’s painting white/wiping dry’

In order to accommodate a resultative reading in an eventive nominal structure, we need to let the logical object occupy the subject position, as in (17a–b). The structure, as a result, looks the same as cases of change-denoting events with verbs like *zhang* (‘grow’) and *bian* (‘become’), as in (18a–b). This suggests that only the subject position can syntactically establish an effective relation with the nominal and the resultative element, while the object position with *dui* is not on par with it. It is thus unclear whether the argument structure that is easy to identify in English eventive nominals is also present in the Mandarin case.

- (17) a. *Qiangbi de shua bai*
 wall DE paint white
 ‘the painting of the wall white’
 b. *Zhuozi de ca gan*
 table DE wipe dry
 ‘the wiping of the table dry’
- (18) a. *Zhangsan de zhang gao*
 Zhangsan DE grow tall
 ‘Zhangsan’s growing tall/taller’
 b. *Shuye de bian huang*
 leaf DE become yellow
 ‘the leaves’ becoming yellow’

2.3 The compositionality problem

The last problem I would like to talk about in this section concerns the use of certain eventive nominals and their interpretations in terms of compositionality. Although §2.1 has shown that eventive nominals generally do not take post-nominal objects, there seem to be some exceptions to this restriction: words such as *chui-niu* (literally ‘blow-cow’) and *guan-shui* (literally ‘fill-water’) are legitimate for an eventive nominal use, respectively extending an idiomatic meaning of ‘boasting’ and ‘spamming’, as in (19a–b).

- (19) a. *Zhangsan de chui-niu*
 Zhangsan DE blow-cow
 ‘Zhangsan’s boasting’
 b. *Zhangsan dui luntan de guan-shui*
 Zhangsan to forum DE fill-water
 ‘Zhangsan’s spamming of the forum’

In phrases as *chui-niu* and *guan-shui* we are dealing with two types of meanings: a literal meaning which is computable by adding up the meaning for each component, and an idiomatic meaning which is only available with the phrase as a whole. Following traditions in semantics, I refer to the former as compositional meaning and the latter as non-compositional meaning.⁵

It should be noted, however, that examples as (19a–b) have non-compositional idiomatic interpretations *only*, but no literal interpretations based on the combination of the two components as a VO structure. In other words, readings as ‘blowing cow’ or ‘filling water’ are not banned because they “sound weird”, but are completely unavailable even with a required context. This brings forth a new question: what blocks the compositional literal meaning in (19a–b).

The interpretation restriction of (19a–b) goes beyond the explanation of a V-N shift analysis as discussed in §2.1 and §2.2, since it predicts exactly the opposite: only compositional readings should be available because the eventive nominal, before it is nominalized, is a verb head with a full argument structure. Words like *niu* ‘cow’ or *shui* ‘water’ should be able to merge as arguments of the verb to yield a compositional reading (however strange it is), while the raising of

5. Note that a non-compositional meaning does not have to be remote to the compositional one in the semantic sense, nor does it have to assume a culturally unique interpretation. But it must have a semantic content unique to its form and no others (cf. Borer 2013). It is sometimes impossible to draw a clear line between the non-compositional reading and the compositional one, because non-compositional readings can only make sense to certain groups of people. But it is clear that in these examples, what seems to be a noun in the V-N structure cannot be an argument, because the part which seem to be the object in the phrase does not allow any modification by numeral and classifier phrases, which suggests that it is not a full DP, hence no argument, as in the example below. Secondly, if the second syllable in the word is interpreted as the argument in the V-N structure, we shall always expect a compositional meaning first, and then possibly comes a non-compositional one. But the truth is that only the non-compositional one is possible. That means the whole word which seems to be originally a V-N phrase cannot be formed compositionally. Therefore, such examples are not exceptions to the generalization that eventive nominals do not take post-nominal arguments.

(i) *Zhangsan de bao (*yi-ge) ming*
 Zhangsan DE report one-CLF name
 ‘Zhangsan’s signing up’ (Not: ‘Zhangsan’s reporting of his name’)

the verb itself to the nominalizing head should exclude the argument from being incorporated into the event reading, an obligatory step for a non-compositional interpretation requiring both components. This means Mandarin deviates greatly from English on this particular issue, since the prediction of the V-N shift analysis is attested in English.

Borer (2014a) observes that the noun *civilization* in English has a compositional semantic content—the process of civilizing, as a result of amalgamating the content of the verb *civilize* and the nominal suffix *-ation*. It also has a non-compositional content “the culture and history associated with a group”, which is based on neither of the two parts. So does the word *constitution*, with a compositional reading from nominalizing the verb *constitute* and a non-compositional reading referring to the collection of fundamental laws. But when used as eventive nominals both words have only compositional readings, as in (20a–b).

- (20) a. the civilization of Europe by Greek and Roman influence
Can the civilizing effect that Greek and Roman influence has had on
 mean: Europe
Not: the emergence of European civilization as result of Greek and
 Roman influence
- b. the constitution of the US by founding fathers (in Philadelphia)
Can the establishment of US as a nation with the effort of the founding
 mean: fathers
Not: the legal basis of US drafted by the founding fathers
- (Borer 2014a: 73)

Borer thus generalizes that eventive nominals derived with an argument structure are always compositional (see also Marantz 2013), due to reasons to be discussed in § 3. The point here is that if Borer's generalization holds, the eventive nominals in Mandarin must include no argument structure, thus against a V-N shift analysis.

2.4 Summary

In this section, I have discussed three problems that potentially undermine a unified analysis of eventive nominals in Mandarin and English. It shows that Mandarin eventive nominals take both arguments prenominal, with only the subject position as an eligible target to resultative elements. In addition, the argument occurring as the subject has an almost unconstrained interpretation as to its thematic role, and non-compositional contents are available to the semantics of the nominals. All these behaviors differ significantly from those of English, as shown by the table in (21), which suggests that the derivations under nominalization in

Mandarin and English diverge at an important point: the Mandarin route lacks a VP-based argument structure.

(21)

	Mandarin	English
Object position	Pre-nominal (with <i>dui</i>)	Post-nominal (with <i>of</i>)
Subject role	Various	Agent/Patient
Target of resultative	Subject	Subject/Object
Content of the nominal	Non-compositional	Compositional only

3. Theoretical basis and assumptions

In the following analysis I shall make use of a few technical terms and assumptions from the exo-skeletal approach to syntax (XS-model) proposed in Borer (2013; 2014a; 2014b), so it is necessary to give a brief introduction to them first. I shall not provide a panoramic view to the whole framework, but only focus on a few conceptions relevant to the problem here, that is, the distinction between categorial functors (c-functors) and semantic functors (s-functors) and its use in the analysis of English derived nominals.

3.1 Two types of functors

The XS-model starts syntactic derivations with roots, which are assumed to be pure phonological indices with no categorial properties. Marked with a $\langle \sqrt{} \rangle$, roots do not decide the categorial label of any phrase, but acquires a syntactic status equivalent to certain categories according to the structural context they merge into. This unique labelling algorithm distinguishes the XS-model from other current systems (see Harley 2009, 2013; Embick 2010; Marantz 2013, *et al.*). The morphemes in the structure which assign category to roots are called functors, and they are divided into two types, c-functors and s-functors, based on their categorizing mechanism.

In English, c-functors refer to the affixes such as *-ize*, *-ation*, etc. A c-functor takes a certain category to be its complement and turns the result of merging into another category. For example, *-ize* as a verbal suffix always takes an adjective complement and projects into a verb (thus marked as $C_{V[A]}$), and *-ation* turns a verbal complement into a noun (hence $C_{N[V]}$). In this sense, they not only select a fixed category to be their complement, but in effect decide the category, making

their sister position a Categorical Complement Space (CCS). Therefore, even if the morpheme merging into the CCS of a c-functor is a category-less root, the root automatically acquires the category required by the c-functor, as is exemplified in (22a–b). Sometimes a root can merge with a sequence of c-functors in turn and undergo a categorization first and then a series of category-shifting, as in (22c).

- (22) a. *-ize*: [_V C_{V[A]}-ize [_{C=A} √real]]
 b. *-ation*: [_N C_{N[V]}-ation [_{C=V} √form]]
 c. realization = [_N C_{N[V]}-ation [_V C_{V[A]}-ize [_{C=A} √real]]]

On the other hand, an s-functor is a functional morpheme from the extended projections (Exp) of a lexical category, such as T, Asp, AUX, for V, and D, CLF, Num for N (cf. Grimshaw 1990; 2005). Compared with c-functors, which have completely blank content but only categorial value, s-functors, despite their major use as functional markers, have a basic semantics of their own (e.g. *-ed* means not only tense, but *past* tense). Morphemes used as the extended projections of the same category X form a set {Ex[X]}, from which any element can shape the (collective) CCS as a category X. For example, the extended projection of a verb ({Ex[V]}) can include *will*, so the use of *will* means what merges in its CCS is either a V or a category-less root (which will be rendered V-equivalent by the merging), as in (23a–b), and anything which is not a V or a root will cause a derivational crash, as in (23c).⁶

- (23) a. [_{TP} T-*will* [_{C=V} √form]]
 b. [_{TP} T-*will* [_V C_{V[A]}-ize [_A C_{A[N]}-al [_{C=N} √form]]]]
 c. *[_{TP} T-*will* [_N C_{N[V]}-ation [_{C=V} √form]]]

The collective CCS of s-functors which belong to the same extended projection set {Ex[X]} is a shared position, in which a lexical item with or without a fixed category merges. In other words, for each set {Ex[X]} there is only one position, which is defined as the CCS. For example, when the head of TP and AspectP are both present in a derivation (e.g. [_{TP} T [_{AspP} Asp [_{C=V} ROOT]]]), the T head does not assign a category V to its sister, which is AspP. Instead, since TP and AspP are both extended projections of VP, they share a CCS position, which is shaped equivalent to V. This position can accommodate either a verb, or a root, which is rendered a verb after merging.

A key difference between these two types of categorization functors is that only s functors can set boundary for the interpretation associated with a single

6. Sometimes words with a part looking like a c-functor can still vary in category (e.g. to picture, to auction, to proposition, etc.). I argue this is either because it is just a coincidence of spelling, or because they have acquired a root status in the lexicon with an independent entry. See Borer (2013), Zhang (2015) for more details.

root. To be specific, roots in the XS-model are assumed to be not only devoid of category, but also blank in content. They have to be matched with certain content units in one's encyclopaedic knowledge by encyclopaedia (en-) search, a search-engine operation that associates form with meaning. Within a certain range, a root can acquire content at any syntactic level as a result of en-search, even after it is combined with c-functors, but the boundary of the range is set by the first s-functor merging in the relevant derivation of the root. The configuration with the root as its core, whatever the specific structure and category it has, must have at least one reasonable content by the time the first s-functor is merged, and after that en-search concerning the root cannot go further. The final reading then will be a compositional interpretation based on what the en-search returns below the first (thus the lowest) s-functor plus what merges after that. In this sense, a non-compositional content is the result of one single en-search, while a compositional content is the integration of several en-search results under syntactic computation. I shall illustrate how it works with Borer's analysis of English derived nominals in §3.2.

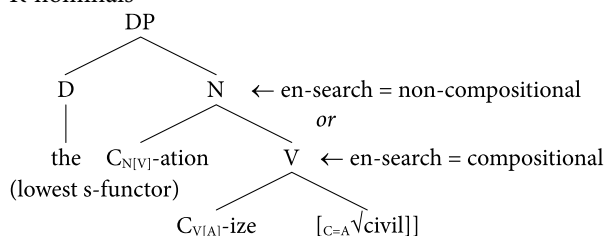
3.2 English derived nominals under XS-analysis

As is discussed in (20a–b), English derived nominals with an argument structure always have a compositional reading, and a compositional reading only. A derived nominal such as *civilization* and *constitution* can extend a non-compositional reading only when it takes no argument. Derived nominals in English can be thus subcategorized into AS-nominals and R-nominals. Borer (2014a) argues that this is an expected result if the compositionality of content is based on the domain of en-search as reviewed in §3.1.

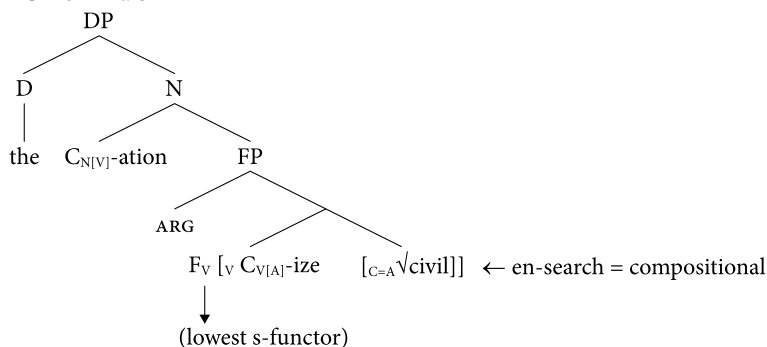
Borer proposes two structures, for AS-nominals and R-nominals respectively, as in (24a–b) (simplified structures with irrelevant details missing). Both starting with the root $\sqrt{\text{civil}}$, the two trees show different pathways for the derivation before it acquires a nominal status. In (24a), $\sqrt{\text{civil}}$ merges successively with two c-functors *-ize* and *-ation*, being first verbalized and then nominalized. The domain available for en-search extends to the node of D, where the first s-functor *the* is merged. En-search then can apply to any level under D, giving the noun a certain degree of freedom in interpretation. If the en-search applies at V, the result returned is the content for the verb *civilize*, which then combines with a semantically blank nominalizer *-ation* to yield a compositional reading of *civilization*: the process of civilizing. If the en-search occurs at N, on the other hand, it gets back a content which is exclusively associated with *civilization* as a whole: the history and culture. Therefore, (24a) leads to an R-nominal use of the word *civilization*, which is either compositional or non-compositional in interpretation.

Example (24b) differs from (24a) in that the root, after assigned a verbal category by the c-functor *-ize*, merges with a functional morpheme Fv, in order to introduce an argument at [Spec, Fv] and build an argument structure above the verbalized root (see Borer 2005; Ramchand 2008; Travis 2010; Bowers 2011, among others). The morpheme belongs to the extended projections of V, and thus counts as an s-functor, the first s-functor in the derivation. As a result, en-search is restricted to a domain below the level at which the root becomes V-equivalent. The projection of Fv then merges with the c-functor for nominalization, but that also excludes the suffix *-ation* from an accessible position to en-search. The non-compositional reading requires *civilization* as a whole, and is thus unavailable with required part missing. This leads to the observation that derived nominals with an argument structure only have compositional readings.

(24) a. R-nominals



b. AS-nominals



A vital assumption which should never be neglected here is that English does not have c-functors with completely no phonological realization, because otherwise we would expect a word already categorized by a c-functor can be used as another category without any morphological change (e.g. to use *civilize*_[V] as *civilize*_[N]). Without such an assumption, the prediction of the structures in (24a–b) will also be undermined since we can always have an invisible c-functor in the en-search domain. Most importantly, the restriction of a non-derived nominal to be used as AS-nominal (repeated here as (25a–c)) will be left unexplained.

- (25) a. *John's form of the team
 b. John's formation of the team
 c. John's forming of the team

Assumptions of c-functors, s-functors, en-search, and the disparity in (24a–b) will continue to play a prominent role in the analysis of Mandarin eventive nominals in the next section.

4. Eventive nominals in Mandarin

4.1 The structure under nominalization

There are two basic assumptions I would like to make as a departure point for the analysis of eventive nominals in Mandarin. They concern the rules of morphology and their effect on syntactic derivation from the perspective of the XS-model, as shown in (26a–b).

- (26) Basic assumptions about Mandarin morphology:
 a. Lexical items in Mandarin enter syntax as roots with no inherent categories.
 b. There are no (overt or covert) c-functors in Mandarin.⁷

These two assumptions are not too far-fetched considering the lack of category markers and the flexibility in interpretation of category for Mandarin lexical

7. It has been proposed in literature (e.g. Lü 1980) that Mandarin may have category shifters, such as *hua* (化), which is believed (by some) to be equivalent to the English suffix *-ize* in marking the verbal category. For example: *Meiguo-hua* (American-ize). If it is true, *hua* should be a verbalization c-functor (though not the nominalization c-functor we need in this paper). But words marked by *hua* do not seem to be fixed into V category, as they can occur after classifiers as nouns or be modified by degree morphemes and show adjectival status:

- (i) *si-ge* [xiandai-hua]_N
 four-CLF modern-turn
 'four modernizations'
- (ii) *hen* [Meiguo-hua]_A
 very America-turn
 'very Americanized'

This shows that words ending with *-hua* are still unfixed in category, unlike those with *-ize* in English, which are exclusively verbs. I therefore do not view *hua* as a c-functor in the sense used in this paper, but just an element (probably a bound morpheme) adding a semantic component of changing/turning to the stem. See Deng (2020) for more discussions on the distinction between *hua* and *-ize*.

words as shown at the beginning of the paper, but they mean a lot in the XS-model (see also Wang 2023). If the two assumptions are correct, we should expect a Mandarin eventive model to follow neither the derivation route for English R-nominals in (24a) nor that for AS-nominals in (24b), since they both involve c-functors. In other words, I claim that both R-nominals and AS-nominals in English are derived nominals, while Mandarin eventive nominals are non-derived.

I argue that the Mandarin eventive arguments discussed in this paper should fall into the category of simple event nominals in Grimshaw (1990), which refers to nouns incompatible with event modification or argument structure but still express an event reading. Such nouns also exist extensively in English as in (27a–b).

- (27) the walk/dance/kiss/salute/touch/view/smoke/scream/roll lasted several hours
the arrest/bite/fall/raid/talk/kill/sit-in/turn/smile took place at 5 a.m.
(Borer 2014b: 131)

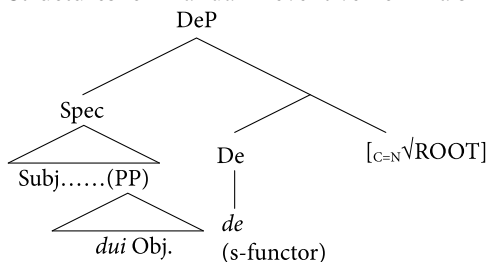
Borer (2013) notes that even if there can be arguments associated with the simple event nominals in some circumstances, such arguments as well as any event modification cannot be internal to the DP with the nominal as its head. The logic connection of the arguments to the noun is based on world knowledge instead of a syntactic relation in a VP structure. Therefore, if the context allows, any nominal expression in principle can imply an event, as shown in (28a–c). It is just that some of them are more easily construed to be an event than others.

- (28) a. My book should be done this weekend.
b. Electra ended at 7:42pm.
c. ‘The King’s Crown’ took place exactly at 5pm. (Borer 2013: 617)

I propose the same for Mandarin: the so-called eventive nominals all have a structure typical of a noun, and they just happen to have semantics of an event. On the syntax level, a category-less root enters the derivation and merges with the head of DeP, which is an s-functor among the extended projections of N. The root thus acquires a syntactic status equivalent to N. The subject position is then created at the specifier of DeP, accommodating another DeP which is linked with the nominalized root via the De head, as in (29).⁸

8. It is possible that even as simple event nominals, Mandarin eventive nominals may have structures more complicated than the one in (29), as there can be more layers between DeP and the root. But I shall only consider these layers when they are relevant. It should also be noted that the position of *de* in (29) does not mean it is a free functional morpheme. It can be a morphological realization of agreement between the De head and its specifier. But either way, it does not change the analysis proposed here.

(29) Structures for Mandarin eventive nominals



Note that there are two possibilities for the morphological status of *de* in (29): either a free morpheme marker occupying the De head, or a realization of the head on its specifier just like the Saxon genitive *'s* in English. I do not distinguish the two possibilities in this paper since the analysis proposed here is neutral between them. Out of the same reason, I shall not delve into the details about the specific structure below the node [Spec, DeP], and about how the object position, together with the proposition *dui*, is docked with the phrase taking the subject position.

The structure in (29) straightforwardly provides accounts for two observations made in §2.2, that is, the subject phrase is rather free in interpretation, and only the subject phrase can be the semantic target of a resultative element in the eventive nominal. It is observed that DPs in an argument structure are restricted in terms of their thematic roles by their structural positions, while the specifier of D can establish a variety of relations with the NP taken by the D head when there is no argument structure (e.g. *John's book* can be the book John owns, John wrote, John selected, etc.; see Baker 1988; Marantz 1997; Adger 2003; Harley 2013, etc.). A Mandarin eventive nominal, suppose it has a structure in (29), is obviously the latter case. Meanwhile, the object position is only an embedded position within the phrase at [Spec, DeP], with no direct syntactic link to the N head. It is thus difficult to establish a semantic association between the object and the resultative state.

The analysis proposed here also gives an answer to the core question in (5c): there is no V-N shift in Mandarin eventive nominals. The nominal is a root without any category before it is nominalized. It never becomes a verb in the relevant derivation. In addition, the root is categorized by an s-functor, so there is no morphological change typical of c-functors, which is the answer for the question in (5b).

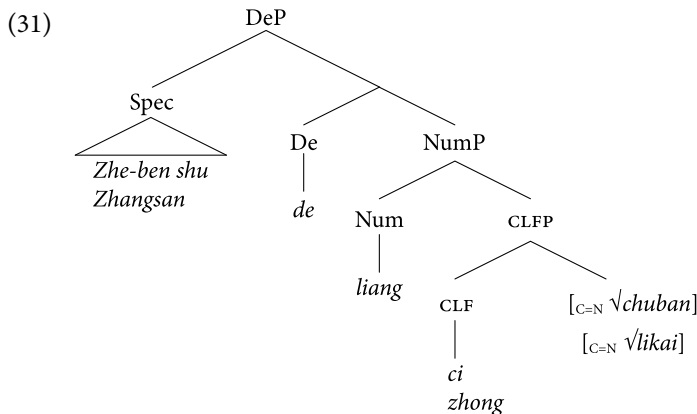
A derivational route as English R-nominals in (24a), which turns the root into V and then N, should be abandoned in Mandarin, not only because it causes great redundancy due to the lack of morphological evidence, but also because it is impossible under the assumption in (26b). Note that in the XS-model only c-functors serve as category shifters: they take category X and project Y. S-functors,

on the other hand, are only category assigners: they either take category X or make a root category X. Therefore, if Mandarin indeed has no c-functors as the assumption goes, category shifting as a syntactic operation will be *de facto* excluded from Mandarin. Instead of “Mandarin eventive nominals *do not* have morphological change”, a more precise description of the situation, then, will be “Mandarin eventive nominals *cannot* have morphological change”. Once a root is categorized by an s-functor, there is no chance for it to change into another category. The incapability to take post-nominal objects is also an inevitable result from this parametric variation, of which I shall discuss in greater detail in § 4.2.

Here I provide two arguments in support of the analysis in (29). The first comes from the observation in Ye (2020) that numerals and classifiers can be inserted between *de* and the eventive nominal in Mandarin, as in (30a–b).

- (30) a. *zhe-ben shu de liang-ci chuban*
 this-CLF book DE two-CLF publish
 ‘the two times of publications of this book’ (Ye 2020: 67)
- b. *Zhangsan de liang-zhong likai (dou bu-hui yinqi yanzhong*
 Zhangsan DE two-CLF leave all NEG-will cause serious
 houguo)
 consequence
 ‘Zhangsan’s two types of leaving (will not cause serious consequences).’

Examples such as (30a–b) confirm that Mandarin eventive nominals are indeed of nominal category (at least by the end of the derivation), since they can be modified by numerals and classifiers (which goes against the analyses proposed in Lu & Pan 2013; Jin 2019, etc.). This use of eventive nominals is also in line with the proposal in this paper, as DeP, NumP (numeral phrase), and CLFP (classifier phrase) are all in the extended *a* projection line of NP. The structure for (30a–b) is thus shown in (31), which has few essential differences from the basic structure in (29), except that the lowest s-functor to categorizer the root in (31) is the head of CLFP.



The second argument is based on the contrast in the compatibility with bitransitive structures between Mandarin and English eventive nominals. Generally, English derived nominals do not allow dative shift, but accept goal arguments introduced by *to*, as in (32a–b). Borer (2013) argues that this is because in dative shift structures there are two internal arguments in need of case, but only one can get marked by *of*, since English bans the successive use of the preposition *of* (the Double-of Filter).

- (32) a. *Carly's generous giving (of) the children (of) candy
 b. Carly's generous giving of candy to the children (Borer 2013: 149)

In Mandarin, however, although structures equivalent to the two versions of bitransitives are used in VPs as (33a–b) shows (with *gei Lisi* (for Lisi) occurring in either of the two possible positions), both of them are hard to be transformed into eventive nominals, as shown in (34a–b). This suggests that it is not a matter of case here in Mandarin. The problem probably results from a pure lack of structural positions to accommodate the third DP, as the second DP (the object after *dui*) already has to be introduced by a preposition.

- (33) a. *Zhangsan hui zengsong Lisi shuji.*
 Zhangsan will give Lisi book
 'Zhangsan will give Lisi books.'
 b. *Zhangsan hui (gei Lisi) zengsong shuji (gei Lisi).*
 Zhangsan will for Lisi give book for Lisi
 'Zhangsan will give books to Lisi.'

- (34) a. **Zhangsan dui Lisi shuji de zengsong*.
 Zhangsan to Lisi book DE give
 Intended: The nominalization of (33a).
 b. **Zhangsan (gei Lisi) dui shuji (gei Lisi) de zengsong*
 Zhangsan for Lisi to book for Lisi DE give
 Intended: The nominalization of (33b).

Apart from that, the ungrammatical cases in (35a–b) further show that English must exclude the raising of either “goal” or “patient” to the prenominal position:

- (35) a. *the candy’s (sudden) giving to the children
 b. *the children’s (sudden) giving of the candy (*children* as goal argument)
 (Borer 2013: 149)

But in Mandarin it is possible for the argument interpreted as patient to appear at the subject position, though it is still strange for “goal” to do so, as in (36a–b). This again shows that what regulates the interpretation of the argument is not an embedded argument structure.

- (36) a. ??*Lisi de zengsong*
 Lisi DE give
 Intended: ‘the giving to Lisi’
 Possible: ‘Lisi’s giving’
 b. *shuji de zengsong*
 book DE give
 ‘the giving of books’

4.2 Solving the object position problem

As is briefly mentioned in the previous section, the restriction of Mandarin eventive nominals to take post-nominal objects should be attributed to the absence of an argument structure in the derivation process, which, in turn, is a consequence of the lack of c-functors in Mandarin.

Suppose a Mandarin eventive nominal like (37a) follows the derivational route of English AS-nominals in (24b), it would end up in the structure in (37b). The object has to be introduced by a functional head *F_v*, which is an extended projection of *V*. *F_v* then serves as an s-functor and renders the root *V*-equivalent. Suppose we further assume that there exists another functional head *F₋₂*, which is invisible itself and does not cause morphological change on the verb, so that the verbalized root can raise to *F₋₂* across the object to get the word order right without any visible change. Such a functional head, however, can only be another extended projection of *V*. The structure cannot merge directly with a *De* head, which is *Ex[N]*. In other words, *F₋₂* and *De* are not in the same extended projec-

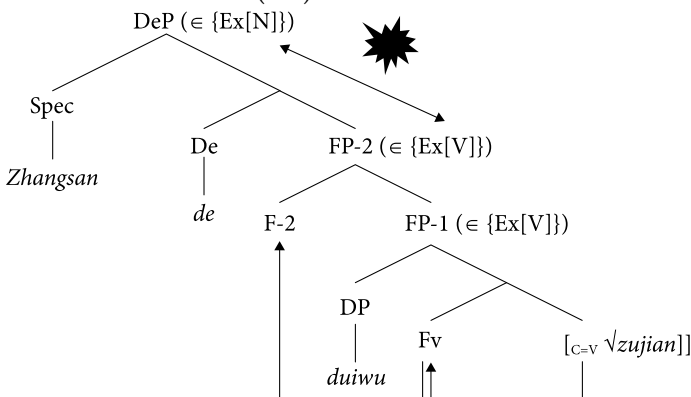
tion line. We need at least a category shifter between DeP and FP-2 to carry out the required V-N shift. Such a shifter, as is generally a member of c-functors, does not exist in Mandarin by assumption. So, the derivation in (37b) crashes, resulting in an ungrammatical configuration in (37a).

- (37) a. **Zhangsan de zujian duiwu*

Zhangsan DE form team

Intended: 'Zhangsan's formation of the team'

- b. How the derivation for (37a) crashes



There are also arguments which support this claim. For example, functional aspect markers, be it preverbal or post verbal, cannot occur in eventive nominals even without the post-nominal object, as shown in (38). That is because the head Asp is also within the set of extended projection of V. If an aspect head merges before the De head, it would assign a category V to the root, which becomes incompatible with the later merge of a De head, as in (39a). It is not possible for the Asp head to merge after the De head either, since Asp cannot take an N-kind complement, as in (39b).

- (38) a. **Duiwu de zhengzai/meiyou zujian*

team DE PROG NEG-PFV form

- b. **Zhangsan de zujian-le/zhe/guo*

Zhangsan DE form-PFV/DUR/EXP

- (39) a. * $[_{DeP} De (\in \{Ex[N]\}) [_{AspP} Asp (\in \{Ex[V]\}) [_{C=V} \sqrt{ROOT}]]]$

- b. * $[_{AspP} Asp (\in \{Ex[V]\}) [_{DeP} De (\in \{Ex[N]\}) [_{C=N} \sqrt{ROOT}]]]$

Furthermore, the asymmetry between an eventive nominal and its presumed verbal form in some cases also shows that they may not originate from the same structure. (40a) indicates that the object following *baoyuan* (complain) in a VP context can only be interpreted as the target of the complaint, while (40b) shows that when the same DP is introduced by the preposition *dui* to a preverbal posi-

tion, it is only the goal of the complaining action, which is possibly but not necessarily the target for the content of complaining. The fact that the eventive nominal version in (40c) aligns itself with (40b) in terms of the object reading shows that the object position in the nominal structure cannot be the same one as in a general V-O construction or any place with a raising object.

- (40) a. *Zhangsan zhengzai baoyuan Lisi.*
 Zhangsan PROG complain Lisi
 ‘Zhangsan is complaining about Lisi.’
 b. *Zhangsan zhengzai dui Lisi baoyuan.*
 Zhangsan PROG to Lisi complain
 ‘Zhangsan is complaining to Lisi.’
 c. *Zhangsan dui Lisi de baoyuan*
 Zhangsan to Lisi DE complain
 ‘Zhangsan’s complaining to Lisi.’

4.3 Solving the compositionality problem

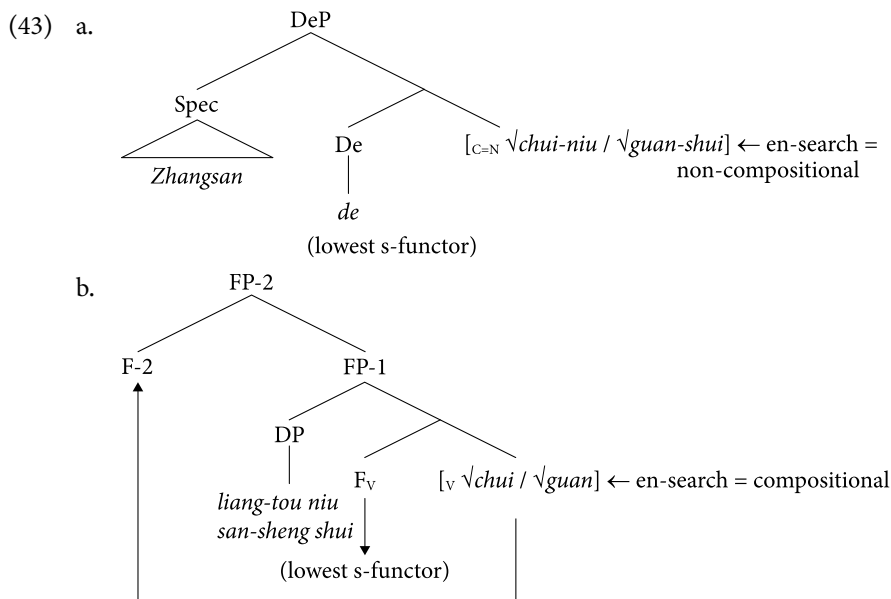
In the last part of this section, I shall finish the discussion with a proposed solution to the compositionality problem in §2.3, which concerns the compositional reading of some idiomatic phrases repeated here as (41a–b).

- (41) a. *Zhangsan de chui-niu*
 Zhangsan DE blow-cow
 ‘Zhangsan’s boasting’
 b. *Zhangsan dui luntan de guan-shui*
 Zhangsan to forum DE fill-water
 ‘Zhangsan’s spamming of the forum’

Examples as (41a–b) only have non-compositional readings (namely the idiomatic readings). This sets a contrast with the situation in which the construction is changed by adding numerals and classifiers onto the object, because in those cases it is the other way around: only the literal meaning is available, but not the idiomatic meaning, as in (42a–b).

- (42) a. *#chui liang-tou niu*
 blow two-CLF cow
 ‘blow two cows (literal meaning only)’
 b. *#guan san-sheng shui*
 fill three-litre water
 ‘fill three litres of water (literal meaning only)’

Examples (42a–b) show that a phrase such as *chui-niu* and *guan-shui* has probably formed a compound, and the object in it has lost its syntactic status as an argument, thus rejecting modification. Examples as such, therefore, do not directly pose as counter-examples to the observation that eventive nominals do not take arguments behind them, since they do not include a standard VO structure in the first place. I propose that *chui-niu* and *guan-shui* have become roots (or have got a use as a root in addition to their phrasal use), which means they enter syntax as a non-segmental unit and get an independent match in encyclopaedia during the en-search. In cases as (41a–b), the first s-functor merging with the root is the De head, under which is the domain available for en-search. The content returned for the roots by the searching, then, is based on the whole unit, namely a non-compositional content if the root is otherwise viewed as a VO construction, as in (43a). Since there is no chance for the en-search to access the two morphemes separately in such a derivation, a compositional reading is not available. In a real verb phrase as those in (42a–b), the lowest s-functor is the functional head introducing the object. In such cases, the objects merge out of the domain for en-search, which only includes the roots categorized as V. The semantics of the VP then is a composition of the contents from separate en-searches of the verb and the object respectively. The non-compositional reading becomes unavailable this time, as in (43b) (the intermediate stop at Fv for the verb raising is omitted for presentational reasons).



It should be noted that even more general eventive nominals can be ambiguous, although the potential interpretations do not necessarily include idiomatic readings and the difference among the readings can be very trivial, as in (44a–b).

- (44) a. *shigu de baodao*
 accident DE report
 ‘the reporting/report of the accident’
 b. *duiwu de lingdao*
 team DE lead
 ‘the leading/leader of the team’

A large number (though not all) of eventive nominal structures in Mandarin are in fact ambiguous by themselves: they can either denote an event, or something related to an event but not the event itself. For example, *baodao* in (44a) means the event of reporting the accident, but it can also refer to the particular report, in the form of broadcasting, article, etc., whose content is about the accident, although in the latter interpretation the existence of a reporting event may be semantically implied, too. The interpretational difference for *lingdao* in (44a–b), on the other hand, is a lot more salient: the non-event reading is ‘the leader of the team’. Configurations such as (44a–b) can be disambiguated by context and world knowledge, but no grammatical evidence shows that the two readings result from different syntactic structures. I argue that this is because there can be more than one matching entry for a root in the encyclopaedic database under *en*-search, and a certain degree of arbitrariness in interpretation is in line with the assumption that a Mandarin eventive nominal itself has a relatively simple syntactic structure, compared with its English counterparts.⁹

5. Conclusion

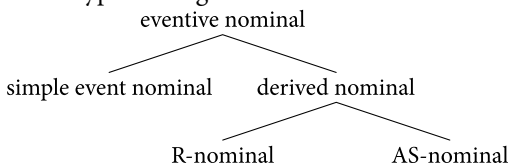
In this paper, I have made a brief comparative study of the nominals denoting an event in Mandarin and English. The discussion is carried out around three central questions concerning the use of Mandarin eventive nominals, as repeated in (45a–c).

9. The flexibility is also found in English non-derived words. For example, *cook* can mean the act of cooking (as a verb), the process of cooking (as a noun), and the person who cooks (as a noun), etc. So, it seems the less syntax is involved, the more flexible the interpretation can be.

- (45) a. Why can't eventive nominals in Mandarin take post-nominal arguments?
 b. Why don't Mandarin nominals have morphological change in encoding events?
 c. Is there a category shift, especially a V-N shift, in Mandarin eventive nominals?

In order to answer these questions, I follow the classification in Grimshaw (1990) and Borer (2013) and distinguish three types of eventive nominals in English: simple event nominal, R-nominal, and AS-nominal. The latter two, due to their morphological complexity, are also called derived nominals, as in (46a). These three nominal types, according to their derivation process, can be distinguished with two key features: whether it has a verbal stage within the derivation, and whether it includes an argument structure of VP, as in (46b).

- (46) a. Three types of English eventive nominals



b.

	Verbal stage	Argument structure
Simple event nominal	–	–
R-nominal	+	–
AS-nominal	+	+

In the analysis with XS-model, simple event nominals start as a category-less root and get an N-equivalent status immediately after the root merges with an s-functor from the extended projection set of N, as in (47a). R-nominals first acquire a verbal category before they are nominalized by a c-functor, as in (47b). AS-nominals are also verbalized first, except by an s-functor from {Ex[V]} which brings an argument structure onto the root, as in (47c).

- (47) a. Simple event nominals: $[F_N (\in \{Ex[N]\}) [_{C=N} \sqrt{ROOT}]]$
 b. R-nominals: $[_{NP} C_{N[V]} [_{C=V} \sqrt{ROOT}]]$
 c. AS-nominals: $[_{NP} C_{N[V]} [_{FP} Spec-[_{DP} ARG] [F_V (\in \{Ex[V]\}) [_{C=V} \sqrt{ROOT}]]]]]$

Based on a series of disparities between Mandarin and English in terms of the object position, the subject interpretation and the compositionality issue, I propose that Mandarin eventive nominals are all simple event nominals. This is

an inevitable result from two key assumptions made in this paper: eventive nominals also start as root in Mandarin and Mandarin has no c-functors. That means if the nominal status of Mandarin eventive nominals is confirmed, the category N is the first and last label a root can have in the relevant derivation, since s-functors are only capable of category assigning but not category shifting. Therefore, Mandarin eventive nominals cannot follow the derivational route of R-nominals and AS-nominals in (47b–c), because both of them require c-functors as category-shifters. The corresponding answers for the questions in (45a–c), then, are listed in (48a–c).

- (48) a. Post-nominal arguments can only occur with a VP-based argument structure, but the final category of the head is N. So there has to be a c-functor changing V to N, but such a shifter is not available in Mandarin.
 b. No c-functors, no morphological change.
 c. No category-shifting.

If the proposed analysis is correct, we are faced with a parametric variation based on the availability of c-functors. On one side are languages like English, in which a categorized root can have a series of category shifting before the final c-functor is merged. On the other side lie languages such as Mandarin, in which a root gets its final category right after it merges with the first s-functor. It may be interesting to further investigate if there are other languages which fit into these two models, or just sit somewhere in between.

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List of abbreviations

ARG	argument
AS-	Argument Structure-
Asp	Aspect
AUX	auxiliary
c-	categorial
CCS	Categorial Complement Space
CLF	classifier
CLFP	classifier phrase
COP	copular
D	Determiner

DP	Determiner Phrase
DUR	durative
EXP	extended projection
N	Noun/Nominal
NEG	negative (morpheme)
NP	Noun/Nominal Phrase
Num	Number
P	Preposition
PFV	perfective (aspect)
PP	Preposition Phrase
PROG	progressive
R-	Referential
s-	semantic
Spec	Specifier
T	Tense
V	Verb
V-N	Verb-Noun
VO	Verb Object
VP	Verb Phrase

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Address for correspondence

Chen Wang
School of Foreign Studies
Nanjing University of Science and Technology
200 Xiaolingwei Street
Xuanwu District, Nanjing 210094
China
cwang@njjust.edu.cn

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