A Cognitive Study of the NP+*de*(的)+VP Structure in Mandarin[*]

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Abstract—The article presents a cognitive account of the NP+*de*(的)[1]+VP structure in Mandarin. By making its syntactic functions and cognitive motivations explicit, it shows that the relationship between the constituents of the structure is subject-predicate rather than modifier-head as claimed by previous studies. Based on the new proposals that the structure is exocentric and the particle *de* is a nominalizing infix, the article offers a possible solution for the long-debated contradiction between the overall nominal functions of the structure and its constituents' verbal part of speech. We conclude that a cognitive linguistic approach to analyzing structures in Mandarin can be useful in producing a picture of the formation of the structures and revealing how they are cognitively motivated. This study contributes to the development of cognitive studies on Chinese grammar and sheds light on Chinese language instruction in the long run.

Index Terms—NP+*de*+VP structure, Endocentric Construction Theory, nominalization affix, cognitive motivation

I. INTRODUCTION

Bloomfield (1933) proposed the *Endocentric Construction Theory (ECT)* in language and defined endocentric constructions as syntactic constructions, which were formed by the combination of two or sometimes more free forms, belonged to the same form-class as one or more of their constituents, while those which did not belong to the form-class of any immediate constituent as exocentric constructions. The application of this theory to the analysis of structures in Mandarin met with some challenges, among which were the most frequently discussed structures being exemplified as follows.

(1) zhe   ben   shu   *de*   chuban.
    This   CLAS   book   NOM   publish.
    This book's publishing. /The publication of this book.

(2) ta   *de*   lai.
    3SG   NOM   come.
    His coming.

(3) qiaoliang   *de*   pohuai.
    bridge   NOM   destroy.
    The destruction of the bridge. /The bridge's destruction.

(4) pingguo   *de*   suan.
    apple   NOM   sour.
    The sourness of the apple.

Despite of minor heterogeneity, these structures can be subsumed under a superordinate category named as the NP+*de*+VP structure[2]. Ever since the 1950s, extensive studies (Shi, 1981, 1988; Zhu, 1984; Xiang, 1991; Zhang, 1993; Cheng 1999a, 1999b; Si, 2002, 2004; Lu, 2003; Shi, 2004; Wu, 2006, Yang, 2019, etc.) have been focusing on the conflicts among the overall nominal syntactic functions of the structures, their verbal head VP, and the claims of ECT. Researches following varying approaches and perspectives have shown different, sometimes contradictory, conclusions. From a cognitive perspective, especially with the conceptual metaphor and metonymy theory formulated by Lakoff & Johnson (1980), Panther & Thornburg (1999, 2000), Ruiz de Mendoza & Perez (2001) and Ruiz de Mendoza & Diez (2004), we explore the ways such theories allow us to capture and systematize the analysis of this structure, and also the similarities and differences among similar structures. The study confirms the applicability of Bloomfield's theory to the analysis of the structures in Mandarin, even though some of them are seemly disparate phenomena. The cognitive linguistic approach is capable of providing a unified explanatory framework for the *de* nominalization, be it as a suffix

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[*] Abbreviations: N, noun; NP, noun phrase; Vi., Intransitive verb; Vt., transitive verb; ASP, aspect markers; NEG, negative morpheme; NOM, nominalizer; CLAS, classifier; 3SG, 3rd person singular; 2SG, 2nd person singular; 1PL, 1st person plural; 1SG, 1st person singular; BEI, coverb *bei*(被) in the *bei* construction; BA, coverb *ba*(把) in the *ba* construction.

[1] *de* (的) will be noted as *de* for short hereafter.

[2] The VP in the structure is taken as a covering term for all possible components, i.e. verbs, verb phrases, adjectives, and even "verb + object" structures.

or an infix. By doing so, the current study provides a desirable degree of explanatory adequacy on the half-century long debate on the issue.

The structure of the article is as follows. Section 2 is a literature review of previous studies on the structure and commentaries are provided afterwards. The section is followed by an elaboration of our proposal of taking *de* in the structure and similar structures as a nominalizing infix. The analysis of *de* as an infix shows possibilities of a systemic and unified explanation for structures of their kind. Contrastive studies among NP+*de*+VP structure, NP+VP+*de* structure and VP+NP+*de* structure are carried out in Section 4, in which the similarities and differences in the composing constituents, syntactic functions and discourse distributions of the structures are successively examined. Section 5 focuses on the conceptual and cognitive basis for the new proposals. The cognitive motivations for the structures are explored and discussed in detail. The conclusions are presented in Section 6.

II. PREVIOUS STUDIES ON NP+DE+VP STRUCTURE

Ever since the 1950s, continuous discussions have been focusing on the NP+*de*+VP structure. The studies can be categorized into four types, which are examined successively in this section and commentaries are provided afterwards.

A. Nominalization of the VP

Shi (1981, 1988) and Hu & Fan (1994) hold that the verb in the NP+*de*+VP[3] structure has been nominalized. Their claims are based on the assumption that this construction is a modifier-head structure and, according to ECT, it is an endocentric construction. Because of the unanimous agreement on the nominal syntactic functions of the structure and the claim of ECT that the form-class of one or more of its constituents is in line with that of the resultant structure, it seems true that the verbs in the structures must have been nominalized. The evidence they provide for the nominalization of the so-called nominalized head of the structure lies in the fact that they cannot be modified by particles of aspect or tense, nor taking objects or complements, which indicates the weakening of predication. Therefore, all the verbs and adjectives in the structures in examples (1) to (4) are nominalized.

However, the usage of verbs in sentences does not necessarily mean the realization of all of their syntactic functions, e.g. taking on particles or markers of aspect and tense, having their objects or complements. More often than not, the realization of one of the above-mentioned functions excludes the occurrence of the others. Therefore, the partial realization of the verbal functions does not necessarily indicate the weakening of predication on the one hand and the gain of the function of reference on the other. Close examinations reveal that a large number of examples can falsify this assumption.

(5) ta   de   bu   lai.
    3SG NOM   not   come.
    His not coming.

Example (5) is the negation form of (2). According to the nominalization view, *lai* (come) in (2) is nominalized and, of course, functions as a noun. However, the fact that it can be modified by *bu* (not), which is usually considered as a negating word for verbs, shows that *lai* (come) in (2) and (5) are not nominalized at all.

Furthermore, the nominalization proposal fails in covering the cases where the verbs take with them adverbials, complements or objects as we will see in Section 4. Also, the view is squarely against native speakers' language intuition that the verbs are nominalized on the one hand while keep some of their verbal functions on the other.

B. Modification of ECT

The second type of studies claims that the verbs and adjectives in the structure undergo no trans-categorial change and postulates that the conflicts between the overall nominal features of the structure and the adjectival or verbal head necessitates the modification of Bloomfield's ECT. Zhu (1984) redefines endocentric constructions as syntactic constructions whose grammatical functions are in line with and subject to the same semantic choice of at least one of its constituents.

However, the modification fails in covering all cases of the structure. Even Zhu (1984:403) himself admits that "in a strict sense, the structures are not consistent with the new definition because the grammatical functions of the head are different from those of the structure". Therefore, the modified definition cannot account for the structure either and eventually being considered as an ineffective move (Wu, 2006).

Zhou (2007) makes another attempt to redefine endocentric construction as a syntactic structure marked as *S*, which consists of two constituents, *a* and *b*. If the expressional function of *a* and/or *b* is the same with that of *S* and both are subject to the same constraints of semantic choice, then *a* and/or *b* is the head of *S*. The modification can be exemplified as follows.

(6) ta   *de*   si   hen   beican.
    3SG NOM   die   very   miserable.

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[3] It should be noted that in Shi (1981, 1988) and Hu & Fan (1994), they are focusing on the cases where there is only one verb in the structure with no preceding adverbials nor following complements or objects. Therefore, the structure they addressed can be abbreviated as noun-*de*(的)-verb, which covers only a small portion of the NP+*de*+VP structure.

His death is very miserable.

According to Zhou's definition, the head of the structure "ta *de* si" is *si* (die). The reason why the verb acts as the head of the nominal structure is that it has been referentialized, i.e. its verbal syntactic functions have changed to nominal ones.

In actuality, his study can be classified into the nominalization proposal as reviewed in Section 2.1. The claim is similar to Guo's (2010) differentiation of Chinese words' part of speech on the morphological level and the syntactical level, where the latter is called as nominalization on the syntactic level or syntactic referentialization.

Studies which try to modify or polish ECT are not well accepted due to two reasons. At the first place, the modifications fail in solving the puzzling problems about the structures as shown in this part. The redefinition of the theory cannot embed the peculiarities and, therefore, is easily proved to be weak in explanative adequacy. Secondly, ECT has been proved to be efficient in explaining language phenomena in general and, therefore, modification of the theory because of one single structure in Mandarin is a risky step which may weaken the explanative strength of the theory in general and cause even more problems.

C. Multi-function of Chinese Words

Scholars (e.g. Xiang, 1991; Zhu, 1983) hold that Chinese words are multifunctional, thereby taking different syntactic roles without any morphological change is but one of their unique features. In Indo-European languages, verbs and adjectives have to be nominalized, usually by adding affixes, before they take the syntactic roles of subject and object, while in Mandarin, they can take these syntactic roles without any extra process. Accordingly, it is natural to infer that the verbs and adjectives in the NP+*de*+VP structure are still verbs and adjectives and ECT needs no modification at all. The difference lies in the way of correspondence between word categories and syntactic roles.

In Indo-European languages, there are neat correspondences between words and their syntactic roles. To take different syntactic roles, a change of form and, correspondingly, a change in the part of speech are usually needed. Because of the lack of inflection, Chinese verbs and adjectives functioning as subjects and objects are morphologically the same as those when they are acting as predicates. Scholars (e.g. Zhu, Lu & Ma, 1961; Zhu, 1983) noticed this difference and claimed that, as a special feature being radically different from that of Indo-European languages, Chinese verbs and adjectives could function as subjects and objects without any morphological change.

The challenge of this proposal exists in the fact that these verbs and adjectives in the NP+*de*+VP structure can take with them adverbials, complements or objects, which are typical syntactic features of predicate words. This is in obvious conflict with ECT. In a language without inflections, the words' part of speech can only be confirmed with reference to their usage and syntactic collocation. Therefore, the multifunctional proposal of Chinese words cannot solve the problems either.

D. X-bar Theory and More

Recent years witnessed a debate on the possibility of applying the *X-bar Theory* and *Head Word Theory* to the analysis of the structure. From a generative grammar perspective, Lu (2003), Si (2002, 2004, 2006) and Xiong (2005) argue that the heads of the structures are the particle *de* and the nominal function of the whole structure is endowed by this particle. According to the *X-bar Theory*, the structure can be analyzed as follows.
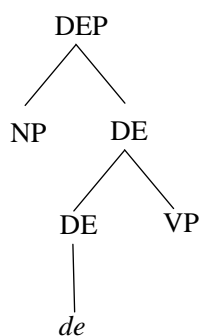

Figure 1: The X-bar Analysis of NP+*de*+VP Structure

It is claimed that the particle *de* in the structure has a nominal form-class (marked as [+N] hereafter) and this form-class can be projected onto the whole structure, and, as a result, the whole structure becomes nominal. Therefore, the particle *de* is considered as the head of the structure, thereby it functions as the determining factor of the structure's form-class.

Zhou (2005, 2007a, 2007b) and Wu (2006) enumerate the deficiencies of applying the *X-bar Theory* and *Head Word Theory* to Chinese grammar studies, especially to the NP+*de*+VP structure, by claiming that the grouping of the structure as NP+(*de*+VP) goes strongly against the language intuition of native speakers. Mostly importantly, there is no

convincible evidence for the source of the nominal [+N] nature of *de* in the structure. Their ideas can be illustrated as follows.

(7) a. feichang   de   tongkuai
        very   NOM   delighted
        Very delighted.
    b. feichang   de   shiqi
        very   NOM   period
        Special period.
    c. feichang   de   xianmu
        Very   NOM   envy
        Envy …very much.

In line with the analysis of *X-bar Theory* and *Head Word Theory*, the three *de* in (7) differ from each other in that the *de* in (7)a is adjectival, (7)b nominal and (7)c adverbial. The modifying words in the three examples are the same, i.e. *feichang* (very). Obviously, the differences of the structures in (7) exist in the words following the particle, with *Tongkuai* (delighted) in (7)a being an adjective, *shiqi* (period) in (7)b a noun and *xianmu* (envy) in (7)c a verb. In this regard, it seems to be more reasonable to claim that the words following the particle determine the form-classes of the structures rather than the particle itself[4].

III. A REANALYSIS OF THE STRUCTURE

To tackle the challenges that scholars face in the analysis of the NP+*de*+VP structure, the present study proposes that (1) instead of taking it as an endocentric modifier-head structure, it is postulated that it is exocentric and, consequently, the VP is not the head of the structure; (2) the overall nominal functions of the structure is but a natural consequence of the usage of the particle *de*, which is a nominalizing infix.

A. NP+de+VP Structure as an Exocentric Construction

As reviewed in Section 2, scholars tend to take the structure as an endocentric construction and make great efforts to explain the conflict between the nominal structure and its verbal/adjectival head. Close examinations reveal that the NP and VP in the structure have a subject-predicate relation. Zhu (l984) first noticed this relationship but he did not further elaborate his discovery. Wang (2002) analyzes the constraints for verbs to enter this structure and her analysis consists of two parts, one with NP as the agent of the verb and the other with NP as the patient. The study is based on the precondition that the syntactic relationship between the NP and VP is subject-predicate.

Our argument for the subject-predicate relationship of the components of the structure is semantically based. For example:

(8) a.   ta diedao   le. →ta   de   diedao.
              3SG fall-down ASP.→3SG NOM fall-down.
              He fell down. →His falling down.
    b.   ta   aiguo.   →ta   de   aiguo.
          3SG love-country.→3SG NOM love-country.
          He loves the country.→ His love of the country.
    c.   qiaoliang bei huihuai le.→ qiaoliang de huihuai.
          Bridge BEI destroy ASP.→ bridge NOM destroy.
          The bridge was destroyed.→ The destruction of the bridge.
    d.   women gaijin le fangfa. → fangfa de gaijin.→ women de gaijin.
          1PL improve ASP measure.→ measure NOM improve.→1PL NOM improve.
          We improved the measures.→ The improvement of measures.→ Our improvement.

The four examples in (8) instantiate the nominalization of different structures. (8)a is a declarative sentence with past tense and an intransitive verb. It is known that intransitive verbs are easy to occur in the NP+*de*+VP structure. (8)b could be taken as either an SVO sentence or an SV sentence because *aiguo* (love-country) resides somewhere between an intransitive verb and a verb-object structure. The intermediate state of *aiguo* does not affect the nominalization of the whole structure since, as an infix, *de* can be used in both sentences and phrases. As a sentence with passive voice, (8)c can be converted into the NP+*de*+VP structure with the NP acting as patient. Similar to (8)c, *fangfa* (measures) in (8)d could be used as the NP in the nominalized structure. With a possessor-for-possession metonymy ("we" for "our measures"), the second conversion *women de gaijin* (our improvement) is also acceptable. The four examples, together with ubiquitous real life utterances, reveal the fact that the NP and VP in the converted structures have a subject-predicate relation.

This observation is of great significance in two ways. At the first place, it differentiates the NP+*de*+VP structure from modifier-head structures and possessor-possession structures, which conform to ECT with the nouns and possessions

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[4] In actuality, all the three examples in (7) are endocentric constructions, and, consequently, their head words determine the form-class of the structures according to ECT.

acting as the heads of the structures and having the same form-class with the structures. Our observation presumes that the NP+*de*+VP structure belongs to one of the three kinds of exocentric constructions listed by Bloomfield (1933). Secondly, the new observation and analysis are free of the troubles that have been challenging scholars who hold that the verbs or adjectives are nominalized as reviewed in Section 2.1. It explains why the so-called nominalized verbs can take adverbials or objects as claimed by the nominalization approach.

B. de as a Nominalization Infix

The second proposal is that *de* in the structure is a nominalizing infix. It has been widely accepted that *de* is a nominalizing suffix, and the nominalized structures can be self-designating or trans-designating (c.f. Zhu, 1983; Lu, 2003). The nominalized structures can take different syntactic roles, e.g. subject, object, attribute, and predicate. As a nominalizer, *de* can be used at the end of the structure (as a suffix) and, more importantly, inserted in the middle of a structure (as an infix) too. The proposal is also consistent with our first proposal that the relation between the NP and the VP is subject-predicate instead of modifier-head.

The claim that *de* is a nominalizing infix is reasonable and rewarding in three aspects. At the first place, as a grammatical word, it is consistent with its function as a suffix. As a nominalizer, *de* can be used both at the end and in the middle of the structures. Secondly, the claim covers NP+*de*+VP, NP+VP+*de* and VP+NP+*de* structures in a unified way. Previous studies focusing on the nominalization of the verbs or adjectives in the structures cannot explain the cases where verbs, after their nominalization, can still take modifiers and objects with them. The new proposal holds that the nominal syntactic function of all the structures is endowed by the nominalizer *de* while all constituents of the structures keep their original part of speech, which, in turn, is in line with the subject-predicate relation of the components of the structures.

In this section, we propose that the constituents of the NP+*de*+VP structure bear a subject-predicate relation and that the particle *de* is a nominalizing infix. The proposals provide a possible solution for the challenges that scholars face in the analysis of the structures in a systemic and unified manner.

IV. NP + DE + VP STRUCTURE AND MORE

Contrastive studies between the NP+*de*+VP structure, where *de* functions as a nominalizing infix, and NP+VP+*de* and VP+NP+*de,* where *de* is considered as a nominalizing suffix are carried out in this section. The structural constituents, semantic features, syntactic features and discourse distributions of the structures are addressed in a successive manner.

A. Structural Constituents

Based on Hopper and Thompson's (1980) measuring scales of transitivity, Wang (2002) surveys the transitivity of the verbs in the NP+*de*+VP structure and finds that they rank quite low according to the scales. Her study shows that the higher the transitivity of the verb, the lower their possibility of occurring in the structure. The possibility of converting SVO sentences into NP+*de*+VP structure is tested and it turns out that in some cases the subjects of sentences can be converted to be the NP of the structure while in other cases the objects can be used as the NP of the structures. Still, there are cases in which both subjects and objects can be used as the NP of the structures. The findings pose as another evidence for our proposal that the overall nominal features of the structures come from the nominalizer *de*.

The VPs in the structures are usually compound disyllabic verbs. The semantic relations of the compound verbs can be categorized into verb-object, verb-complement and modifier-verb as follows.

(9) a. ta　　de　　tigan.
　　　　3SG NOM　promote-leader.
　　　　His promotion.
　　b.　haizi　de　zhangda.
　　　　Child NOM grow-big.
　　　　The growth of the child.
　　c.　ta　　de　　buman.
　　　　3SG NOM　　not-satisfied.
　　　　His dissatisfaction.

In (9)a, *tigan* is composed of *ti* (promote) and *gan* (leadership). As a compound verb, it means promotion. Semantically, the components of the word have a verb-object relation. In (9)b, the verb *zhangda* consists of *zhang* (grow) and *da* (big). *da* (big) is the resultant state because of the action indicated by the verb (grow). While in (9)c, *bu* (not) is a negating adverbial for the monosyllabic verb *man*(satisfied)[5].

On a higher level, *de* can also act as the nominalizing infix of sentences like S+*de* +V+O. For example:

(10) <u>ta　　　de　　zaici dapo　　jilu</u>　jingdai　　　le　　suoyou ren.
　　　<u>3SG　NOM　again beat-break record</u>　surprise-dumb ASP　every　people.
　　　<u>His breaking of the record again</u> surprised everyone.

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[5] The issue of the negation of the structure will be addressed in detail later in this section.

Without *de*, the underlined part in (10) is a well-formed SVO sentence in the regard of both syntax and semantics. Conceptually, a sentence can be considered as a semantic entirety and take a syntactic role in a complex sentence. The nominalizing infix *de* functions like a packaging word that emphasizes the conceptual holisty of the sentences, which, as an entirety, act as a sentence component as shown in (10).

With regard to the constraints for the constituents of NP+VP+*de* structures, it is found that both transitive and intransitive verbs can occur in the structure. Highly transitive verbs like *mai* (buy), *sha* (kill), *xi* (wash) as well as intransitive verbs[6] like *suan* (soar), *tong* (painful) can be used in the structures as shown below.

(11) a. <u>mama   mai de</u>   shi bai   chengyi.
        <u>Mather buy NOM</u> is   white shirt.
        <u>What (my) mother bought</u> is a white shirt.

    b. qing   ni   ba   <u>weidao suan de</u>   rengdiao.
        Please 2SG   BA   <u>taste   soar   NOM</u> throw-away.
        Please throw away <u>those taste soar</u>.

The constraints for the well-formedness of the structures are mainly on the NPs. We find that the patients of actions can hardly act as the NP of the structure. The NP and VP can take their own modifiers, i.e. attributes for NP and adverbials for VP.

(12) a. ta   zhunshi daolai le. →ta   de   hunshi daolai.
        3SG   on time arrive ASP. →3SG NOM on time   arrive.
        He arrived on time. →His arrival on time.

    b. meili   de   jinyu si le. →meili   de   jinyu   de   si.
        Beautiful NOM goldfish die ASP. → Beautiful NOM goldfish NOM die.
        The beautiful goldfish died. →The death of the beautiful goldfish.

In (12)a, the verb *daolai* (arrive) takes with it an adverbial *zhunshi* (on time) and the adverbial adheres to it in the nominalized structure. In (12)b, the presence of an attribute of the NP, *meili de* (beautiful), in the nominalized structure does not affect its well-formedness.

As for the VP+NP+*de* structures, the NP closely follows the VP and the semantic relation between the two is usually action-patient. Therefore, it is safe to infer that the VP in the structure is transitive and the NP is likely to be the patient of VP. Because of frequent usage, the action-patient combination in this structure tends to become compound words. For example:

(13) a. <u>kaiche   de</u>   hai   meiyou   lai.
        <u>drive-car NOM</u> yet   not have come.
        <u>The driver</u> has not come yet.

    b. <u>changge de</u>   jintian meiyou chuchang.
        <u>sing-song NOM</u> today   not   present.
        <u>The singer</u> is not present today.

Both *kaiche* and *changge* could be considered as residing in an intermediate position between a phrase and a word. Beside these action-patient compound words, words of the same semantic relationship are found to be easy to occur in this structure.

B. Syntactic Functions

Lu (2003) contrasts the syntactic roles that NP+*de*+VP and NP+VP+*de* can take and concludes that the former can be used only as subjects and objects while the latter can take far more syntactic roles, i.e. subject, object, complement, attribute, etc.

(14) a. <u>ta de nuoruo</u>   rang   qizi   hen   shiwang.
        <u>3SG NOM cowardice</u> make   wife   very disappoint.
        <u>His cowardice</u> disappointed his wife.

    b. women xiguan   le   <u>ta de   chidao</u>.
        1PL   accustom ASP <u>3SG MON   late</u>.
        We are accustomed to <u>his being late</u>.

The structures with infix *de* can take the syntactic slots which are usually for nouns. In (14)a, *ta de nuoruo* (his cowardice) functions as the subject of the sentence while in (14)b, the structure *ta de chidao* (his being late) acts as the object.

With regard to the NP+VP+*de* structure, it can take more syntactic roles, such as subject, object, complement and attribute. For example,

(15) a. chengyi, wo   xihuan <u>mama   mai   de</u>.
        Shirt,   1SG   like   <u>mother bought NOM</u>.
        As for shirt, I like <u>those bought by my mother</u>.

    b. <u>mama   mai de</u>   shi shuiguo.
        <u>Mother buy NOM</u> is   fruit.

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[6] Some scholars include adjectives as part of the intransitive verbs. We are in line with this claim.

<u>What my mother bought</u> are fruits.
   c.   mama   mai   de   chengyi   haokan.
        Mother buy   NOM   shirt   good-looking.
        The shirt <u>bought by my mother</u> looks good.
   d.   na chengyi, mama   mai de.
        That shirt,   mother   buy NOM.
        That shirt is <u>bought by my mother</u>.

The nominalized structures function as an object in (15)a, a subject in (15)b, an attribute in (15)c and a predicate in (15)d. Their syntactic functions are more diversified than the NP+*de*+VP structure and the VP+NP+*de* structure, which mainly function as subjects or objects.

C. Expression Functions

Nominalized structures can be classified into two categories based on the way of designation: self-designation and trans-designation. The former includes nominalized structures which refer to themselves, like *kindness* in English. The reference of the nominalized word is the same with that of its adjectival counterpart and, therefore, there is no need for a separate index in dictionaries for the two words. While trans-designation refers to nominalizations where the resultant structures refer to something related to the original stem, like *write-writer*. The resultant word *writer* refers to the agent that carries out the action of writing, instead of the action of *writing* itself. The nominalized structures as addressed in this study can also be classified accordingly.

Because of the verbs' low transitivity, the NP+de+VP structure tends to be self-designating, i.e. the nominalized structure refers to the event itself.

(16) a.   ta   taopao le. → ta   de   taopao.
          3SG escape ASP. → He NOM escape.
          He escaped. → His escape.
     b.   gangbi diushi le.   → gangbi   de   diushi.
          Pen   lose ASP. → Pen   NOM   lose.
          The pen was lost. → The loss of the pen.

In the examples above, the nominalized structures refer to the events themselves and, as a whole, they function as a nominal entirety syntactically.

Things are quite different with the NP+VP+*de* structures because the structures can be both self-designating and trans-designating. Lu's (2003) examples are quoted as follows.

(17) a.   <u>mama mai de</u>   shi bai chengyi.
        <u>Mom   buy NOM</u>   is   white shirt.
        <u>What mom bought</u> is a white shirt.
     b. <u>yezi   kuan de</u>   shi jiucai.
          <u>Leaf   wide NOM</u>   is   chives.
          <u>Those whose leaves are wide</u> are chives.
     c. <u>mama   mai de</u>   qingjing
          <u>Mom   buy NOM</u>   scene.
          The scene of <u>mom buying things</u>.
     d. yezi kuan de   shihou.
          Leaf   wide NOM   time.
          The time when <u>the leaves are wide</u>.

In (17)a and (17)b, the NP+VP+*de* structures are trans-designating, with *mama mai de* (mother buys) in (17)a referring to the thing that the mother actually purchased and *yezi kuan de* (leaves are wide) in (17)b designating the vegetable which features wide leaves. In these two examples, the nominalized structures refer to something related to them rather than themselves. Different from the two examples above, the two *de* structures in (17)c and (17)d refer to themselves, with (17)c designating the event of purchasing things and (17)d the vegetable with wide leaves.

Because of the verb-patient relation between the VP and NP in the VP+NP+*de* structure as analyzed in Section 4.1, the references of the structure are always the agents of the actions. For example:

(18) a. <u>kaiche   de</u>   meiyou   chifan.
        <u>Drive-car NOM</u>   not   have-meal.
        <u>The driver</u> has not had meal yet.
     b. <u>fan le cuo   de</u>   yinggai shoudao chengfa.
         <u>make ASP mistake NOM</u> should   receive   punishment.
         <u>Those who made the mistake</u> should be punished.
     c. <u>shou   guo jiaoyu de</u>   buhui shuo zhezhong hua.
         <u>Receive ASP education NOM</u>   not   speak this-kind words.
         <u>People who were educated</u> would not speak like that.

In (18)a, *kaiche de* (drive-car) trans-designates the people who drive cars, i.e. the drivers. *fan le cuo de* (made mistakes) in (18)b refers to the people who made mistakes and, in (18)c, the underlined *de* structure refers to a kind

people who are educated. All the three nominalized structures refer to the agents of the actions.

D. Discourse Distribution

NP+*de*+VP structure is usually used in formal styles and is rarely found in oral utterances (Zhang, 1993; Lu, 2003). The reasons of its distributions lie in three aspects. At the first place, the structure is usually the condensed form of a sentence and is conceptually treated as an entirety. Its high information density goes against the requirements of utterances and posts as a hurdle for oral communications. Secondly, the removal of tense markers, default past tense and the completion of state indicate high objectivity, which makes the structure be more appropriate in formal styles. Thirdly, the self-designation of the structures connotes high certainty, and this further increases its usage in formal genres.

However, the NP+VP+*de* structure and VP+NP+*de* structure are mostly used colloquially and in other informal situations, like opera, drama, etc. The main reason lies in the fact that the structures usually trans-designate related entities or people, thereby their successful understanding depends on necessary inference.

E. Negation

The issue of negation is mentioned in Section 4.1 when we are discussing the components of the structure. With close examination, it is found that all the structures have negative forms. The most commonly used negative words are *bu* (not) and mei (not).

(19) a. Ta   de   bu   peihe.
         3SG NOM not   cooperate.
         His being not cooperative.
     b. Ta   de   bu   lai.
         3SG NOM not   come.
         His not coming.
     c. <u>yezi   bu   kuan   de</u>   shi   jiucai.
         <u>Leaves not   wide NOM</u>   is   chives.
         <u>Those with narrow leaves</u> are chives.
     d. <u>mei hejiu   de</u>   kaiche.
         <u>Not drive-wine NOM</u> drive-car.
         <u>Those who didn't drink</u> should drive the car.

mei (not) and *bu* (not) are negative adverbials for verbs and adjectives and, as examples show, they can occur in the nominal structures. The usage of *mei* (not), especially *bu* (not), further backs up the proposal that the NP+*de*+VP structure is an exocentric construction, with verbs in the structures being not nominalized at all.

V. METAPHOR AND METONYMY: TWO MOTIVATING FACTORS

The publication of the seminal work *Metaphors We Live By* by Lakoff & Johnson (1980) ushered in decades of heated researches on metaphor and metonymy in cognitive semantics. Although both are considered as processes of thought rather than merely language, metaphor receives far more significant attention than metonymy does. The situation begins to change with joint efforts by Croft (1993), Kövecses & Radden (1998), Panther & Radden (1999), Barcelona (2000), Ruiz de Mendoza & Pérez (2001), to name but just a few. A more balanced opinion of metaphor and metonymy's centrality in language and thought has been gradually accepted. As basic cognitive tools which people frequently employ to recognize and conceptualize the world, metaphor and metonymy have obvious consequences on linguistic expressions.

In this section we will address their crucial roles in trans-categorial conversions and, more specifically, their defining importance as motivating factors for our analysis of the NP+*de*+VP and related structures.

A. Metaphor and Self-designation

As opposed to the traditional understanding of metaphor ONLY as a rhetorical usage of language, Lakoff & Johnson (1980) argue that it is primarily a matter of cognition and concept, a tool that people use to talk and reason about the world. It is described as a conceptual mapping from a source domain (usually concrete and familiar) to a target domain (abstract and elusive). Its operation on the mental level is manifested by systematic linguistic expressions, among which, the self-designating NP+*de*+VP and NP+VP+*de* structures are but two instances of the metaphoric domain-to-domain mappings. The nominalization of the whole structure reveals the underlying metaphoric manipulation of comprehending the verbal event, together with its components, in its entirety.
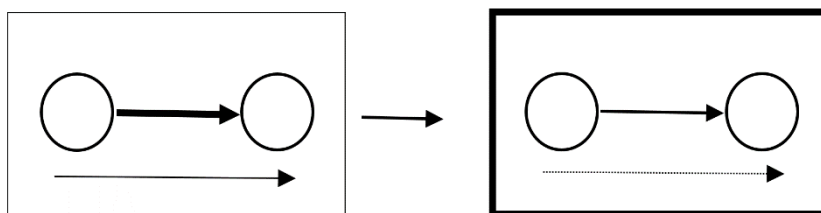
Figure 2: The Process of Nominalization

The two rectangles in Figure 2 show the nominalization process of self-designating structures. The rectangles stand for the ICM or frame of actions. The bold arrow in the left rectangle linking the two circles stands for the action, which is a dependent concept in that it cannot be conceptualized without reliance to the participants which are symbolized by the circles. The arrow is thickened for the purpose of emphasizing that verbs consist of the change and transfer of energy between entities. The arrow under the circles stands for time since all events reside in time and are temporally bounded. Verbs profile relationship with the flow of time.

With the nominalization of the events as symbolized by the short arrow between the two rectangles, emphasis is moved from the action to the whole frame or event in the right rectangle. The arrow which stands for time also becomes doted because of the detemporalization in the nominalization process. The thickened rectangle, as a whole, metaphorically stands for an entity and consequently gains its nominal functions, thereby it may act as a constituent in another event and be symbolized as a circle. The metaphorical mapping from the domain of relationship to that of entity underlies the nominalization process of the self-designating structures[7].

B. Metonymy and Trans-designation

Metonymy has been defined as the conceptual mapping (or a "stands for" relationship) within a single domain[8], or a reference point relationship in which the entity first perceived or sensed provides mental connection with another related entity (Langacker, 1993), or a "conceptual mapping where the target domain is either the result of an expansion or of a reduction of the conceptual material in the source domain" within a superordinate domain (cf. Ruiz de Mendoza, 2000; Dirven, 2005; Geeraerts & Peirsman, 2011, etc.). It is true that the definitions of metonymy differ from each other, but it is quite safe to conclude that metonymy could be simply defined as a domain-internal operation where the source offers mental access to the target.

Different from metaphor, metonymy provides highlight to an implicit but relevant part or entirety of the expression, which is also the conceptual basis for the subdivision of the source-in-target metonymies and target-in-source metonymies by Reiz de Mendoza & Otal (2002). The trans-designating NP+VP+*de* and NP+VP+*de* structures fall in the category of target-in-source metonymies as shown by Figure 3, where a nominalized structure refers to an implicit but indispensable part in the ICM of relation.
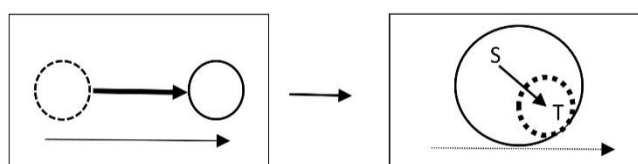

Figure 3: Target-in-source Metonymy

Different from the frequently used examples like *She's learning to tie her shoes* where "shoes" stands for "shoelaces", the source of the trans-designating *de* structure metonymy is the *event* or *relation* as termed by Langacker (2008). In Figure 3, the left rectangle stands for the event or action in its normal state. The circles symbolize the participants while the arrow in-between is the action. The frame includes the interaction of entities, the transfer of energy and is temporarily located. In the trans-designating nominalization frame as shown by the rectangle on the right side, *S* stands for the whole event except the target *T*, which is an implicit but necessary component in the relation, e.g. agent, patient,

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[7] In line with Ruiz de Mendoza & Otal's (2002) study, the nominalization of the self-designating structures could also be accounted by Halliday's (1994) theory of *grammatical metaphor*, which refers to the non-congruent uses of linguistic forms, where, for instance, the processes which are congruently expressed by verbs and the properties which are congruently expressed by adjectives are linguistically and, most importantly, non-congruently realized with nouns. Mendoza & Otal (2002) noticed the syntactic consequences of grammatical metaphors. In line with their postulation, the nominalization of the structures, which are self-designating, from relationships (cf. Langacker, 2008) to nominal entireties are grammatical metaphors. Therefore, it is safe to claim that the underlying metaphorical manipulation is the motivating factor for conceptualizing events or properties in their entirety, i.e. as entities.

[8] Domain is used in a similar sense to that of frame (cf. Taylor, 1995) and realm of experience (cf. Langacker, 2008).

instrument, which is represented by the thickened and doted circle. The arrow going from *S* to *T* symbolizes the metonymic mapping or the route of mental access to the target. These practices are so common in our daily lives that people can hardly be aware of them. For example, both of the following instances of the VP+NP+*de* structure refer to the agents of the actions.

(21) a.   chuan   bai   dagua   de
          wear   big   gown   NOM
          doctor
    b.   kai   che   de
          drive   car   NOM
          driver

Our examples in (17) and (18) provide more instances where the nominalized structures provide mental access to the missing or implicit part of the actions or events.

VI. CONCLUSION

The present study explores the ways in which cognitive linguistics, especially the conceptual metaphor and metonymy theories, can be used effectively to deal with the analysis of the NP+*de*+VP structure and related structures in a systematic and unified way. Central to our analysis are the assumptions that the NP and VP in the structure have a subject-predicate relation and the particle *de* is a nominalizing infix. We have shown that the NP+*de*+VP structure, with the particle *de* functioning as a nominalizing infix, is an exocentric construction whose constituents keep their original part of speech.

The structures are cognitively motivated. The differences in the way of designation among similar structures are manifestations of different cognitive mechanisms. The self-designating NP+*de*+VP and NP+VP+*de* structures are results of metaphoric domain-to-domain mappings, while trans-designating NP+VP+*de* and NP+VP+*de* structures are instantiations of target-in-source metonymy.

Ultimately, the new proposals are validated by empirical means and proved to be more promising in accounting for all the above-mentioned structures in a systemic and unified way. The significance of the present study lies in the possibility of ending the long-debated conflicts between the overall nominal functions of the structures and their constituents' part of speech and, by doing so, sheds light on cognitive studies on Chinese grammar and Chinese language instruction.

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