Categorial status of Mandarin *gei* and structures of *gei* constructions

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Abstract

This thesis examines the categorial status of and syntactic structures involving the morpheme *gei* 'to give' in Mandarin Chinese, which can be a standalone ditransitive verb but also appears in the preverbal, post-verbal, and post-object positions, and in a purposive clause. Referencing the historical development of *gei*, I challenge existing multi-category analyses as well as the unified verbal analysis of *gei*, the former regarding their argument for the preposition and complementizer status of the preverbal and purposive *gei*, and the latter on oversight regarding structural ambiguity of various *gei* constructions. I show that the post-object *gei* is a preposition in the prepositional dative construction, or the second verb in a serial verb construction; the post-verbal *gei* is the spell-out of the low applicative head; the preverbal *gei* is the head of a verbal adjunct, a causative verb, or the spell-out of the causative functional head; and the purposive *gei* is a causative verb embedded in an adjunct clause. I argue that this analysis is more empirically explanatory and theoretically parsimonious, as it accounts for certain puzzles that previous proposals fail to address and adds little complexity to the grammar by attributing *gei* to already-posited functional elements and constructions.

Acknowledgments

Contents

1 Introduction

Part-of-speech assignments are known to be contested in Chinese linguistics. One of the controversies pertains to the categorial status of the morpheme *gei* 给 in Mandarin Chinese which can be a standalone ditransitive verb 'to give' but also functions as a dative marker, a benefactive marker, a causative marker, and so on, in constructions that involve an additional verb(s). In this thesis, I examine the categorial status of *gei* and syntactic structures of various constructions involving *gei* and show that the *gei* constructions can be attributed to already-posited functional heads and constructions.

The thesis is organized as follows. In section 1, I present background information on theories on the syntax of Mandarin Chinese and double object constructions, introduce the pleathora of *gei* constructions, and discuss grammaticalization as a way of accounting for their polyfunctionality. In section 2, I briefly review some of the earlier proposals of *gei*, examine the different uses of *gei*, and discuss the categorial status of *gei* in various constructions. In section 3, I propose my structural analyses for the *gei* constructions. In section 4, I discuss the possible reasons behind the polyfunctionality. Section 5 concludes the thesis.

1.1 The syntax of Mandarin Chinese

Mandarin Chinese is a highly analytic language (Huang 2015), meaning it has little inflectional morphology. That is, nouns are not inflected for number, case, or gender, and verbs are not inflected for tense, aspect, or mood, and so on. In the verbal domain, aspect and mood are instead marked with particles, such as the perfective suffix *-le*. The basic word order is subject-verb-object (SVO), and there are word-order-altering operations such as topic and focus movements.

Beyond the basic fact on inflectional morphology, analyticity is represented in a plethora of phenomena in both the verbal and nominal domains (Huang 2015:4). Below, I introduce two phenomena of particular relevance to this thesis: light verb constructions and pseudo noun incorporation constructions (termed by Massam 2001, as cited in Huang 2015).

It has been noted that Chinese uses light verbs extensively: nouns that may be denominalized and used as a verb in English (and other more synthetic languages) cannot be denominalized in Chinese and must occur as the object of a light verb.

(1) a. John telephoned. (Huang 2015)

    b. Zhangsan da-le   dianhua. (ibid.)
       Zhangsan hit-ASP telephone
       'Zhangsan telephoned.'

For example, the noun *telephone* may be used as a verb in English, but its counterpart in
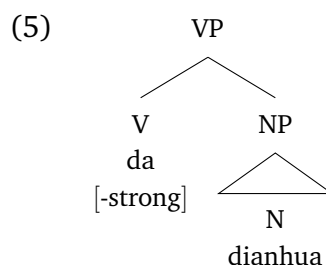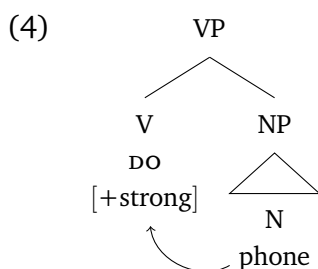
Chinese occurs as an object of the light verb *da* 'to hit' (1b). Similarly, while the following nouns may be denominalized and used as verbs in English, they all require the light verb *da* in Chinese:

(2)   *da-yu* 'to fish'; *da-penti* 'to sneeze'; *da-hu* 'to snore'; *da-haqian* 'to yawn'; *da-you* 'to get oil'; *da-shui* 'to fetch water'; *da-deng* 'to use a lamp'; *da-maoxian* 'to knit'; *da-majiang* 'to play mahjong', etc.   (ibid.)

Another manifestation of analyticity is pseudo noun incorporation (PNI), where actions that can be expressed by simplex verbs in English (and other more synthetic languages) are denoted using verb-object phrases, where the PNI construction spells out the typical verb of a noun (3a) or the typical object of a verb (3b) (Huang 2015:5-6).

(3)   a. *bu-yu* catch-fish 'to fish'; *bo-pi* remove-skin 'to peel'; *zuo-meng* make-dream 'to dream'; *kai-wanxiao* make-joke 'to joke', etc.   (ibid.)

   b. *chi-fan* eat-rice 'to eat'; *he-jiu* drink-wine 'to drink'; *chang-ge* sing-song 'to sing', *tiao-wu* jump-dance 'to dance', etc.   (ibid.)

To capture analyticity syntactically, Huang (2015) assumes that grammatical operations are driven by the need to license or remedy "defective" heads, which contain grammatical features that are not fully interpretable and thus require licensing by other items or operations. Some of the defective features include [+strong] ("strongly defective"; affixal) and [+EPP], and heads with those features require licensing by overt head movement (for [+strong]) or movement to Spec (for [+EPP]), whereas [−strong] and [−EPP] can be licensed by matching configurations (Agree) or covert (LF) movement. He argues that the analytic properties of Mandarin can be captured by the parametric difference that Mandarin heads are [−strong], and heads in more synthetic languages like English are [+strong] (Huang 2015:10).

(4)

```
          VP
         /  \
        V    NP
       DO    /\
    [+strong]  N
         \__ phone
```

(5)

```
          VP
         /  \
        V    NP
       da    /\
    [-strong]  N
            dianhua
```

Using the light verb construction *da dianhua* as an example, the English verb *telephone* has a phonetically empty verb head DO that is [+strong], which needs licensing by overt movement of the underlying lexical noun (cf. Hale & Keyser 1993, 2002); in contrast, the Chinese light verb head is [−strong] and thus blocks noun incorporation and does not trigger overt movement of the noun *dianhua*.

In addition to analyticity, another relevant feature of the syntax of Mandarin is the Phrase Structure Condition (PSC) (Huang 1982), which allows only one constituent in the post-verbal position.

(6)   a. *Mali xue-le   zhongwen san   nian.   (Feng 2015)
           Mary study-ASP Chinese   three year
           Intended: 'Mary studied Chinese for three years.'

      b. Mali xue   zhongwen xue-le   san   nian.   (ibid.)
          Mary study Chinese   study-Asp three year
          'Mary studied Chinese for three years.'

(6a) is a typical example of a PSC violation, where the utterance is ungrammatical due to the main verb having two following constituents, *zhongwen* 'Chinese' and *san nian* 'three years'. To avoid violations of the PSC, Chinese has a number of strategies to remedy the violation via structural transformations, such as verb reduplication (6b).

A consequence of the PSC is the relative lack of ditransitive verbs in Mandarin, since double object constructions systematically violate the PSC and therefore have to be "ruled in" by "marked features of the verbs, which require both constituents following them to be subcategorized elements" (Huang 1982, as cited in Paul 2015). The lack of ditransitives is demonstrated by the contrast in grammaticality between (7a) and (7b), where English *write* is ditransitive but Mandarin *xie* is not.[1]

(7)   a. Zhangsan wrote Lisi a letter.

      b. *Zhangsan xie-le   Lisi yi-feng xin.
           Zhangsan wrote-ASP Lisi one-CL letter
           Intended: 'Zhangsan wrote Lisi a letter.'

1.2   Double object constructions

Before discussing the specific *gei* constructions, I first overview analyses of double object constructions (DOC) in the literature, as *gei* is a double object verb that forms various double object/ditransitive constructions.

The locus classicus for double object constructions is Larson (1988), as shown in (8), which posits a hierarchical structure of the VP, involving two VP shells, where the external argument (EA) is generated as the specifier of the higher VP, the indirect object (IO) as the specifier of the lower VP, and the direct object (DO) as the complement of the lower verb. A well-known variant of the VP shell is Chomsky (1995)'s vP structure, where the higher (external-argument-introducing) verb is a functional head v (9).

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[1]Mandarin does have ditransitive verbs beyond *gei*, but they are mostly limited to three classes of verbs: verbs of giving (e.g., *song* 送 'to give as a present'), verbs of taking (e.g., *tou* 偷 'steal'), and verbs of communication (e.g., *wen* 问 'to ask') (Paul 2015).

(8)   VP-shell (Larson 1988):

```
              VP
             /  \
           EA    V'
                /  \
               V    VP
                   /  \
                 IO    V'
                      /  \
                     V    DO
```

(9) vP (Chomsky 1995):

```
              vP
             /  \
           EA    v'
                /  \
               v    VP
                   /  \
                 IO    V'
                      /  \
                     V    DO
```
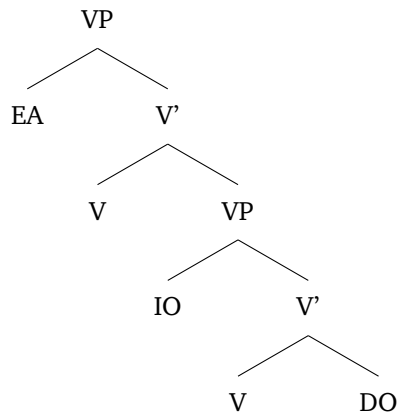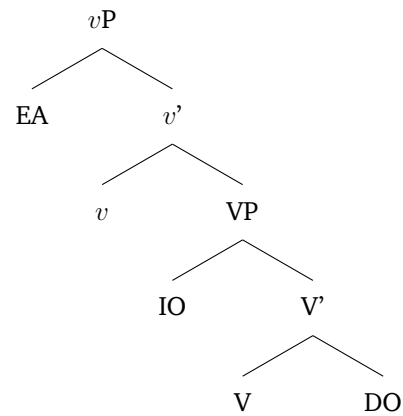
Another influential analysis of double object constructions is proposed by Marantz (1993), as shown in (10), where the indirect object is introduced by an applicative (functional) verb that selects for the lexical VP as its complement. Pylkkänen (2002, 2008) further identifies two types of applicatives based on the types of relation denoted: the high applicative (10) denotes a thematic relation between an applied argument and the event described by the verb, and the low applicative (11) denotes a transfer-of-possession relation between two individuals. The low applicative is further divided into two types: low source applicative and low recipient applicative, which respectively denotes that the direct object is to/from the possession of the indirect object. Specifically, Pylkkänen argues that the English double object construction is a type of low recipient applicative.

(10)   Applicative (Marantz 1993)/ High applicative (Pylkkänen 2002, 2008):

```
              vP
             /  \
           EA    v'
                /  \
               v    ApplP
                    /  \
                  IO    Appl'
                       /  \
                    Appl   VP
                          /  \
                         V    DO
```

(11)   Low applicative (Pylkkänen 2002, 2008):

```
              vP
             /  \
           EA    v'
                /  \
               v    VP
                    /  \
                  IO    V'
                       /  \
                      V    ApplP
                          /  \
                       Appl   DO
```
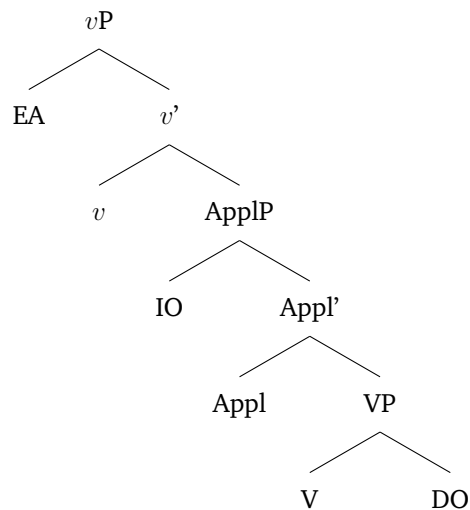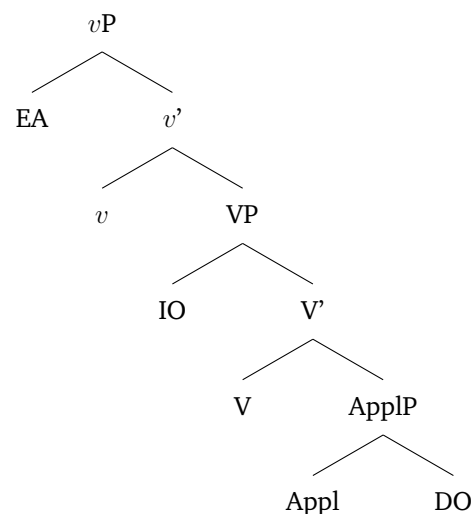
A type of analysis that contrasts with the applicative analysis is the causative/small clause

analysis, which decomposes the ditransitive verb into a causative construction, as shown in (12), where the ditransitive verb 'give' is paraphrastically analyzed as 'cause to have':

(12)   a. I gave Mary a letter.
      b. I CAUSE Mary to HAVE a letter.

The head of the small cause has been analyzed differently in the literature; below is the analysis by Harley (2002), who argues that the small clause is headed by an abstract preposition PHAVE encoding possession.

(13)   Causative/small clause (e.g., Harley 2002):
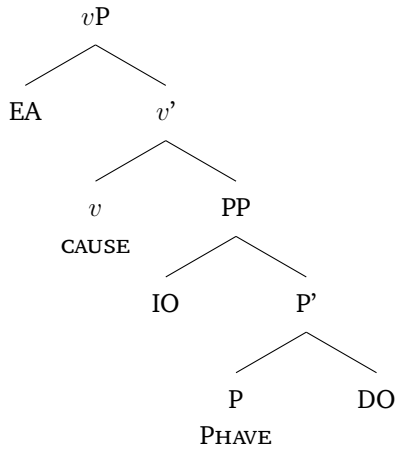
Discussing the nature of the small clause is beyond the scope of this thesis; the most relevant observation for the present purpose is that according to this type of analysis, the functional structure associated with the ditransitivity is causative (as opposed to, e.g., applicative).

1.3   The polyfunctionality of *gei*

Gei is a highly polyfunctional morpheme that can appear in various multi-verb constructions. Based on the surface position of *gei* in the sentence, Her (2006) labelled the different constructions of *gei* as follows: verbal, post-object, post-verbal, preverbal, and purposive, as shown in (14).

(14)   a. Zhangsan **gei** Lisi yi-feng xin.   (Verbal: [*gei* NP$_1$ NP$_2$])
          Zhangsan GEI Lisi one-CL letter
          'Zhangsan gave Lisi a letter.'

      b. Zhangsan xie   yi-feng xin   **gei** Lisi.   (Post-object: [V NP$_1$ *gei* NP$_2$])
          Zhangsan write one-CL letter GEI Lisi
          'Zhangsan wrote a letter to Lisi.'

    c. Zhangsan xie-**gei**　　Lisi yi-feng xin.　　　　　　(Post-verbal: [V-*gei* NP$_2$ NP$_1$])
       Zhangsan write-GEI Lisi one-CL letter
       'Zhangsan wrote Lisi a letter.'

    d. Zhangsan **gei** Lisi xie-le　　　yi-feng xin.　　　　　(Preverbal: [*gei* NP$_2$ V NP$_1$])
       Zhangsan GEI Lisi write-ASP one-CL letter
       'Zhangsan wrote Lisi a letter.'

    e. Zhangsan na-chu　yi-feng xin　**gei** Lisi kan.　　(Purposive: [V NP *gei* NP VP])
       Zhangsan take-out one-CL letter GEI Lisi read
       'Zhangsan took out a letter for Lisi to read.'

The preverbal *gei* can be further classified semantically, based on whether the matrix subject of the sentence is the agent or actor of the event (e.g., *gei* as a dative marker (14d), a benefactive/malfactive marker (15a), an allative marker (15b)[2], a disposal marker (15c)[3], similar to *ba*), the agent or actor of a caused/permitted event (*gei* as a causative/permissive marker (15d)), or the patient or undergoer of a caused/permitted event (*gei* as a passive marker (15e), similar to *bei*) (Lin & Huang 2015; Lo 2012).

(15) a. Zhangsan **gei** Lisi paotui.
       Zhangsan GEI Lisi run.errands
       'Zhangsan ran errands for Lisi.'

    b. Zhangsan **gei** Lisi jugong.
       Zhangsan GEI Lisi bow
       'Zhangsan bowed to Lisi.'

    c. Zhangsan **gei** zhaoxiangji nong-huai-le.
       Zhangsan GEI camera　　　　do-bad-ASP
       'Zhangsan broke the camera.'

    d. Zhangsan **gei** Lisi de　　diyiming.
       Zhangsan GEI Lisi obtain first.place
       i. 'Zhangsan caused Lisi to get the first place.'
       ii. 'Zhangsan let/allowed Lisi to get the first place.'

    e. Zhangsan **gei** Lisi pian-le.
       Zhangsan GEI Lisi deceive-ASP
       'Zhangsan got deceived by Lisi.'

Note that the polyfunctionality of *gei* also entails high degrees of ambiguity of *gei* constructions, not only between closely related meanings (e.g., causative/permissive (15d), which can be interpreted as strong/weak forms of causative), but also between more distantly related meanings (16), which, along with the historical development of *gei* as shown in the following

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[2]Lo (2012)'s term; *gei* that indicates the goal/location
[3]Lo (2012)'s term; *gei* that indicates an affected entity

section, is evidence of *gei* having undergone reanalysis/grammaticalization, as ambiguity is a driving force of such change.

(16)   Zhangsan **gei** Lisi kan na-ben shu.
       Zhangsan GEI Lisi see that-CL book
       i. Benefactive: 'Zhangsan read the book for (the sake of) Lisi.'
       ii. Indirect causative: 'Zhangsan let Lisi read the book.'
       iii. Direct causative: 'Zhangsan showed Lisi the book.'

Although many previous studies on *gei* mention the ambiguity of *gei* constructions to some extent, few have recognized this degree of ambiguity: namely, the direct causative reading (iii) has been overlooked or assumed to be identical to the indirect causative reading (ii). We return to this issue in sections 2.3 and 3.3.

The high degrees of polyfunctionality and ambiguity have important implications on analyses of *gei* constructions: given that *gei* constructions are already highly complex due to the polyfunctionality, an adequate analysis of *gei* should introduce as few additional mechanisms as possible so as to not introduce unnecessary complexity to the grammar.

1.4   Grammaticalization

Grammaticalization is defined as the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions, and, once grammaticalized, continue to develop new grammatical functions (Hopper & Traugott 2003). The polyfunctionality of *gei* has often been analyzed as or assumed to be a result of grammaticalization, but few synchronic studies of *gei* constructions have closely examined the grammaticalization path of *gei* and its implication on the possible structural analyses.

1.4.1   Grammaticalization of *gei*

The grammaticalization of *gei* is supported by both typological and historical evidence. Cross-linguistically, 'give' exhibits a wide range of grammatical functions and is commonly the source of grammaticalization (Kouteva et al. 2019), as shown in Table 1:

Lo (2012) provided a comprehensive[4] overview of the historical development of *gei* constructions by surveying texts from the Qin dynasty (221-206 BC) to the Qing dynasty (1644-1912 AD), and proposed the following paths of change mostly based on time of emergence and semantic overlaps between the usages.

(17)   'provide' > 'give' > dative markers (order of emergence: post-verbal - post-object - preverbal)

---

[4]Note that there are still a couple of *gei* constructions overlooked in Lo (2012)'s analysis: namely, the indirect causative (16iii) and the post-object benefactive, which we will return to in later sections.

	(1)	benefactive
	(2)	causative
	(3)	cause
	(4)	concern
'give' >	(5)	imperative
	(6)	passive
	(7)	patient
	(8)	permission
	(9)	purpose
	(10)	recipient

Table 1: The cross-linguistically attested functions of 'give' (Kouteva et al. 2019)

(18) a. Preverbal dative marker > benefactive marker > allative marker

b. Preverbal dative marker > benefactive marker > malfactive marker

(19) Purposive dative marker *gei*[5] > causative/permissive marker > passive marker

As mentioned above, semantic overlap (with the strongest form of overlap being complete ambiguity) is an important indicator of grammaticalization and language change, as it creates an environment where reanalysis of a construction becomes possible. For example, Lo (2012) cites a text from the Ming dynasty (1368-1644 AD) (p. 238) showing the ambiguity of *gei*:

(20) benzhou yi   bo-le   tian **gei** ta   ling-le.
the.state already assign-ASP field GEI 3SG receive-ASP
'The state has already assigned farmland for him to receive.'

In (20), *gei* can be interpreted as a dative marker ('assigned farmland to him') as well as a causative marker ('let/caused him to receive farmland'). This ambiguity provides the basis for reanalysis and the emergence of the causative *gei*.

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[5]This is originally termed "dative marker in the form of 'post-object *gei* + VP'" because Lo (2012) was mostly concerned descriptively with the surface/linear structure. I am renaming it based on Her (2006)'s classification both for consistency of terminology and because the purposive *gei* is not and should not be analyzed as 'post-object *gei* + VP':

(1) a. Zhangsan chang-le yi-shou ge   gei Lisi ting.   (Purposive)
Zhangsan sing-ASP one-CL song GEI Lisi listen
'Zhangsan sang a song for Lisi to listen.'

b. * Zhangsan chang-le yi-shou ge   gei Lisi.   (Post-object)
Zhangsan sing-ASP one-CL song GEI Lisi
Intended: 'Zhangsan sang a song for Lisi.'

1.4.2 Generative approach to grammaticalization

It can be seen from the previous section that there is sufficient evidence for the grammaticalization of *gei*, where the paths of change are both cross-linguistically and historically attested. Thus, it is expected that there are syntactic/structural consequences of grammaticalization. Under the generative framework, grammaticalization is seen as the diachronic output of the preference for Merge over Move, where loss of movement is preferred since it will lead to a reduction in complexity, that is, to a simpler representation (Roberts & Roussou 2003). In other words, grammaticalization is a diachronic upward movement in the structure, where a lexical item is raised to a functional head position or a functional head is raised to a higher functional position, which results in a loss of movement (in the synchronic structure) and hence simplicity. The preference comes from the fact that language change is fundamentally acquisition of a grammar that differs from that of the previous generation(s) of speakers, and the language learning device is computationally conservative and has a built-in preference for simpler representations. This provides a form of diagnostic for evaluating synchronic analyses of *gei* as an element that has undergone grammaticalization: the proposed structural analysis should not contradict with that predicted by the grammaticalization paths.

2 Categorial status of *gei*

There have been a number of different systematic analyses of the part-of-speech status of *gei* in different *gei* constructions, as shown in Table 2.

	Huang & Ahrens (1999)	Ting & Chang (2004)	Her (2006)	Lin & Huang (2015)
Verbal	Verb	Verb	Verb	Verb ("generalized ditransitive analysis")
Post-verbal	Affix	Verb or Affix	Verb	
Post-object	Verb	Preposition	Verb / Preposition	
Preverbal	Preposition	Preposition	Preposition	
Purposive	Verb	Complementizer	Complementizer	

Table 2: The category of *gei* in previous studies

However, most of the existing approaches do not align with the data on the development of *gei* or cross-linguistically attested patterns of grammaticalization. The analyses of *gei* as a verb, a preposition, and a complementizer (Ting & Chang 2004, Her 2006) rely on the grammaticalization path of verb > preposition > complementizer, which has two empirical issues: first, although Ting & Chang (2004) provide cross-linguistic evidence for the possibility of re-categorization from verb to preposition and from preposition to complementizer, they do not show the viability of the full grammaticalization path; second, as described by Lo (2012), the purposive form emerged before the causative/permissive form, which would

predict the grammaticalization path of complementizer > verb/preposition, violating the uni-directionality characteristic of grammaticalization (Haspelmath 1999)[6]. On the other hand, Lin & Huang (2015) explicitly argued against the grammaticalization analysis of the poly-functionality of *gei*, stating that *gei* is a regular ditransitive verb in all cases and that the poly-functionality of *gei* "is not because *gei* has 'grammaticalized' into a goal marker, a causative marker, a passive marker, and so on." (Lin & Huang 2015:324), yet they do not provide counterevidence to grammaticalization or an alternative account for the polyfunctionality of *gei*. That is, although analyzing *gei* as a ditransitive verb with special selectional properties may explain the data at hand, it is theoretically suboptimal since it creates more complexity to the grammar by introducing categorially deviant properties (i.e., properties of *gei* that are not shared by other lexical verbs or even other ditransitive verbs that must be accounted for within the category of lexical verbs due to the assignment of *gei* as a lexical ditransitive verb across the board).

2.1   The post-object *gei* [V NP$_1$ *gei* NP$_2$]

The post-object *gei* is argued to be ambiguous between a preposition and a verb by Her (2006): for example, the *gei* in (21a) is a preposition, since the ditransitive verb *song* 'send' subcategorizes for a goal PP (in a prepositional dative construction), and the *gei* in (21b) is a verb, since the transitive verb *zhai* 'pluck' does not subcategorize for a third argument (hence the *gei*-phrase heads a secondary VP adjunct in a serial verb construction (SVC)[7]).

(21)   a.   Zhangsan song yi-ben shu   gei Lisi.
        Zhangsan send one-cl book gei Lisi
        'Zhangsan sent a book to Lisi.'

      b.   Zhangsan zhai   yi-duo hua   gei Lisi.
        Zhangsan pluck one-cl flower gei Lisi
        'Zhangsan plucked a flower [and gave it] to Lisi.'

He also observed that some ditransitive verbs with postobject *gei* are ambiguous between two readings - dative (22i) and benefactive (22ii), which respectively correspond to the prepositional and verbal uses.

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[6]I acknowledge that the unidirectionality can be violated in the case of lexicalization/degrammaticalization; however, there is not clear evidence for the degrammaticalization path of complementizer > preposition or the occurence of degrammaticalization in the first place.

[7]Paul (2008) points out that SVC has been broadly used in the literature for a plethora of constructions as a descriptive term for any multi-verb surface string rather than a structural analysis. In this thesis, I adopt the narrow structural definition used in Her (2006) (citing Huang & Ahrens 1999) that SVC refers to constructions where the secondary verb heads an (aspect-less) VP adjunct.

(22)   Lisi hui jie   yi-dong fangzi gei ta.
       Lisi will loan one-CL   house GEI 3SG
       i. 'Lisi will loan a house to him.'
       ii. 'Lisi will borrow a house to give to him.'

On the other hand, Lin & Huang (2015) observed that the post-object *gei* exhibits verbal properties (even when the main verb is ditransitive), such as the ability to be modified by an adverb (23), unlike canonical prepositions.

(23)   Zhangsan song-le   ji-ben   shu fenbie   gei na-ji-ge   xiaohai.
       Zhangsan send-ASP several-CL book separately GEI that-several-CL child
       'Zhangsan sent several books to those children separately.

However, they overlooked that adverb modification resolves the ambiguity in *gei*. Consider (24):

(24)   Lisi hui jie   liang-dong fangzi fenbie   gei Zhangsan he   Wangwu.
       Lisi will loan two-CL   house separately GEI Zhangsan and Wangwu.
       'Lisi will borrow two houses to give to Zhangsan and Wangwu.'

In (24), only the benefactive reading remains. This is unexpected under the analysis of both the benefactive and dative post-object *gei* as verbal, which would predict that both could undergo adverb modification. In contrast, this supports Her (2006)'s analysis, which accurately predicts the ability and inability for the post-object *gei* to undergo adverb modification[8].

The treatment of the benefactive post-verbal *gei* as a verb and the dative one as a preposition may seem like an apparent violation of the grammaticalization path observed in Lo (2012). However, Lo (2012)'s dative > benefactive grammaticalization path is only about the preverbal *gei*; he makes no observation or argument about the distinction between the dative and benefactive post-object *gei*. Since benefactive > dative and verb > preposition grammaticalization paths are cross-linguistically attested (Kouteva et al. 2019), it is not unreasonable to assume that it is the case for the post-object *gei*.

2.2   The post-verbal *gei* [V-*gei* NP$_2$ NP$_1$]

There is general agreement in the literature that the post-verbal *gei* is verbal, which is apparent from its ability to take suffixal aspect:

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[8]Not all speakers find it grammatical to modify the post-object *gei* with an adverb, as shown by the following example from Yu (2020). This shows that the post-object *gei* may be analyzed as only a preposition for some speakers, which would predict that they would find examples like (22) to be unambiguous.

(1)   Ta   hen kuai de xie-le   yi-feng xin   (*manman de) gei Lisi.   (Yu 2020)
      3SG very fast DE write-ASP one-CL letter slow.slow   DE GEI Lisi
      Intended: 'He quickly wrote a letter and slowly sent it to Lisi.'

(25)   Zhangsan xie-gei-le   Lisi yi-feng xin.
       Zhangsan write-GEI-ASP Lisi one-CL letter
       'Zhangsan wrote Lisi a letter.'

Huang & Ahrens (1999) proposed that the post-verbal *gei* is an affix, based on observations that (1) *gei* selects the syntactic categories of its hosts, (2) a V-*gei* sequence cannot be intervened, (3) the V-*gei* combination shows semantic shift and idiosyncratic gaps, and (4) the affixation of *gei* is a lexical operation. This is refuted by Her (2006), who noted that such observations are not unique to an affixal analysis and that the affixal analysis is unable to rule out verbs that cannot form V-*gei* constructions (e.g., **pa-gei* 'climb-give'); he instead argues for a V-V compound analysis, which he claims is able to capture the same observations and systematically distinguish between verbs that can and cannot form V-*gei* constructions, making it superior to the affixal analysis, which does not make such distinctions. I endorse the argument that the post-verbal *gei* is verbal instead of affixal: given the paucity of affixes in Chinese (Duanmu 2015), it is unparsimonious to analyze *gei* as an affix when the observations associated with the affixal analysis can be explained by an alternative analysis. I return to discussions about the compound analysis in section 3.2.

2.3   The preverbal *gei* [*gei* NP$_2$ V NP$_1$]

All the systematic analyses of *gei* before Lin & Huang (2015) (e.g., Huang & Ahrens 1999, Ting & Chang 2004, Her 2006[9]) considered the preverbal *gei* to be prepositional due to its modificational behavior of being able to occur with all kinds of predicates: transitive in (26a), ditransitive in (26b), and intransitive in (26c):

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[9]Her (2006) recognizes two types of *gei* that are verbal but have the surface form of the preverbal *gei*: *gei* as the matrix verb in serial verb constructions (SVC) (1), and what he calls "*bei*-like" or "passive-like *gei*" (2), his example of which constitutes the causative/permissive *gei* here.

(1)   Lisi gei ta   zhei-bi qian   mai fangzi.   (Her 2006's SVC *gei*)
      Lisi GEI 3SG this-CL money buy house
      'Lisi gave him this money to buy a house.'

(2)   Zhangsan gei/bei Lisi jie-le   yi-bai-kuai.   (Her 2006's "passive-like" *gei*)
      Zhangsan GEI/BEI Lisi borrow-ASP $100.
      'Zhangsan let Lisi borrow $100.'

I assume the analysis of the first instance as SVC; however, it is not optimal to analyze the passive *gei* and the causative/permissive *gei* as the same construction, because not all instances of the causative/permissive *gei* are semantically passive or are replaceable by *bei*.

(3)   Zhangsan gei/*bei Lisi de   diyiming
      Zhangsan GEI/BEI Lisi obtain first.place
      'Zhangsan let Lisi get the first place.'

(26)   a.   Lisi gei ta   zhai-xia-le   yi-duo hua.   (Her 2006)
            Lisi GEI she pluck-down-ASP one-CL flower
            'Lisi picked a flower for her.'

       b.   Ta   zhongyu gei wo jie-le   Lisi yibaiwan.   (ibid.)
            3SG finally   GEI 1SG loan-ASP Lisi $1.million
            'She finally loaned Lisi $ 1 million (as I wished).'

       c.   Wo bu xiangxin ta   gan gei wo si!   (ibid.)
            1SG not believe   3SG dare GEI 1SG die
            'I don't believe she dares to die (on me)!'

Lin & Huang (2015) argued that the preverbal *gei* is a verb, noting a property that does not align with canonical prepositions: the nominal phrase following the preverbal *gei* can be dislocated (e.g., topicalized) (27), while the nominal phrase following the preposition *dui* 'to' cannot (28). According to them, the difference in the various preverbal *gei* is simply a difference in the second internal argument, where the dative/benefactive/allative *gei* takes a VP argument and the causative/permissive *gei* takes an IP argument.

(27)   a.   Na-shan men, Zhangsan bu gei *e* shang youqi.   (Lin & Huang 2015)
            that-CL   door Zhangsan not GEI   paint paint
            'That door, Zhangsan did not paint a coat of paint on [it].'

       b.   Bu xihuan de ren,   Zhangsan bu gei *e* jugong.   (ibid.)
            not like   DE person Zhangsan not GEI   bow
            'Persons that [he] doesn't like, Zhangsan would not bow [to them].'

       c.   Tai zang de ren,   Zhangsan bu gei *e* xizao.
            too dirty DE person, Zhangsan not GEI   bath
            'Persons that are too dirty, Zhangsan would not bathe them.'

(28)   *Lisi, Zhangsan dui *e* hen guanxin.   (Lin & Huang 2015)
        Lisi Zhangsan to   very care
        Intended: 'Lisi, Zhangsan cares very much about [him].'

Additional evidence for the verbal status of the preverbal *gei* comes from the observation that it can form A-not-A questions, a type of yes-no question formation in Chinese, which is a frequently applied as a verbhood test:

(29)   a.   ta   gei-bu-gei Lisi paotui?
            3SG GEI-not-GEI Lisi run.errands
            'Does he run errands for Lisi?'

       b.   *ta   dui-bu-dui ni   hen guanxin?
             3SG DUI-not-DUI 2SG very care
            Intended: 'Does he care about you?'

It has been noted that A-not-A questions are not a fully deterministic test for verbhood (Huang et al. 2009); nonetheless, the contrast between (29a) and (29b) can act as supporting evidence for the verbal status of *gei*, in addition to the evidence from moveability.

While Lin & Huang (2015) provide concrete evidence that the preverbal *gei* exhibits verbal properties, their general approach does not account for the variety in preverbal *gei*. Recall that *gei* constructions can have a high degree of ambiguity (16), repeated here as (30), which is overlooked in the existing literature, especially with respect to the direct causative reading (iii):

(30)   Zhangsan gei Lisi kan na-ben shu.
       Zhangsan GEI Lisi see that-CL book
       i. Benefactive: 'Zhangsan read the book for (the sake of) Lisi.'
       ii. Indirect causative: 'Zhangsan let Lisi read the book.'
       iii. Direct causative: 'Zhangsan showed Lisi the book.'

I argue that the three meanings reflected in the above example should be analyzed as different verbal elements with distinct structures, because they exhibit different syntactic properties: (a) only under the benefactive reading (i) can *gei* head a moveable adjunct, and (b) only under the indirect causative reading (ii) can *gei* select for an IP argument, which is logically sufficient to consider the three as distinct from each other. Moreover, a three-category analysis resolves inconsistent behaviors within the categories of the two-category proposal of preverbal *gei* by Lin & Huang (2015) (VP- vs. IP-taking preverbal *gei*).

Lin & Huang (2015) observed that the preverbal *gei* can head an adjunct that is moveable:

(31)   Gei Lisi, Zhangsan ju-le   yi-ge   gong.   (Lin & Huang 2015)
       GEI Lisi, Zhangsan bow-ASP one-CL bow
       'To Lisi, Zhangsan made a bow.'

However, they overlooked that only *gei* under the (i) meaning can head a moveable adjunct:

(32)   Gei Lisi, Zhangsan kan-le   na-ben shu.
       GEI Lisi, Zhangsan see-ASP that-CL book
       'For Lisi, Zhangsan read that book.'
       *'Lisi, Zhangsan let read the book.'
       *'To Lisi, Zhangsan showed the book.'

The ambiguity in (16)/(30) is resolved when the *gei*-phrase is moved in (32); only the benefactive reading remains.

Systematically testing the moveability of the *gei*-phrase also problematizes the two-way categorization of the preverbal *gei* by Lin & Huang (2015) as VP- or IP- taking:

(33) a. Zhangsan gei Lisi xizao. ([Lin & Huang 2015])
Zhangsan GEI Lisi bath
'Zhangsan bathed Lisi.'

  b. *gei Lisi, Zhangsan xi-le   yi-ge   zao.
    GEI Lisi, Zhangsan bath-ASP one-CL bath
    Intended: 'Lisi, Zhangsan bathed.'

If their categorization was accurate and they simply overlooked that only one of their two *gei* can head a moveable phrase, one could expect that at least *gei*-phrases that are classified as the same type should be equally moveable. However, this is not the case either: they classified (15b) and (33a) as having the same type of *gei* (VP-taking), but only (15b) heads a moveable *gei*-phrase, as shown by the contrast between (31) and (33b). This is because the *gei* in (33a) belongs to a different category of preverbal *gei*: it is more accurately captured as a direct causative *gei* where Zhangsan causes Lisi to be bathed.

So far, we have determined that the benefactive reading (i) is syntactically different from the causative readings (ii) and (iii). Furthermore, we can see that the indirect causative (ii) is syntactically different from the direct causative (iii): *gei* sentences under the indirect causative reading are biclausal (34), but not under the direct causative reading (35).

(34) Zhangsan$_i$ gei Lisi$_j$ da ta-ziji$_{*i/j}$
Zhangsan GEI Lisi hit 3SG-self
'Zhangsan$_i$ let Lisi$_j$ hit himself$_{*i/j}$.'

(35) ?Zhangsan$_i$ gei Lisi$_j$ kan ta-ziji$_{i/j}$
  Zhangsan GEI Lisi see 3SG-self
Intended: '?Zhangsan$_i$ showed Lisi$_j$ himself$_{i/j}$.'

The clausal status can be tested using Condition A of Binding Theory ([Chomsky 1981]), which states that an anaphor must be locally bound (within its binding domain). In (34), *taziji* 'himself' can only refer to *Lisi*, suggesting that *Zhangsan* is out of its binding domain - that is, *Zhangsan* and *taziji* are not in the same smallest IP, which means the sentence is biclausal[10]. On the other hand, in (35), coreferring *taziji* with *Zhangsan* or *Lisi* yield the same

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[10]While the simple reflexive *ziji* in Chinese allows for long-distance binding, the complex reflexive *taziji* does not ([Cole et al. 2006]), making the latter a viable test item for the clausal structures of (34) and (35).

  (1) Zhangsan$_i$ renwei Lisi$_j$ zhidao Wangwu$_k$ xihuan **ziji**$_{i/j/k}$
    Zhangsan think Lisi know Wangwu like   self
    'Zhangsan thinks Lisi knows Wangwu likes self.'

  (2) Zhangsan$_i$ renwei Lisi$_j$ zhidao Wangwu$_k$ xihuan **ta-ziji**$_{*i/*j/k}$
    Zhangsan think Lisi know Wangwu like   3SG-self
    'Zhangsan thinks Lisi knows Wangwu likes himself.'

grammaticality, which shows that they are in the same binding domain and thus the sentence is monoclausal.

To sum up, in this section, I showed that despite all showing verbal properties, the preverbal *gei* are (syntactically) distinct from each other, with at least three[11] different structures under the different readings: dative/benefactive/allative, direct causative, and indirect causative, and established diagnostics for the type a given *gei* structure belongs to (movement, binding). Specifically, I depart from the existing literature by endorsing the verbal status of the preverbal *gei* (contra analyses before Lin & Huang 2015) and identifying the direct causative as a structurally distinct type of preverbal *gei* (contra Lin & Huang 2015). We return to discussions of the specific structures in 3.3.

2.4 The purposive *gei* [V NP *gei* NP VP]

Ting & Chang (2004) and Her (2006) consider the purposive *gei* a complementizer. I have shown at the beginning of this section that this analysis does not align with the observed grammaticalization path, since the purposive *gei* grammaticalized into the causative/permissive *gei*. In contrast, the historical evidence corroborates the verbal analysis by Lin & Huang (2015), who precisely identified the close relationship between the two by stating that "the purposive use of *gei* is no different from the permissive-causative *gei*" and showed that the purposive *gei* becomes ungrammatical once its use deviates from that of the causative/permissive *gei* (Lin & Huang 2015:314).

(36) a. Zhangsan chang yi-shou ge   gei Lisi ting.   (Lin & Huang 2015)
         Zhangsan sing   one-CL song GEI Lisi listen
         'Zhangsan sang a song for Lisi to hear.'

      b. Zhangsan gei Lisi ting   na-shou ge.   (ibid.)
         Zhangsan GEI Lisi listen that-CL   song
         'Zhangsan let Lisi listen to that song.'

(37) a. *Zhangsan song Lisi qian   gei taohao Wangwu.   (ibid.)
          Zhangsan send Lisi money GEI please Wangwu
         Intended: 'Zhangsan sent Lisi money so as to please Wangwu.'

      b. *Zhangsan gei taohao Wangwu.   (ibid.)
          Zhangsan GEI please Wangwu
         Intended: 'Zhangsan let (someone) please Wangwu.'

Gei is purposive in (36a) and (37a), and causative in (36b) and (37b). The grammaticality of the purposive and causative *gei* clearly parallel each other, indicating that they are

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[11]I leave discussions on the disposal (15c) and passive (15e) types of preverbal *gei* for future research, since they resemble functional elements that are in and of themselves highly complex (*ba* and *bei*, respectively) and are beyond the scope of this thesis.

underlyingly the same element.

Additionally, the purposive *gei* can co-occur with the true purposive-introducing complementizer *lai* (38), which would be unexpected if *gei* was a complementizer.

(38) Zhangsan na-le   yi-ben shu (lai) gei ta   kan.
Zhangsan bring-ASP one-CL book PURPS GEI 3SG see
'Zhangsan brought a book for him to see.'

Therefore, I endorse Lin & Huang (2015)'s argument that the "purposive" *gei* is verb instead of a complementizer, and that it is the same as the causative/permissive *gei*.

3 Structures of *gei* constructions

In the previous section, I identified the categorial status of *gei* in each of the constructions; in this section, I present my analyses of the syntactic structures of the *gei* constructions.

3.1 The post-object *gei* [V NP$_1$ *gei* NP$_2$]

We have shown in section 2.1 that the post-object *gei* is ambiguous between a preposition and a verb. The prepositional post-object *gei* follows the structure of prepositional dative (Larson 1988, Bruening 2010) as shown in (40).

(39) Zhangsan song yi-ben shu   gei Lisi.
Zhangsan send one-CL book GEI Lisi
'Zhangsan sent a book to Lisi.'

(40)
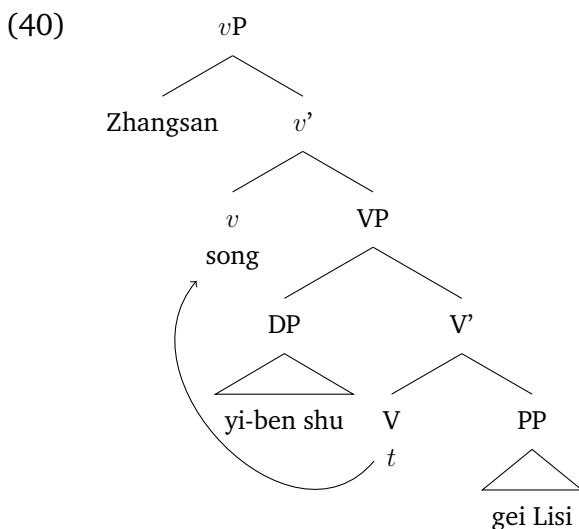
For the verbal post-object *gei*, I adopt Lin & Huang (2015)'s analysis that the *gei*-phrase is a *v*P with an empty subject controlled by the matrix subject and an empty complement

coindexed with the matrix object. But I differ from their analysis in that the *gei*-phrase as an adjunct (following Her 2006's serial verb analysis) instead of the complement of the verb. The direct object is the specifier instead of the complement due to the Phrase Structure Constraint (PSC), which disallows multiple post-verbal constituents (for a similar treatment of the object with respect to to PSC, see Huang et al. 2009, subsection 3.2.3).

(41)   Zhangsan zhai yi-duo hua   gei Lisi.
       Zhangsan pluck one-CL flower GEI Lisi
       'Zhangsan plucked a flower for Lisi.'

(42)
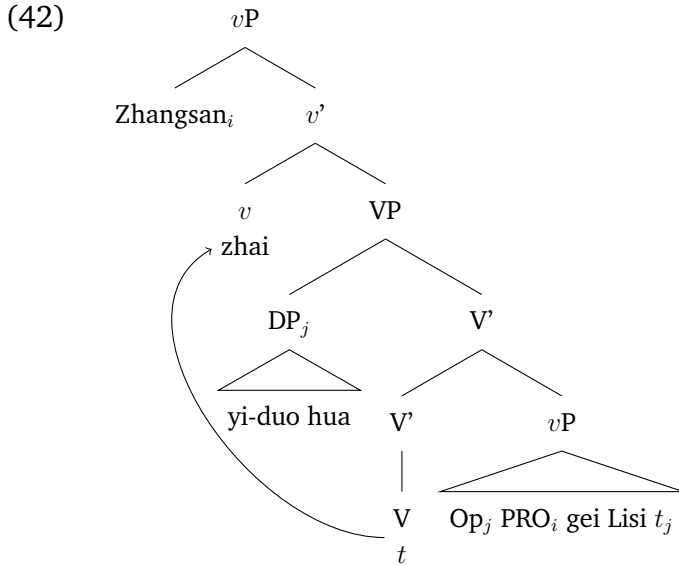
Independent from Her (2006)'s analysis, there is additional evidence for the verbal post-object *gei*-phrase being an adjunct: it exhibits properties of an inner island - that is, it cannot be targeted by questions, which is a distinguishing property between adjuncts and arguments in Chinese (Huang 1982, as cited in Huang et al. 2009).

(43)   a. ta bu xiangxin ni zheme chang-guo nei-shou minge.   (Huang et al. 2009)
          3SG NEG think   2SG this.way sing-ASP   what   folk.song
          'He doesn't believe that you sang that folk song this way.'

       b. ta bu xiangxin ni zheme chang-guo shenme minge?   (ibid.)
          3SG NEG think   2SG this.way sing-ASP   what   folk.song
          'What folk song does he not think that you sang this way?'

       c. ??ta bu xiangxin ni zenme chang-guo nei-shou minge?   (ibid.)
           3SG NEG think   2SG how   sing-ASP   that-CL folk.song
          '*How does he not think that you sang that folk song?' (with *how* modifying *sing*)'

The only difference between (43b) and (43c) is the phrase being questioned: in (43b), it is the argument *nei-shou minge* 'that folk song', and in (43c), it is the adverbial modifier

zheme 'in this way', showing that the adjunct is harder to question than the argument. The same pattern can be found with the questioning of the matrix object and the indirect object in the *gei*-phrase:

(44)   a.   ta   bu   xiangxin Zhangsan zhai-le   shenme gei Lisi?
            3SG NEG think   Zhangsan pick-ASP what   GEI Lisi
            'What does she not think Zhangsan picked for Lisi?'

       b.   ??ta   bu   xiangxin Zhangsan zhai-le   yi-duo hua   gei shei?
             3SG NEG think   Zhangsan pick-ASP one-CL flower GEI who
            '??Who does she not think Zhangsan picked a flower for?'

Similar to the contrast between (43b) and (43c), it is more unnatural to question the *gei*-phrase (72c) than the matrix object (72b), suggesting that the *gei*-phrase is an adjunct.

Moreover, Lin & Huang (2015)'s analysis relies on positing a "resultative complementation rule" that converts a resultative expression into a syntactic complement. Resultative complements do exist in Chinese; however, they are introduced by the resultative *de* 得 (see Huang et al. 2009, section 3.2.2 for detailed discussions of the resultative *de*). Thus, it is unclear what would license the post-object *gei*-phrase as a resultative complement under their analysis, and positing an additional mechanism would be unparsimonious when there is a possible alternative (i.e., the present analysis) that relies on readily available structures (i.e., verbal adjunct/SVC).

3.2   The post-verbal *gei* [V-*gei* NP$_2$ NP$_1$]

As mentioned in section 2.2, it is generally agreed upon that the post-verbal *gei* is a verbal element. Within the verbal domain, there are three main types of structural analyses of the post-verbal *gei*: above the lexical VP (Paul & Whitman 2010, Yu 2020), as a compound with the lexical verb (Her 2006, adopted in Lin & Huang 2015), and within the lexical VP (Zhang 1998, Jiang 2016). I show that the first two types of analyses are inadequate or introduce additional complexity to the grammar, and I endorse the analysis of *gei* as an element within the lexical VP and adopt a modified version where *gei* is the spell-out of the low applicative head (Pylkkänen 2002, 2008).

Paul & Whitman (2010) argue that the post-verbal *gei* is a "raising applicative", where *gei* occupies the position of the high applicative but differs from the high applicative in that it doesn't select for the IO in its specifier; instead, it attracts a nominal argument from within the lexical VP. Their analysis requires the lexical V to raise to the Appl(icative) head and adjoins to its left to form V-*gei*, which further raises to Asp(ect) to adjoin to the aspect suffix (when there is one). That is, it assumes that the aspect suffix is base-generated in Asp. However, there is empirical evidence against suffixal aspect being base-generated in Asp, and

their derivation generates the ungrammatical word order when Asp is base-generating in the accurate position (V) instead.

To begin with, Huang et al. (2009) demonstrate that V doesn't go out of vP:

(45)   a. ta   dasheng chang-zhe ge.   (Huang et al. 2009)
             3SG loudly   sing-ASP   song
             'He was singing loudly.'

         b. *ta   chang-zhe dasheng ge.   (ibid.)
              3SG sing-ASP   loudly   song
              Intended: 'He was singing loudly.'

The structure in (47) is adopted for the aspectual phrase, since non-suffixal aspect markers occur before the lexical verb (46), indicating that aspectual phrase is above vP.

(46)   ta   zai chang ge.   (ibid.)
         3SG ASP sing   song
         'He is singing.'

(47)
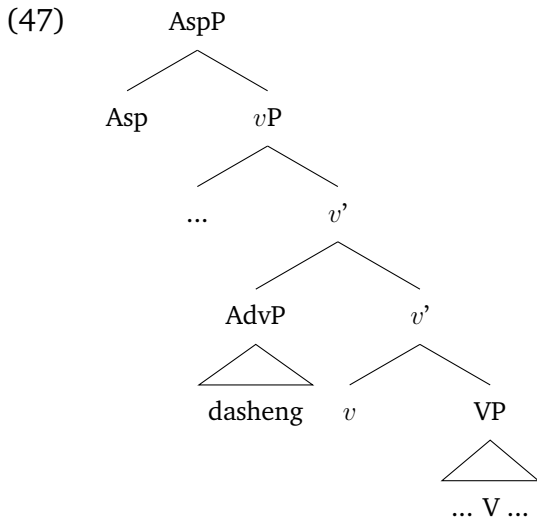
Since V-Asp can only occur after the *v'*-adjoined adverbial modifier *dasheng*, V cannot move above vP and suffixal aspect must be based generated in V instead of Asp (Huang et al. 2009 theorized that it raises to Asp covertly at LF). Applying the base-generation of V-Asp to Paul & Whitman (2010)'s derivation of V-Appl movement generates the ungrammatical word order of V-Asp-*gei*:

(48)   *ta   mai-le-gei   Meili yi-tai   diannao.
          3SG sell-ASP-GEI Mary one-CL computer
          Intended: 'He sold Mary a computer.'

Thus, the raising applicative analysis is not ideal because it makes inaccurate predictions about the placement of verb with respect to adverbs and/or the order of the V-*gei*-Asp sequence.

Her (2006) propose that the post-verbal *gei* forms a V-V compound with the lexical verb and is the head of the compound as it is responsible for the ditransitivity of the compound. His compounding analysis hinges on the parallel between V-*gei* and the prepositional dative constructions, where "any verb that allows the prepositional dative construction also allows V-*gei* formation, and vice versa" (Her 2006:1283), which allows him to postulate a compounding rule where *gei* forms compounds with verbs that can appear in the prepositional dative construction. However, this parallel crucial to the compounding formulation does not stand:

(49)   a.   Ta   jiao-gei-le   wo   henduo daoli.
            3SG teach-GEI-ASP 1SG many   principles
            'She taught me many life lessons.'

     b.   ??Ta   jiao-le   henduo daoli   gei wo.
            3SG teach-ASP many   principles GEI 1SG
            Intended: 'She taught me many life lessons.'

(50)   Ta   jiao-le   wo yi-ge   daoli.
       3SG teach-ASP 1SG one-CL principle
       'She taught me a life lesson.'

The verb *jiao* 'to teach' can appear in the V-*gei* construction (49a), but grammaticality significantly degrades for the prepositional dative (49b). Note that *jiao* is a ditransitive verb (50), which means that (49b) is in fact an instance of prepositional dative instead of serial verb construction (see discussions of the post-object *gei* being ambiguous between prepositional dative snd serial verb constructions in sections 2.1 and 3.1). That is, Her (2006)'s compounding analysis would incorrectly predict that verbs like *jiao* would not be able to form V-*gei* based on the inability to form the prepositonal dative construction.

(51)   *Ta   gei-le   wo yi-ge   daoli.
        3SG GEI-ASP 1SG one-CL principle
        Intended: 'She gave me a life lesson.'

Her (2006)'s analysis also makes the incorrect prediction for the grammaticality of (51): analyzing *gei* as the head of the compound would predict (51) to be grammatical, since the selectional restrictions of the compound should follow that of *gei*; however, that is not the case.

Moreover, V-*gei* does not fully behave like either type of V-V compounds. Liu (2019) identified two broad types of V-V compounds in Chinese, with complementary characteristics: parallel compounds and resultative compounds, where the former is characterized by the

two component morphemes having similar meanings, and the latter characterized by the event denoted by the second morpheme being the result of the first. On the surface, V-*gei* seems to resemble both types: on the one hand, the verbs that appear in V-*gei* tend to be semantically related to *gei* in that they can denote some event that could result in transfer of possession, resembling parallel compounds; on the other hand, the transfer (denoted by *gei*) can be interpreted as the result of the event denoted by the first verb, resembling resultative compounds. However, upon closer inspection, V-*gei* does not pattern with either type of V-V compounds, meaning that postulating a compounding analysis would entail a new class of compounds specific to V-*gei* (and V-*zou*, the 'transfer away from' counterpart of V-*gei*), which would introduce unnecessary complexity to the grammar.

First, V-*gei* behaves more like resultative compounds than parallel compounds with respect to A-not-A questions:

(52)   a.   ta   xi(-huan)   bu   xi-huan   shuxue?   (Paul & Whitman 2010)
             3SG like-happy Neg like-happy math
             'Does he like math?'

       b.   ta   pao(*-diu) mei pao-diu na-zhi   xie?
             3SG run-lose   NEG run-lose that-CL shoe
             'Did he lose that shoe (by running)?'

       c.   ta   huan(*-gei) bu   huan-gei   ni   qian?   (ibid.)
             3SG return-GEI not return-GEI 2SG money
             'Will he return you the money?'

Paul & Whitman (2010) observe that V-*gei* cannot be fully reduplicated in A-not-A questions (52c), unlike fully formed (parallel) compounds like *xihuan* 'like' (lit. 'like-happy') (52a). In contrast, V-*gei* resembles resultative compounds like *pao-diu* 'run-lose' (Basciano 2015), which also cannot undergo full reduplication in A-not-A questions (52b).

Conversely, V-*gei* behaves more similarly to parallel compounds under adverb modification:

(53)   a.   Zhangsan nuli   xue-xi   yingyu.   (Liu 2019)
             Zhangsan with.effort study-practise English
             'Zhangsan is studying English hard.'
             *'Zhangsan studies English hard and he also practises.'
             *'Zhangsan studies English and makes great effort in practising.'

       b.   Zhangsan henkuai   kan-dao-le na-ke   shu.   (ibid.)
             Zhangsan very.soon cut-fall-ASP that-CL tree
             i. '(I told Zhangsan to cut down that tree, and) he did so immediately.'
             ii. 'Zhangsan cut that tree and in no time the tree fell.'

   c. Zhangsan buqingyuan de jie-gei-le   Lisi yi-bi   qian.
     Zhangsan reluctant   DE borrow/lend-GEI-ASP Lisi one-CL money
     'Zhangsan reluctantly lent some money to Lisi.'
     *'Zhangsan reluctantly borrowed some money to give to Lisi.'
     *'Zhangsan borrowed some money and reluctantly gave it to Lisi.'

Liu (2019) note that morphemes in parallel compounds cannot be independently modified, and those in resultative compounds can: for example, in (53a), the adverb *nuli* 'hard' can only modify the whole parallel compound *xue-xi* 'to learn' (lit. 'study-practise') but not its components *xue* 'to study' or *xi* 'to practise'; in contrast, in (53b), the adverb *henkuai* 'quickly' can modify *kan* 'to cut' or *dao* 'to fall' in the resultative compound *kan-dao* 'cut down'. V-*gei* in this case resembles parallel compounds in the inability for the two components to be independently modified: in (53c), the adverb *buqingyuan-de* 'reluctantly' can only modify *jie-gei* but not *jie* 'to borrow/lend' or *gei* 'to give'. Furthermore, the V-V compounding analysis of V-*gei* is not compatible with historical data. Her (2006) cited that the V-V formation can be found in 3rd century text at the earliest, and V-*gei* only emerged in the 15th century. But Lo (2012) found that V-*gei* can be traced back to as early as the Western Han dynasty (202 BC to 9 AD), which is earlier than the cited time when V-V formation emerged, making it even more unlikely for V-*gei* to be a form of V-V compound.

Therefore, the only remaining possibility is that *gei* is within the lexical VP, which has been argued to be a lower VP (Zhang 1998) or an abstract preposition PHAVE (13) (Harley 2002, adopted for V-*gei* by Jiang 2016). Zhang (1998) proposes a double VP structure for V-*gei*, where the higher head VH contains a transference verb, and the lower head VL contains *gei*; VL adjoins to VH to form the complex head V-*gei*[12].

(54)
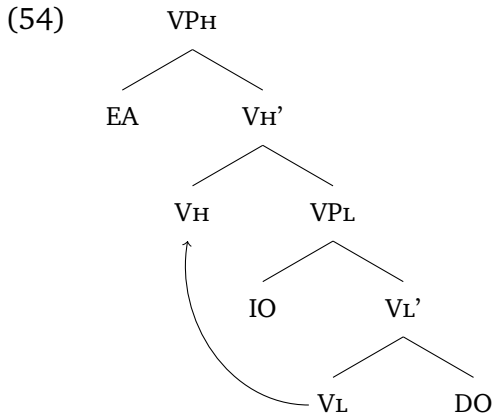
Between the two, I consider Zhang (1998)'s the theoretically superior account for the

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[12]Paul & Whitman (2010) argue that this structure is not possible because it posits right-adjunction; however, right-adjoining derivations have been posited for other constructions (e.g., Zhang 2001 for depictive and resultative constructions).

post-verbal *gei* because it captures the parallel between transfer towards a recipient (*gei*) and transfer away from a source (*zou*, 'go') (55) without requiring additional computational machinery, as opposed to Phave, which does not have an apparent source (transfer away from IO) counterpart.

(55)   a.   ta   ji-gei-le   wo yi-ben shu.   (Zhang 1998)
            3sg mail-GEI-ASP 1sg one-CL book
            'He mailed a book to me.'

       b.   ta   ji-zou-le wo yi-ben shu.   (ibid.)
            3sg mail-ZOU 1sg one-CL book
            'He mailed a book from me (to himself or someone else).'

One may notice that Zhang (1998)'s analysis is very similar in essence to the low applicative in (11) (Pylkkänen 2002, 2008): both accounts posit an additional head that indicate the direction of transfer, but Zhang (1998) considers the additional head a lexical verb (VL) and Pylkkänen (2002, 2008) considers it a functional head (Appl). I adopt the low applicative analysis for the post-verbal *gei* because (a) the double VP analysis is no longer compatible with the canonical analysis of double object constructions; (b) the post-verbal *gei* satisfies the diagnostics for low applicative. Since low applicative is hypothesized to be in the universal inventory of functional elements (Pylkkänen 2002, 2008), analyzing the post-verbal *gei* as the spell-out of the low applicative head introduces little complexity to the grammar. Zhang (1998) based her analysis on the original VP shell analysis of double object constructions (Larson 1988), which contains two lexical VPs; however, with the upper VP now being theorized as v, the double VP analysis would entail base-generating a lexical verb (the V of V-*gei*) in v or postulating an additional lexical VP, both of which are no longer canonical to the vP shell structure.

Moreover, the post-verbal *gei* satisfies both diagnostics for low applicative: transitivity restrictions and verb semantics (Pylkkänen 2002, 2008). First, the low applicative is not compatible with unergatives like 'run', since it denotes a transfer of possession relation between and the direct and indirect objects, meaning that it cannot appear in structures that do not have direct objects.

(56)   a.   *I ran him.   (Pylkkänen 2008:20)

       b.   *wo pao-gei ta.
             1sg run-GEI 3sg
            Intended: '*I ran him.'

This prediction is born out with V-*gei*: the unergative *pao* 'to run' is disallowed in the V-*gei* formation (56b).

Second, the low applicative is not compatible with "static" predicates, which, under Pylkkänen's definition, are verbs that do not plausibly result in transfer of possession, like 'hold': an event of holding an entity cannot result in the entity ending up in someone else's possession.

(57) a. *I held him the bag.   (Pylkkänen 2008:20)

b. *wo ti-gei   ta   yi-ge   bao.
1sg hold-GEI 3sg one-CL bag
Intended: 'I held him the bag.'

This prediction is also born out with V-*gei*: the static *ti* 'to hold' is disallowed in the V-*gei* formation (57b). Thus the post-verbal *gei* is readily compatible with the low applicative, and the types of verbs that are allowed in V-*gei* is determined by diagnostics of low applicative instead of the ability to form the prepositional dative construction, explaining the contrast between (49a) and (49b): (49a) is grammatical despite degraded grammaticality of (49b), because *jiao* 'to teach' is a (di)transitive verb (satisfying the first diagnostic) that results in transfer of possession of information (satisfying the second diagnostic).

In summary, in this section, I showed that the post-verbal *gei* cannot be base-generated above the lexical VP or form a V-V compound with the lexical verb; instead, *gei* is generated within the lexical VP and best analyzed as the spell-out of Pylkkänen (2002, 2008)'s low applicative head.

3.3   The preverbal *gei* [*gei* NP₂ V NP₁]

We have established in section 2.3 that the preverbal *gei* is verbal but appears in at least three distinct structures that require different syntactic analyses. In the following subsections, I show that the dative/benefactive/allative *gei* heads a low verbal adjunct, the indirect causative *gei* is a canonical causative verb selecting for an IP, and the direct causative *gei* is a functional (causative) head.

3.3.1   The dative/benefactive/allative *gei*

Lin & Huang (2015) argued that the preverbal *gei* is ambiguous between two structures, [[gei NP] VP] and [gei [NP VP]], based on the possibility for the *gei*-phrase to be a moveable adjunct (which corresponds to the first structure); yet they assumed the second structure based on the otherwise ditransitive status of *gei* without justification.

We have established in section 2.3 that the *gei*-phrase is only moveable under the dative/benefactive/allative reading, meaning that even if it was structurally ambiguous, the ambiguity would only apply to this type of *gei*. However, a binding test shows that there is no structural ambiguity within this type of preverbal *gei* (i.e., under the same reading).

(58)   Zhangsan$_i$ gei Lisi$_j$ da ta-ziji$_{i/*j}$
       Zhangsan GEI Lisi hit 3SG-self
   'Zhangsan$_i$ hit himself$_{i/*j}$ for Lisi$_j$.'

In (58), the anaphor *taziji* 'himself' can only be bound by *Zhangsan*. This is unexpected if the [gei [NP VP]] analysis is possible, which would predict that it can be bound by *Lisi*, since *Lisi* would be able to c-command *taziji* in a binding domain. Additionally, it would predict that it cannot be bound by Zhangsan, which would be outside its binding domain. On the other hand, this is predicted under the [[gei NP] VP] analysis, since *Lisi* would be in the adjunct phrase (therefore not c-commanding the anaphor) and *Zhangsan* c-commands *taziji* within the same clause.

Specifically, the *gei*-adjunct would be adjoined low in the clause, as demonstrated by its position with regards to manner adverbs:

(59)   a. Zhangsan manman de gei Lisi ju-le   yi-ge   gong.
           Zhangsan slow.slow DE GEI Lisi bow-ASP one-CL bow
           'Zhangsan slowly bowed to Lisi.'

       b. Zhangsan renzhen de gei Lisi paotui.
           Zhangsan careful   DE GEI Lisi run.errands
           'Zhangsan carefully ran errands for Lisi.'

As shown in (59), the *gei*-phrase occurs after manner adverbs, which are v'-adjoined (cf. Huang et al. 2009:103), but before the verb, meaning that they must also be adjoined to v'.

(60)   Zhangsan gei men shang youqi.
       Zhangsan GEI door paint paint
       'Zhangsan painted paint on that door.'

(61)
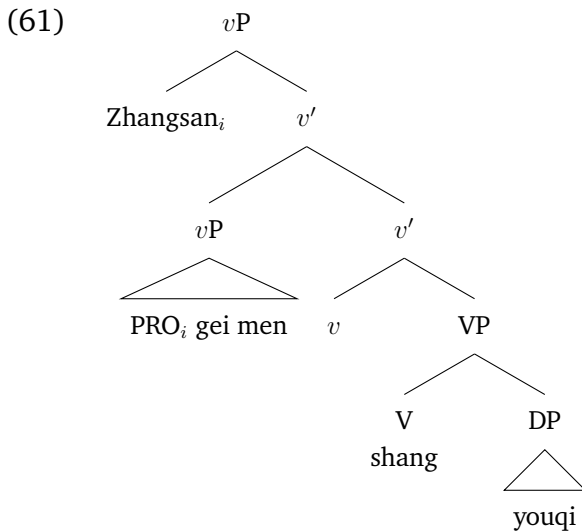
Note that this property is not unique to *gei*, as it is possible for a ditransitive verb to head a verbal adjunct transitively:
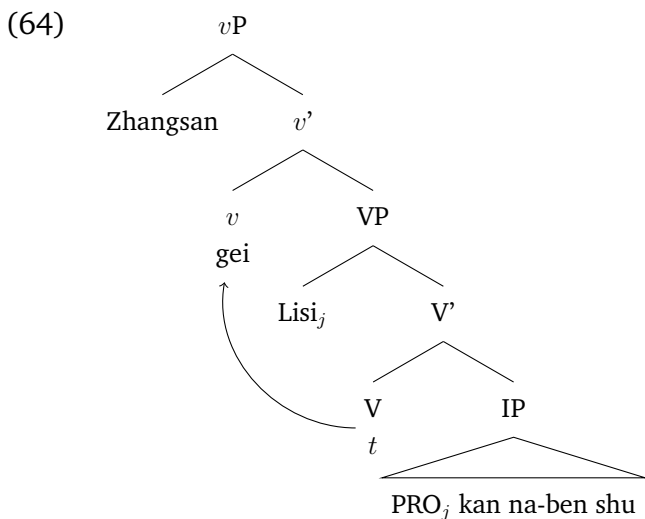
(62)   a.   Ta   jiao   Lisi hui hen renzhen.
            3SG teach Lisi will very concentrative

      b.   Jiao   Lisi, ta   hui hen renzhen.
            teach Lisi 3SG will very concentrative
            'He will be very concentrative [when] teaching Lisi.'

jiao 'to teach' is a ditransitive verb in Mandarin (see (50)), and it can head a verbal adjunct that is moveable (62). Thus, positing that *gei* heads a preverbal adjunct does not create additional complication in the grammar.

3.3.2   The indirect causative *gei*

I follow Lin & Huang (2015)'s analysis (of their permissive-causative *gei*) that the indirect causative *gei* is a lexical verb taking an IP complement, similar to the causative/permissive verbs *shi* 使 'cause' and *rang* 让 'let', since the only issue with their analysis of the causative/permissive *gei* was overlooking the distinction with the direct causative.

(63)   Zhangsan gei Lisi kan na-ben shu.
       Zhangsan GEI Lisi see that-CL book
       'Zhangsan let Lisi read that book.'

(64)

```
                        vP
                    ╱        ╲
            Zhangsan          v'
                          ╱        ╲
                         v          VP
                        gei      ╱      ╲
                              Lisi_j     V'
                                      ╱      ╲
                                     V        IP
                                     t      ╱    ╲
                                      PRO_j kan na-ben shu
```

3.3.3   The direct causative *gei*

We have established in section 2.3 that the structure under the direct causative *gei* is monoclausal. This, along with the observation that the second verb is able to take aspect marking - that is, the sentence cannot be analyzed as an instance of SVC, since the second verb phrase in

an SVC is an adjunct that cannot take aspect (Her 2006) - means that the only possibility for the direct causative *gei* is that it is a verbal element that selects for a VP argument. Additionally, the direct causative *gei* is not a lexical verb, since the causing event is not conceptualized as distinct from the caused event, contrasting the indirect causative where the causing and caused events are conceptualized as separate.

This effectively means that the preverbal direct causative *gei* construction is a (previously overlooked) double object construction, which raises the question of which analysis of DOC it should be applied to. I argue that the causative/small clause analysis (e.g., Harley 2002) best captures the characteristics of this type of *gei* construction - that is, the direct causative *gei* is a causative functional head - the spell-out of a small v in the vP shell structure (Larson 1988, Chomsky 1995). Since we considered that *gei* in the other double object construction, V-*gei*, the spell-out of the low applicative head, it may seem the most parsimonious to attempt to postulate that the preverbal *gei* can be analyzed the same way. However, the preverbal *gei* does not pass the diagnostic for low applicative (Pylkkänen 2002, 2008) - namely, it does occur with "static" verbs (verbs that do not plausibly result in transfer of possession) that cannot form the V-*gei* double object construction: the static verb *kan* 'to see' cannot form the V-*gei* DOC (65) but can form the preverbal *gei* construction (66).

(65)   *Zhangsan kan-gei Lisi na-ben shu.
         Zhangsan see-GEI Lisi that-CL book
       Intended: 'Zhangsan showed Lisi the book.'

(66)   Zhangsan gei Lisi kan na-ben shu.
       Zhangsan GEI Lisi see that-CL book
       'Zhangsan showed Lisi the book.'

Conversely, it also is not compatible with a high applicative analysis. Per Pylkkänen (2002, 2008)'s definition, the high applicative "simply adds another participant to the event described by the verb", which is not the case with the direct causative *gei*, as it not only introduces a thematic relation between the indirect argument and the verb but also changes the relationship between the external argument and the verb:

(67)   Zhangsan kan na-ben shu.
       Zhangsan see that-CL book
   'Zhangsan read the book.'

Comparing (66) and (67), they do not differ just by an extra argument, but also in the relationship between the arguments and the verb: in (66), Zhangsan is causing the book to be seen by Lisi; in (67), Zhangsan himself is reading (seeing) the book, which differs from the canonical high applicative which introduces an additional argument (often in the form of a beneficiary/malficiary) but does not change the event itself.

Therefore, the preverbal *gei* in this case is best analyzed as a causative head instead of an applicative head. Given that the post-verbal *gei* is analyzed as an applicative head, this does have crucial implications for the theories of DOC: it implies that the causative and applicative analyses are not complementary to each other but instead can co-exist for DOC in the same language. Since both causative and applicative heads are theorized to be a part of the universal inventory of functional elements, and applicatives and causatives are closely related in a number of languages (cf. the applicative-causative syncretism, e.g., Franco 2019), it is a theoretical possibility for them to co-exist; but testing the extent to which this prediction empirically bears out is beyond the scope of this thesis and is left for future research.

An additional piece of evidence for analyzing *gei* as a functional head is that it aligns with the account of Mandarin's analyticity proposed by Huang (2015) (see section 1.1). Recall that under Huang's analysis, grammatical operations are driven by the need to license or remedy "defective" heads, which contain grammatical features that are not fully interpretable and thus require licensing by other items or operations, where heads with defective features like [+strong] (affixal) require licensing by overt movement, and [−strong] can be licensed by Agree or covert movement. He argues that the analytic properties of Mandarin can be captured by the parametric difference that Mandarin heads are [−strong], and heads in more synthetic languages like English are [+strong]. This is congruent with the difference between the Mandarin and English double object constructions: in English, the *v* head is phonetically null and [+strong], which triggers verb movement, resulting in a synthetic ditransitive verb *show* (69); on the other hand, the Mandarin *v* head is overt (thus [−affixal] i.e. [−strong]), which blocks overt verb movement and delays the movement to LF, resulting in the discontinuous (hence analytic) double object construction *gei* IO *kan* DO (70). Note that the discontinuity is not unique to the direct causative *gei* but is instead reflected in a wide range of expressions termed Paired but Split Expressions (Huang 1996), where Mandarin uses discontinuous pairs of lexical markers for expressions that are usually singly marked in English, such as *yinwei* A *suoyi* B 'because A therefore B', *suiran* A *danshi* B 'although A but B', and *zhiyou* A *cai* B 'only A then B' (for a comprehensive list, see Huang 1996, section 4.3.6.).

(68)   Zhangsan gei Lisi kan na-ben shu.
Zhangsan GEI Lisi see that-CL book
'Zhangsan showed Lisi the book.'

(69)

(70)
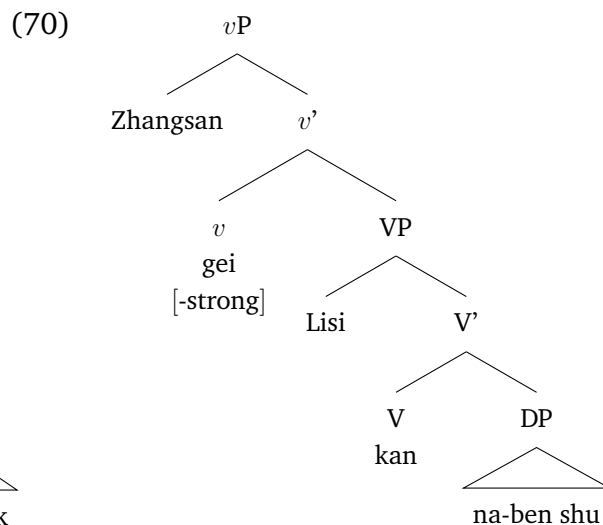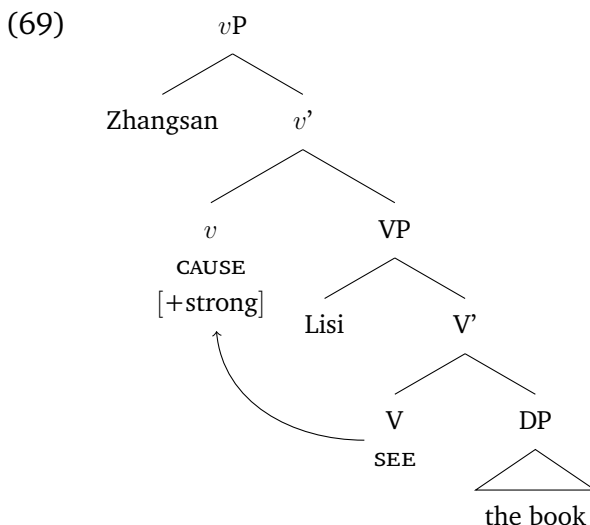
Moreover, this analysis explains why *kan* is interpreted as 'read' in the benefactive and indirect causative cases, but 'see' in the direct causative case. *kan shu* represents another instance of Mandarin analyticity: pseudo noun incorporation (PNI) (see section 1.1), where *kan shu* 'see books' means 'read'. Under Huang (2015)'s account, the head of PNI is [−strong] and therefore blocks overt movement, resulting in the analytic verbal constructions. But in order to derive the 'show' meaning in the direct causative, *kan* has to covertly move to *gei*, making it unavailable for forming PNI with *shu*. Another piece of evidence comes from diachronic data from Classical Chinese, where *gei* ... *kan* 'show' was expressed with a single ditransitive verb *shi* 示 "to place or point out things for one to see", which aligns with the English pattern more than the Modern Mandarin pattern, as shown by the below examples of writings from the Qing dynasty (Peking University - ByteDance Open Lab for Digital Humanities 2022).

(71)   a. 赋、策士歌，示读卷官
fu   ceshi-ge   shi   du-juan-guan
write strategist-poem show read-paper-officer
'wrote 'poem of the strategist' to show the examiner'[13]

       b. 儒生上疏，当示大臣矣
rusheng   shangshu dang shi   dachen   yi
Confucian.scholar report   should show cabinet.minister DISC

---

[13]From 罪惟录 *Zui Wei Lu*, 'Records of an Accused'

'Confucian scholars should show their reports to cabinet ministers.'[14]

Thus, a functional head analysis also aligns with the generative account of grammaticalization (Roberts & Roussou 2003), where a lexical item is raised to a functional head position, resulting in a loss of (overt) movement (as demonstrated by the contrast between the English structure (69) - which patterns with Classical Chinese - and the Modern Mandarin structure (70)).

To conclude the subsection, the dative/benefactive/allative *gei* heads a low verbal adjunct, the indirect causative *gei* is a canonical causative verb selecting for an IP, and the direct causative *gei* is a functional (causative) head. Notably, the direct causative is another form of double object construction in addition to the V-*gei* construction discussed in section 3.2, which makes the prediction that languages can have both applicative and causative types of DOC.

Beyond explaining the data already presented, the three-category analysis also better accounts for one of the mysteries regarding the preverbal *gei* that remained unexplained in Lin & Huang (2015)'s analysis: despite showing verbal properties, the preverbal *gei* is unable to take suffixal aspect. Lin & Huang (2015) address the observation by stating that it is not an issue for the verbal status of *gei*, since there are Mandarin verbs that cannot be suffixed with aspectual markers, such as the causative verb *shi* 使. However, this has limited explanatory power for the behavior of *gei* (which they acknowledge), since *gei* does not resemble *shi* across the board, meaning that positing that the property is a part of the lexical semantics of causative verbs only explains the indirect causative *gei*'s behavior but not the other types of preverbal *gei*. With the present analysis, the reason the preverbal *gei* cannot take suffixal aspect more easily falls into place: the dative/benefactive/allative *gei* heads a vP adjunct that does not project up to its own aspectual phrase; the direct causative *gei* is a functional head above the lexical VP, and aspect is generated in the lexical VP; as mentioned, the indirect causative *gei* does parallel with *shi* and therefore its properties can be more reasonably attributed to the lexical semantics of the causative verb.

3.4   The purposive *gei* [V NP *gei* NP VP]

As discussed in section 2.4, I endorse Lin & Huang (2015)'s analysis of the purposive *gei* as the causative/permissive *gei* embedded in a purposive clause, but I differ from them in that the *gei*-phrase as an adjunct clause instead of the complement of the matrix verb.
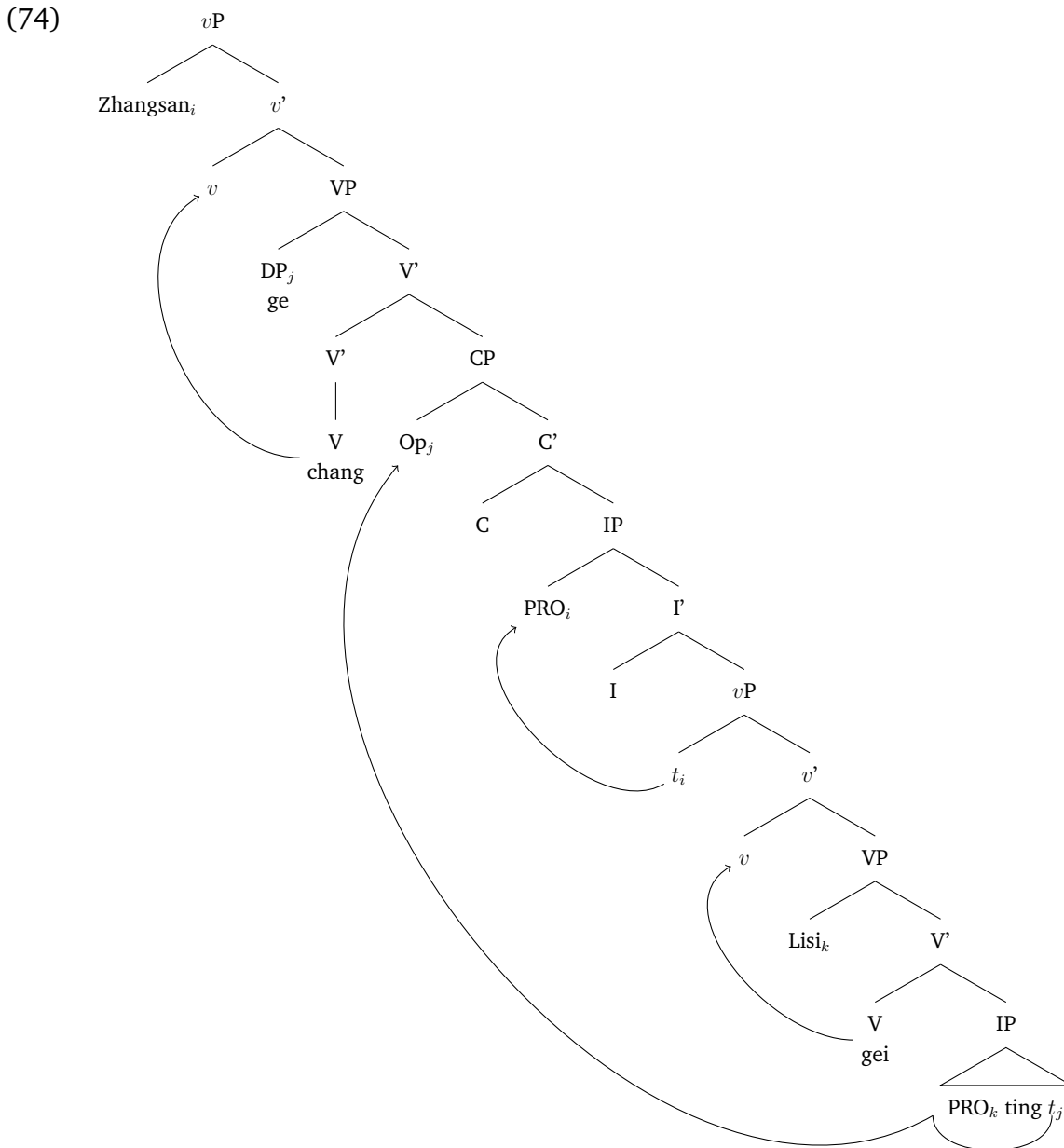
The adverbial status of the purposive clause can be seen from island violation: it cannot be targeted by questions (72c), while the matrix complement can (72b) (see 3.1 for more on inner islands in Chinese).

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[14]From 朝鲜王朝实录 *Chaoxian Wangchao Shilu*, 'Records of Korean Dynasties'

(72) a. ta   bu   xiangxin ni   chang-le na-shou minge   gei Lisi ting.
3SG NEG believe 2SG sing-ASP that-CL folk.song GEI Lisi listen
'She doesn't believe you sang that folk song for Lisi to hear.'

   b. ta   bu   xiangxin ni   chang-le shenme minge   gei Lisi ting?
3SG NEG believe 2SG sing-ASP what   folk.song GEI Lisi listen
'What folk song does she not believe you sang for Lisi to hear?'

   c. *ta   bu   xiangxin ni   chang-le na-shou minge   gei shui ting?
3SG NEG believe 2SG sing-ASP that-CL folk.song GEI who listen
'*Who does she not believe you sang a folk song for?'

The *gei* purposive clause has a PRO subject controlled by the matrix subject Zhangsan. The main verb of the purposive clause is the causative/permissive *gei*, which takes an IP complement. The object of this IP complement, an empty operator Op, moves cyclically to the CP of the purposive clause (Lin & Huang 2015:331).

(73) Zhangsan chang ge   gei Lisi ting.
Zhangsan sing   song GEI Lisi listen
'Zhangsan sang a song for Lisi to listen to.'

(74)

*v*P

Zhangsan*_i*   *v*'

v   VP

DP*_j*   V'
ge

V'   CP

V   Op*_j*   C'
chang

C   IP

PRO*_i*   I'

I   *v*P

t_i   *v*'

v   VP

Lisi*_k*   V'

V   IP
gei

PRO*_k* ting *t_j*

4 Motivating the polyfunctionality

So far, we have accounted for the polyfunctionality of *gei* by analyzing the various *gei* constructions with reference to their historical developments. However, it is still unclear what underlyingly led to the polyfunctionality - that is, we have answered how the polyfunctionality may be derived, but not why it needs to be derived in the first place. In this section, I briefly discuss some possible motivations for the non-lexical-verb usages of *gei* based on fundamental syntactic properties of Mandarin Chinese.

4.1 Conflicting constraints

As introduced in section 1.1, a prominent typological property of Mandarin is its analyticity, and two of the ways analyticity is reflected in the lexical structure are light verb constructions and pseudo noun incorporation (PNI): that is, Mandarin uses light verb-object phrases to denote actions that can be expressed with denominalized nouns in more synthetic languages (e.g., *da-dianhua* 'to telephone', lit. 'hit-telephone') as well as verb-object phrases to denote actions that are otherwise expressed by simplex verbs in more synthetic languages (e.g., *bu-yu* 'to fish', lit. 'catch-fish') (Huang 2015).

Another crucial feature of Mandarin is the aforementioned Phrase Structure Condition (PSC) (Huang 1982), which allows only one constituent in the post-verbal position. In a way, the two features of Mandarin syntax introduce constraints that conflict with each other: analyticity means that many Mandarin verbs are by default syntactically transitive and have a post-verbal constituent (the object of a light verb in light verb constructions; the syntactic object in PNI), yet PSC limits the number of post-verbal constituents to one, causing a "dilemma" for the placement of the semantic object, and *gei* is one of the ways Mandarin resolves this dilemma and introduces semantic objects under the constraints. Below are two examples demonstrating the dilemma with light verb construction and pseudo noun incorporation, respectively:

(75) a. John telephoned his sister.   (Huang 2015)

     b. Zhangsan da-le   dianhua   gei meimei.   (ibid.)
         Zhangsan hit-ASP telephone GEI sister
         'Zhangsan telephoned his sister.'

     c. *Zhangsan dianhua-le   meimei.   (ibid.)
          Zhangsan telephone-ASP sister
         Intended: 'Zhangsan telephoned his sister.'

As discussed in section 1.1, *da dianhua* is an example of the light verb construction: while *telephone* can be used as a verb in English (75a), *dianhua* 'telephone' must occur with the light verb *da* in Mandarin (75b). Forcing *dianhua* to be a verb yields the ungrammatical utterance (75c), meaning that the semantic object *meimei* 'sister' can only be introduced by a separate head *gei*.

(76) a. Zhangsan bathed Lisi.

     b. Zhangsan gei Lisi xi-zao.
         Zhangsan GEI Lisi wash-bath
         'Zhangsan bathed Lisi.'

c. ?Zhangsan xi-le   Lisi.
   Zhangsan wash-ASP Lisi
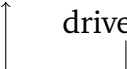   '?Zhangsan washed Lisi.'

xi zao 'to bathe', lit. 'wash-bath' is an example of PNI: the verb-object phrase is needed in Mandarin (76b) to express an action that is expressed with the simplex verb 'bathe' in English (76a). Similar to the previous example, trying to express the transitive action of bathing someone else by omitting the PNI object (i.e., forcing the semantic object to be the syntactic object) yields an utterance with a different and unnatural meaning (76c), making utilizing *gei* the only way of expressing the intended meaning.

4.2   Availability of light verbs

In addition to the aforementioned overt light verbs, another property of Mandarin Chinese is its widespread usage of covert light verbs, as theorized by Lin (2001) (see also Lin 2014) to account for apparent syntax-semantics mismatches, where Mandarin verbs seem to exhibit "unselectiveness" of both subjects and objects:

(77) *kai che* (lit. 'drive car') 'drive a car'; *kai gaosu-gonglu* (lit. 'drive freeway') 'drive on the freeway'; *kai banye* (lit. 'drive midnight') 'drive at midnight'; *kai zuoshou* (lit. 'drive left hand') 'drive with left hand'; *kai haowan* (lit. 'drive fun') 'drive for fun'

As illustrated in (77), the verb *kai* 'to drive' seems to be able to select for not only its canonical theme/patient object, but also location, time, instrument, or purpose/reason arguments. Lin (2001) proposes that action verbs in Mandarin do not directly select the arguments they are combined with; instead, the arguments are introduced by corresponding covert light verbs, which results in the apparent unselectiveness of lexical verbs. Namely, Lin postulates the subject-selecting light verbs DO, EXIST, and CAUSE (for actor, locative, and causative subjects, respectively), and object-selecting light verbs AT, USE, and FOR (for location/time, instrument, and reason objects, respectively).

(78) gaosu-gonglu-shang EXIST kai-zhe   yi-liang BMW.
       freeway-on   drive-ASP one-CL   BMW

       'There is a BMW running on the freeway.'

Importantly, Lin does not postulate any specific covert light verb for the theme/patient object (noted in Lin 2014, footnote 3), which is precisely what *gei* introduces in the preverbal (direct causative) and post-verbal positions as functional heads. Thus, the presence of *gei* in these positions can be understood as a way of filling the paradigm of possible light verbs: when there is a need for licensing arguments but no available covert light verb to license

them, as in the case of these constructions, *gei* is used to introduce the arguments as an overt light verb.

This observation about *gei* also points to the possibility of a unified, or, at least, clarified definition of light verbs. There are currently two uses of light verbs in the literature: "light verb" can refer to either lexical verbs that are semantically "light", or a structural or semantic component of a lexical verb that has no independent phonetic form of its own (Huang et al. 2009, section 2.2, footnote 9) (i.e., overt vs. covert light verbs are seen as definitionally different even though they are both called "light verbs"). However, the two are often conflated, and the term is used inconsistently: for example, despite having stated that the latter definition is the one used in their text, Huang et al. proceeded to refer to *ba* and *bei* as light verbs in later sections, presumably due to their bleached semantics, which, alongside the fact that they have overt phonetic form, would classify them under the former definition of light verbs. The connection between overt and covert light verbs has been suggested: Lin shows that some phonetically empty light verbs in Mandarin Chinese can have overtly realizations in Taiwanese and thus proposes that whether light verbs have overt phonetic form is subject to parameterization, but he does not treat it as a definitional issue with light verbs. The present observation that *gei* (under the functional head usages) seems to serve the same purpose as and fills the missing piece of the covert light verbs in Mandarin - that is, *gei* introduces types of arguments that are not introduced by the set of theorized covert light verbs - suggests that overt and covert light verbs are two sides of the same coin and should be defined and discussed in relation to each other.

5   Conclusion

In this thesis, I have discussed the categorial status and syntactic structures of the highly poly-functional morpheme *gei* in the post-object, post-verbal, preverbal, and purposive constructions. I showed that despite the aggregate complexity, the *gei* constructions can be attributed to already-posited functional heads and constructions: the post-object *gei* is a preposition in the well-established prepositional dative construction, or the second verb in a serial verb construction; the post-verbal *gei* is the spell-out of the low applicative head, which is proposed to be in the universal inventory of functional elements; the preverbal *gei* is the head of a verbal adjunct, a causative/permissive verb, or the spell-out of the causative head, another element that should be universally available; and the purposive *gei* is the causative/permissive *gei* embedded in an adjunct clause. Thus, this seemingly complex analysis adds little complexity to the grammar, making it superior to unified analyses (e.g., Lin & Huang 2015) that are simpler in their treatment of categorial status but introduces additional complexity in terms of

the range of possible syntactic structures and operations. Additionally, this thesis extends on previous works on *gei* by systematically connecting syntactic analysis with historical evidence as a way of evaluating the viability of synchronic accounts.

There are still some open ends to the question as well as implications of the present analysis to be explored by future research. First, the analysis of the post- and preverbal *gei* as applicative and causative heads makes the prediction that the low applicative (Pylkkänen 2002, 2008) and causative (Harley 2002) analyses of double object constructions are not necessarily competing and instead can co-exist for DOC of the same language, which needs be tested both for non-*gei* types of double object constructions in Chinese and cross-linguistically, especially for languages that have overt applicative and/or causative morphology. Moreover, there are *gei* constructions that were not able to be discussed given the scope of this thesis, such as the disposal *gei* (15c) and the passive *gei* (15e), due to their resemblance to other highly complex functional elements *ba* and *bei*, respectively. Nonetheless, it is necessary for future research to examine them in relation to the presently discussed *gei* constructions and in comparison to their non-*gei* counterparts, in order to fully understand the mechanism underlying the high degrees of polyfunctionality and ambiguity of *gei* constructions. Additionally, hypothesizing that the polyfunctionality of *gei* is caused by conflicts between the analyticity of Mandarin and the Phrase Structure Condition (PSC) also raises further questions - why and how did the language develop constraints that conflict each other? As the PSC itself is an empirical generalization, exploring this question may also lead to insight into a theoretical explanation for the PSC, especially if the seemingly conflicting constraints from analyticity and PSC can be related to the same underlying source that is even more fundamental to the grammar of Mandarin Chinese. Lastly, the observation regarding *gei* and the paradigm of light verbs in Mandarin Chinese points to the possibility of a clarified definition for light verbs that encompasses both overt and covert cases.

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