THE FUNCTION AND CATEGORY OF *gei*
IN MANDARIN DITRANSITIVE CONSTRUCTIONS

Chu-Ren Huang* and Kathleen Ahrens#
*Academia Sinica
#National Taiwan University

ABSTRACT

In this article, we show that the parallelism between Mandarin *gei* ditransitive constructions and their English counterparts is misleading. We argue here that the *gei* that occurs next to a verb is part of a complex predicate, and that the *gei* phrase that occurs after the DO (direct object) is part of a SVC (Serial Verb Construction). The theoretical implications of this account of *gei* and some diachronical ramifications are also given.

1. INTRODUCTION

Mandarin has three syntactic permutations for the ditransitive contruction (1a-c). The *gei* in example (1b), looks, at first glance, like its English counterpart 'to'. Hence *gei* is often treated as a preposition and the constructions accounted for with variations of dative movements (e.g. Teng 1975, T. Tang 1979, and Li and Thompson 1981). This prepositional account is also extended to a case with no corresponding English construction, where *gei* + IO (indirect object) occurs immediately after the main predicate (1c). Examples of each construction in (1) are given respectively in (2).

(1) a. verb IO DO   [double-object construction]

    b. verb   DO *gei* IO [post-DO *gei*]

    c. verb *gei* IO DO   [postverbal *gei*]

(2)   a. Wo song ta   yi ben shu.
            I   gave s/he one CL book
           ' I gave him/her a book.'

       b. Wo song yi   ben shu *gei*   ta.
            I   gave one CL book *GEI* s/he
           'I gave a book to him/her.'

       c. Wo song *gei*   ta yi ben shu.
            I   gave *GEI* s/he one CL book
           'I gave him/her a book.'

The transformation-based approach has the advantage of offering a uniform source for the two surface positions of the indirect object and derivationally relating the two structures (1b) and (1c).

      Such an account also has several theoretical consequences. First, the DO-*gei*-IO (1b) sequence prevents the formation of any precedence rules in terms of the function of the two objects because it contradicts the generalization that indirect objects precede direct objects (cf. (1a) and (1c)). Thus, the prepositional analysis poses a challenge to Immediate Dominance/Linear Precedence accounts of phrase structure rules fashioned after the theory of Generalized Phrase Structure Grammar (Gazdar et al. 1985) because the proposed *gei*-IO-DO sequence (1c) is an exception to the generalization that NPs precede PPs in a local tree. Second, as observed in Li (1990), the postulation of *gei* as a preposition poses problematic cases with the adjacency condition on Case assignment in GB theory.

      We will show that the prepositional accounts are incorrect and that neither the post-DO (1b) nor the postverbal (1c) *gei*'s are prepositions. We will argue for the long-overlooked grammatical description in Chao (1968) that the V-*gei* sequences (1c) are compounds, and that the discontinuous structure of (1b) involves a verb series. This position will not only account for the data more felicitously but also resolve the above two theoretical dilemmas.

2. POSTVERBAL *GEI*

In this section, we argue that the *gei* occurring immediately after a verb (as in 1c) is not a preposition and is better analyzed as a verbal affix. We first present three arguments that show that postverbal *gei* is not a preposition, and then four arguments for treating postverbal *gei* as a verbal affix.

2.1 Postverbal *gei* is not a preposition

Postverbel *gei* is not a preposition because 1) it allows attachment of aspect markers, 2) prepositions cannot occur between a verb and an object in Mandarin, and 3) prepositions cannot be stranded in ellipsis in Mandarin.

2.1.1 Allows attachment of aspect markers

First, the postverbal *gei* allows the attachment of aspect markers, as in (3a). The attachment of aspect markers is the most reliable test of verb-hood in Mandarin Chinese (Huang and Mangione 1985, C. Tang 1990). Moreover, Mandarin prepositions do not allow attachment of aspect markers (Chao 1968).

(3) a. Zhangsan ti-*gei*-(le)   Lisi yi-ge   qiu
         Zhangsan kick-*GEI*-PERF Lisi one-CLASS ball
         'Zhangsan kicked a ball to Lisi.'

     b. *'Zhangsan ti-(le)   Lisi yi-ge   qiu
         Zhangsan kick-PERF Lisi one-CLASS ball

Thus, the fact that postverbal *gei* allows the attachment of aspect markers is a strong argument in favor of it being a verbal affix and not a preposition.

2.1.2 No prepositional phrases can occur between a verb and an object

Second, there is no empirical evidence in Mandarin Chinese for a PP position between a verb and an OBJ. Attested PPs in Chinese either occur after an OBJ in the VP-final position, as the locative PP in (4a), or pre-verbally after the SUBJ, as the GOAL PP in (4b). However, neither of the attested PPs can appear between a verb and its direct object, as in (5).

(4)   a.   ta   fang yi-ben   shu zai zhuoshang
            s/he put   one-CLASS book ZAI desk-top
            'S/He put a book on the desk,'

      b.   ta   dui Zhangsan shuo ta   bu   dong
            s/he DUI Zhangsan say s/he NEG understand
            'S/He told Zhangsan that s/he did not understand.'

(5)   a.   *ta   fang zai zhuoshang yi-ben   shu
              s/he put   ZAI desk-top   one-CLASS book

      b.   *ta   shuo dui Zhangsan ta   bu   dong
             s/he say DUI Zhangsan s/he NEG understand

Futhermore, there is no independent theoretical motivation for a PP to occur between a verb and an object. For example, (4) and (5) suggest a structural constraint on the   co-occurrence between arguments and their governing predicates. The generalization is that a non-oblique PATIENT-like role must appear right-adjacent to the governing predicate in Mandarin. This constraint can be formulated in terms of an adjacency constraint similar to that of the Case Theory of GB or the argument obliqueness hierarchy of HPSG (following a long tradition of argument combination principles in Montague Grammar). Analyzing the postverbal *gei* as a preposition would either counterexemplify the above generalizations or call for an otherwise unmotivated and abstract account.

2.1.3 Prepositions cannot be stranded in ellipsis

Third, prepositions cannot be stranded in ellipsis in Mandarin Chinese. While non-oblique arguments can be freely left out in context (the so-called pro-drop phenomena), ellipsis cannot involve a prepositional object alone (although it can involve a whole PP). (6) and (7) demonstrates this constrast.

(6)   a.   ta   fang-le
             s/he put-PERF
             'S/He put (something) down.'

       b.   shuo-le
             say-PERF
             '(s/he) talked.'

(7)   a.   *ta fang na-ben   shu   zai
             s/he put that-CLASS book ZAI

       b.   *ta dui shuo ta   bu   dong
             s/he DUI say s/he NEG understand

Ellipsis involving an object following the postverbal *gei*, however, can leave *gei* stranded, as in (8).[1] This fact cannot be explained if *gei* is a preposition.

(8)   shunshou jiu di   *gei* yi-er   qian   yuan de xiaofei
       off-hand then hand-out *GEI* one-two thousand dollar DE tips
       '(S/he/they) hand out tips of a couple of thousand dollars offhand.'

       So far, we have shown that the postverbal *gei* is unlike a preposition in distribution and ellipsis, and that it has the un-preposition-like property of allowing attachment of verbal affixes. We will next discuss four sets of its properties that show it is like a verbal affix, including some earlier observations made in Huang (1990a).

2.2 Postverbal *gei* is a verbal affix
       In the second half of this section, we will show that postverbal *gei* is a verbal affix because 1) it selects the grammatical category of its host, 2) no constituents can intervene between the verb and *gei*, 3) the V-*gei* combination shows lexical properties such as semantic shift and idiosyncratic gaps, and 4) the affixation of *gei* is a lexical operation.

2.2.1 *Gei* select the grammatical category of its host

A definitive property of affixes is that they select the grammatical category of their hosts. Postverbal *gei* has this property because it selects a subclass of verbs on which to attach itself, namely transitive and ditransitive verbs, as determined from the appearance of *gei* in the Academia Sinica Corpus of Modern Mandarin Chinese.

Example (9) demonstrates that the combination of *gei* with its host is restricted. Example (9a) shows that *gei* can occur with a transitive verb. Example (9b) shows that *gei* can occur with a ditransitive verb. Example (9c) shows that *gei* cannot be attached to an intransitive verb. There are no exceptions to this fact. Moreover, to further support the generalization that *gei* can only be attached to a transitive verb, (9d) also show that *gei* can be attached to stative as well as active transitive verbs.[2]

(9)   a.   Zhangsan pao-gei Lisi yi-shu   hua
              Zhangsan toss-GEI Lisi one-CLASS flower
              'Zhangsan tossed a bouquet to Lisi.'

       b.   Zhangsan song-gei Lisi yi-shu   hua
              Zhangsan give-*GEI* Lisi one-CLASS flower
              'Zhangsan gave a bouquet to Lisi.'

       c.   *Zhangsan shui-gei (Lisi)(yi-ge   xiawu)
              Zhangsan sleep-*GEI* Lisi one-CLASS afternoon

       d.   [yiyuan] ..   geng   bu-hui   meishi guan-*gei* shenzhuxi
              assemblymen further NEG-will no-fact cap-GEI province-chair
              zheme zhong de   xingrongci
               such   severe DE adjective
              'Furthermore, [these assssemblymen] will not apply such harsh
              expressions on the governor with no reason.'

In sum, the active/stative bifurcation is not relevent in the restriction on the attachment of *gei*.

2.2.2 No constituents can intervene between V-*gei*

Secondly, no constituent can intervene between *gei* and the verb, suggesting lexical integrity. Although this fact could possibly be accounted for in terms of some adjacency conditions, the fact that aspect affixation takes verb-*gei* as a whole unit, as in (10), supports the lexical integrity rather than the adjacency account.

(10)　a.　Zhangsan diu-gei-le　　Lisi yi-ge　　qiu
　　　　　Zhangsan throw-GEI-PERF Lisi one-CLASS ball
　　　　　'Zhangsan threw a ball to Lisi.'

　　　b.　*Zhangsan diu-le-gei　　Lisi yi-ge　　qiu
　　　　　Zhangsan throw-PERF-GEI Lisi one-CLASS ball

Moreover, the fact that aspect marker -*le* cannot intervene between the verb and -*gei* also follows from the fact that it is an affix, regardless of whether the aspect markers are treated as an inflectional affix (Dai 1991), or a clitic (Huang 1987).

2.2.3 V-*gei* has lexical properties

Thirdly, the V-*gei* combination shows such lexical properties as semantic shift and idiosyncratic gaps. The semantic shift fact can be exemplified by (11). While the bare verb *guan* has the very restrictive meaning of 'to adopt (a family name)', *guan-gei* has a different meaning of 'to use/apply (certain expressions/names on someone)'.

(11)　a.　ta　guan fu-xin
　　　　　she cap　husband-family+name
　　　　　'She adopts her husband's family name (on top of her maiden name).'

> b.   ta   guan-*gei* Zhangsan yi-ge   hunming
>   s/he cap-*GEI* Zhangsan one-CLASS nickname
>   'S/he imposed a nickname on Zhangsan.'

The lexical idiosyncracy fact can be best exemplified by a synonymous pair *pan* and *panchu*, both mean 'to judge, to sentence' and share identical subcategorization frames, as shown by the following two sentences from our corpus (12).

(12)   a.   fayuan *panchu* Li Feng-Zhou si-xing
             court   sentence Li Feng-Zhou death-penalty
             'The court sentences Li Feng-Zhou to the death penalty.'

       b.   zhong-gong   *pan*   ta   si-xing
             Chinese-communist sentence him/her death-penalty
             'The Chinese communists sentenced him/her to the death penalty.'

However, only *pan-gei* is an allowed compound, as in (13).[3]

(13)   buoying-quan yi   *pan-gei*   huashi
       broadcast-right already judge-GEI CTS
       'The braodcast right has àlready been given to CTS.'

2.2.4 Affixation of *-gei* is a lexical operation

Last but not the least, we can show that the affixation of *-gei* is accompanied by the lexical operation of inserting an additional GOAL role to the argument structure. This is demonstrated in (14) below.

(14)   a.   Zhangsan ti-(le)   yi-ge   qiu
             Zhangsan kick-PERF one-CLASS ball
             'Zhangsan kicked a ball.'

b. Zhangsan ti-gei-(le)   Lisi yi-ge   qiu
    Zhangsan kick-GEI-PERF Lisi one-CLASS ball
    'Zhangsan kicked a ball to Lisi.'

c. *Zhangsan ti-(le)   Lisi yi-ge   qiu
    Zhangsan kick-PERF Lisi one-CLASS ball

In (14) ti 'to kick' is a typical transitive verb that allows *-gei* affixation. It is strictly mono-transitive as shown in (14a) and (14c). However, the verb becomes ditransitive when it is affixed with *-gei*, as in (14b). Other typical mono-transitive verbs that allow the affixation of *-gei* to add on a GOAL role include *reng* 'to toss', *tui* 'to push', *na* 'to take', *yao* 'to scoop', *jua* 'to grasp' etc.

A more dramatic example of the productivity of this morpho-lexical rule is the possibility of attaching *-gei* to a non-Chinese loan word in informal speech, as in (15).

(15) Meiguo *telex-gei* women yibi   dingdan
      USA   telex-gei we   one-CLASS order
      'The US (company) telexed us a batch of orders.'
      (comp. * Meiguo *telex* women yibi dingdan)

The fact that native speakers apply the affixation of *-gei* to mark the addition of a GOAL role offers one of the strongest supports to the position that *-gei* is a derivational affix (Huang 1990a). This also refutes the view that Mandarin is a language that lacks morphological complexity and instead supports the view that Mandarin has a rich verbal morphology in terms of argument-changing (Huang 1991) and that argument-changing rules should be encoded on affixes (Alex Alsina p.c.).

We have demonstrated in this section that the postverbal *-gei* is an affix and the V-*gei* sequence is a compound. This resolves the linear precedence dilemma posed by the prepositional account. Since the NP after a postverbal *-gei* is an object of the compound verb instead of the alleged preposition, the Linear Precedence generalization that NP's precede PP's in a local tree is

preserved. Similarly, many complications in a GB account of Mandarin caused by a purported (non-Case-receiving) PP in a Case assignment position are superfluous. This account also supports the position that Mandarin Chinese does have active word-formation rules.

3.0 POST-DO *GEI* AND THE SERIAL VERB CONSTRUCTION

In this section, we will argue that post-DO *gei* is not a preposition either, but is instead part of a serial verb construction.

First, we must point out that unlike post-verbal *gei*, post-DO *gei* does not have any affix-like properties since it is not concatenated to any verb (16).

(16) Zhangsan ti   yi-ge   qiu gei Lisi
      Zhangsan kick one-CLASS ball GEI Lisi
      'Zhangsan kicked a ball to Lisi.'

Second, we acknowledge the post-DO *gei* does have some preposition -like properties, such as not allowing attachment of aspectual makers (17a,b), and not being able to be stranded (17c).[4]

(17) a.   *Zhangsan ti-le   yi-ge   qiu gei-le   Lisi
           Zhangsan kick-PERF one-CLASS ball GEI-PERF Lisi

      b.   *Zhangsan ti   yi-ge   qiu gei-le   Lisi
           Zhangsan kick one-CLASS ball *GEI*-PERF Lisi

      c.   *Zhangsan ti   yi-ge   qiu gei
           Zhangsan kick one-CLASS ball GEI

However, we will show below 1) that all of the above facts in (17) can be attributed to characteristics of a serial verb construction (SVC) (Section 3.1), 2) that there are additional data involving post-DO *gei* that are incompatible with a prepositional account (Section 3.2), and 3) that an SVC account is necessary to achieve the best generalization for the entire range of data (Section 3.3). In the

final subsection (Section 3.4) we will offer arguments against a mixed prepositional/SVC account.

3.1 Characteristics of a Serial Verb Construction

First, a verb series in a SVC can have only one tense/aspect (e.g. Sebba 1987, Mo et al. 1991). Thus, an SVC account of post-DO *gei* predicts the ungrammaticality of (17a). As for the ungrammatical (17b), the explanantion is that in Mandarin only the first verb can be marked with aspect when the SVC has the subordinating structure described in Mo et al. (1991) and exemplified by (18a).

(18)　a.　Lisi mai-(le)　san　ben shu　song*-le　xuesheng
　　　　　　 Lisi buy-PERF three CLS book give-PERF student
　　　　　　 'Lisi bought three books to give/and gave them to students.'

　　　 b.　Lisi zhong jiang mai-le　　yi-dong　　xin fangzi
　　　　　　 Lisi win　prize buy-PERF one-CLASS new house
　　　　　　 'Lisi won lottery and bought a new house.'

While a Mandarin SVC allows aspect to be attached to either verb, attachement to the second verb is limited to the 'concatenating' type described in Mo et al. (1991), as shown in (18b). In the SVC with post-DO *gei*, the *gei* phrase is an adjunct and an aspect marker can only be attached to the superordinating verb. C. Tang's (1990) CP adjunct account of Mandarin SVCs also makes the same prediction. The structures proposed in Mo. et al. (1991) and C. Tang (1990) are given in (19a) and (19b) respectively.

(19)　a.　$[[]_{NP = SUBJ} [V_{ []NP = OBJ} [V...]_{VP = ADJUNCT}]_{VP}]$
　　　 b.　$[[]_{NP} [[]_{V'} []_{NP} []_{CP}]_{VP}]$

On the other hand, the fact that post-DO *gei* cannot be stranded is due to the fact that Mandarin does not allow indirect object gaps in general (Huang 1992), as shown in (20). The post-DO *gei* in (21) has identical distribution with

the verbal *gei* in (20). Thus, no additional stipulation is needed if *gei* in (21) is simply a verb in a SVC construction.

(20) a.   *Lisi, ta   gei-le   yi-ben   shu
            Lisi s/he give-PERF one-CLASS book

      b.   *[ta gei-le   yi-ben   shu de   ren]np
            s/he give-PERF one-CLASS book DE (relative clause marker) person

      c.   nei-ben   shu, ta gei-le   Lisi
            that-CLASS book s/he give-PERF Lisi
            'That book, s/he gave Lisi.'

(21) a.   *Lisi, ta ji-gei-le   yi-ben   shu
            Lisi s/he send-GEI-PERF one-CLASS book

      b.   *[ta ji-gei-le   yi-ben   shu de   ren]np
            s/he send-GEI-PERF one-CLASS book DE (relative clause marker) person

      c.   nei-ben   shu, ta ji-gei-le   Lisi
            that-CLASS book s/he send-GEI-PERF Lisi
            'That book, s/he sent to Lisi.'

Thus, we have shown that the preposition-like properties of post-DO *gei* are also compatible with a SVC account. We will show below that the SVC hypothesis is needed to account for additional data involving *gei*.

3.2 Data calling for a SVC account: Prepositional objects cannot be controllers

       First, the object of post-DO *gei* controls the subject of a following verb, as in (22a). In contrast, the same NP cannot be a controller when it is not governed by *gei*, as in (22b).

(22) a.   Lisi song-le   yi ben   shu gei Zhangsan (kan)
            Lisi give-PERF one CLASS book *GEI* Zhangsan read
            '(Lit.) Lisi sent a book to give Zhangsan the book to read.'

      b.   *Lisi song-le   Zhangsan yi ben   shu   kan

The above facts cannot be accounted for under a prepositional account of post-DO *gei* since it would predict that the control relation in (22) is impossible. It can be easily demonstrated that prepositional objects are not eligible controllers in Mandarin Chinese, in spite of the fact that they may occur as the first NP preceding the controllee. In (23), even though the semantic selection of the predicate *youni* 'be greasy' allows both *zhuo-shang* 'table-top' and *wan* 'bowl' as its argument, (23a) is the only possible reading.

(23)   ta fang-le   [yi-ge   wan] [zai zhuo-shang], hen youni
              s/he put-PERF one-CLASS bowl at   table-top   very greasy

      a.   'S/he put a greasy bowl on the table.'
      b.   *'S/he put a bowl on the greasy table.'

The lack of ambiguity in (23) is predicted by a theory of universal controller hierarchy based on grammatical functions. Adopting Bresnan's (1982) theory, Mandarin data show that only the two highest grammatical functions, SUBJ and OBJ, can be controllers in Mandarin. However, since (22a) clearly shows that the object of post-DO *gei* can be a controller, we are faced with the following dilemma. If the post-DO *gei* is a preposition, then Mandarin poses a serious challenge to universal controller hierarchy that is supported by many typological studies. This analysis would seem to predict that some, but not all, OBL objects could be controllers in Mandarin.

      The analysis that an OBL object can be a controller poses an even greater problem to the universal hierarchy considering the fact that a higher grammatical function, i.e. OBJ2 (second object, exemplified by 22b), can never be a controller. On the other hand, if the observed generalization involving control in

Mandarin and the universal hierarchy of controllers argued by Bresnan (1982) are to be maintained, then an alternative to the prepositional account must be proposed. The SVC account is such an alternative. The object following the post-DO *gei* in (22) is simply an OBJ of the verb *gei* in this account and as such the fact that it is a controller follows without further stipulation.

3.3 An SVC account predicts the generalization of all constructions involving *gei*

Our next argument for the SVC account involves the theory-neutral consideration of achieving the best generalization for all the constructions involving *gei*. Hence in what follows we will review all the constructions (in terms of strings of categories) involving *gei* and the possible generalizations among these constructions. We have argued in the last section that the post-verbal *gei* should be accounted for as an (applicative) verbal suffix marking the addition of a GOAL role. Thus the superficial four-way structural contrast of Mandarin ditransitive constructions is reduced to three in (24), with the verb V in (24b) being realized as either a simplex ditransitive verb or a complex ditransitive verb V-*gei*. Sentences corresponding to the structural contrasts in (24) are given in (24') as illustration. Note that SUBJECT and OBJECT functions are aligned in these examples for easy comparison.

(24)   a.   NP gei NP V   NP
       b.   NP   V NP NP
       c.   NP   V   NP gei NP

(24')   a.   Zhangsan gei Lisi song-le   yi   ben shu
             Zhangsan GEI Lisi give-PERF one CLS book

        b.   Zhangsan song(-gei) Lisi yi   ben shu
             Zhangsan give   Lisi one CLS book

        c.   Zhangsan song-le   yi   ben shu   gei Lisi
             Zhangsan give-PERF one CLS book GEI Lisi
             'Zhangsan gave Lisi a book.'

Conceptually, one of the strongest ways to motivate an account of (24c) is to argue that it would lead to best generalizations of the three contructions in (24). Several arguments can be constructed in favor of the most economical and elegant account of (24c) with the three-way structural contrast laid out in (24). First, a prepositional account of (24c) has the possible advantage of being derivationally related to (24a) and (24b) through transformation. This would indeed be a strong conceptual argument if (24) included all the possible constructions. However, our discussion of the facts concerning control reminds us that an account of the construction will not be complete unless it also accounts for the controlled clauses after the post-DO *gei* (i.e. 25d). When this larger context is considered, there is a 4-way set of structural correspondences. The possible constructions are schematized in (25) and exemplified in (25').

(25)   a.   NP gei NP V NP
       b.   NP   V NP   NP
       c.   NP   V NP gei NP
       d.   NP   V NP gei NP VP

(25') a.   Zhangsan gei Lisi hua-le   yi-fu   hua
            Zhangsan GEI Lisi paint-LE one-CLASS painting
            'Zhangsan painted a painting for Lisi.'

       b.   Zhangsan hua-le   Lisi yi-fu   hua
            Zhangsan paint-LE Lisi one-CLASS painting
            'Zhangsan painted a painting for Lisi.'

       c.   Zhangsan hua-le   yi-fu   hua   gei Lisi
            Zhangsan paint-LE one-CLASS painting GEI Lisi
            'Zhangsan painted a painting and gave it to Lisi.'

       d.   Zhangsan hua-le   yi-fu   hua   gei Lisi gua zai jiali
            Zhangsan paint-LE one-CLASS painting GEI Lisi hang AT home
            'Zhangsan painted a painting and gave it to Lisi to hang at home.'

Given the schematized structural contrasts in (24) and (25), it can be shown that the prepositional account and the SVC account lead to different generalizations. The prepositional account suggests that (25a) and (25c) are variants with the PP being allowed to occur preverbally or post-verbally, illustrated in (26a&b). The SVC account, on the other hand, suggests that (25c) and (25d) are related with the last VP being optional, illustrated in (26c).

(26)   a.   NP PP$_i$ [V NP] (comp. 24a)
       b.   NP [V NP PP$_i$] (comp. 24c)
       c.   NP [V NP [V(=gei) NP (VP)]] (comp. 25b&c)

One set of data involving the ambiguous verb *jie* 'to borrow from/to lend to' suggests that the SVC account of (26c) is correct.

Jie is ambiguous in the direction of the borrow/lend event. The ambiguity is resolved with contextual information. Sentence (27) involves a pre-VP *gei* phrase, and sentence (28) involves post-DO *gei*.

(27)   Zhangsan gei Lisi   jie-le   yi-bai kuai
       Zhangsan give Lisi borrow-ASP 100 dollars
       'Zhangsan let Lisi borrow 100 dollars (from him = (Zhangsan)).'

(28)   Zhangsan jie-le   yi-bai kuai gei Lisi   (mai shu).
       Zhangsan lend-ASP 100 dollars give Lisi   buy books
       'Zhangsan lent Lisi 100 dollars (to buy books).

The fact that *jie* was given different meanings in these two contexts suggests that the contextual information is different, since the only contrast between the two sentences is the position of the *gei* phrase. This fact is evidence that the two *gei* phrases should be given different grammatical status, contrary to what the (movement-based) prepositional account of post-DO *gei* proposes.

In addition, the SVC account allows us to predict that the object of the *gei* purposive clause in (29b) can be a controller. In the SVC account, the

syntactic and semantic parallisms between (b) and (c) sentences in (26), (27) and (29) are accounted for as the same SVC with an optional third VP.

(29) a.   baba *gei* Lisi yi-baiwan mai fangzi
          father give Lisi one-million buy house
          'Father gave Lisi a million to buy a house.'

      b.   baba song yi-baiwan *gei* Lisi mai fangzi
          father give one-Million GEI Lisi buy house
          'Father gave Lisi one million to buy a house.'

      c.   baba song yi-baiwan *gei* Lisi
          father give one-Million GEI Lisi
          'Father gave Lisi one million.'

3.4 Against a mixed prepositional/SVC account

    Given the above facts, one could restrict the prepositional account to the *gei* NP sequence without an ensuing VP (e.g. 29c) (c.f. C. Tang (1990), Her (1997)). However, even if one does so, sentences like (29a) are still an instance of a SVC. This is what we call a mixed prepositional/SVC account.

    For Tang, *gei* in (29a) is a verbal head of a PredP, and *gei* in (29c) is a preposition, like *zai* in (25). Her postulation aims to account for cases where matrix verbs do not allow the last VP to be elided, as exemplified in (30). One possible explanantion is that ditransitive verb *song* subcategorizes for a GOAL PP and therefore (29c) is grammati-cal. The verb *fang* 'to play (a movie, a tape, etc.)' does not, and therefore (30b) is ungrammatical.

(30) a.   Zhangsan fang-le   yi-bu   dianying *gei* dajia   kan
          Zhangsan play-PERF one-CLASS movie   GEI everyone watch
          'Zhangsan played a movie for everyone to watch.'

      b.   *Zhangsan fang-le   yi-bu   dianying *gei* dajia
          Zhangsan play-PERF one-CLASS movie   GEI everyone

This mixed prepositional/SVC account of *gei*, however, is still problematic. First, even though verbs like *fang* 'to put on' do not subcategorize for a GOAL complement, they do occur as the first verb in a similar SVC, as in (31).

(31) Zhangsan fang-le   yi-bu   dianying qing dajia   (xinshang)
      Zhangsan play-PERF one-CLASS movie   treat everyone (enjoy)
      'Zhangsan played a movie to treat everyone (to enjoy).'

The only difference between (30) and (31) is the pre-GOAL "verb". The contrast suggests that it is the choice of the second verb rather than the subcategoriation of the first verb that accounts for the contrast. Given a mixed account, such as Tang (1990), there is also no motivation for stipulating that the post-DO *gei* in (30a) is a preposition, and not a verb. In other words, a mixed account would predict a categorical ambiguity here of which there is no other evidence. Thus a unified SVC account is more elegant and explanatory.

Second, the mixed prepositional/SVC account will not be able to account for obvious cases of SVC when the first verb is not ditransitive. Recall that the mixed prepositional/SVC account relies crucially on the fact that the alleged *gei*-PP represents a GOAL argument selected by the matrix ditransitive verb (e.g. 29a). However, the two sentences extracted from corpus show that the leading verb preceding a post-DO *gei* phrase need not be a ditransitive verb (32).

(32) a.   gankuai dao bei shui gei puopuo (he)
           hurry   pour cup water GEI grandma drink
           'Hurry, pour a cup of water for grandma (to drink).'

      b.   fuyin-le   'shoubiao-xin hujiaoqi' de xinzhuang gei jiankou
           Xerox-PERF wrist-watch-type beeper DE shape   GEI monitor-
           renyuan (cankao)
           test staff   reference
           '[They] xeroxed pictures of 'watch-shaped beepers' and gave [the copies] to test proctors (to refer to).'

Neither dao 'to pour' in (32a), nor *fuyin* 'to xerox' in (32b), subcategorizes for a second object, thus the post-DO *gei* phrase cannot be a PP argument. Furthermore, the optional sentence-final verb suggests that *gei* itself may lead serial verb constructions. Hence the prepositional account of post-DO *gei* does not offer any explanation for the contrast in the optionality of the sentence-final verb. It would also wrongly rule out both sentences in (32). In sum, any account that includes a prepositional analysis of post DO-*gei* not only does not offer a unified explanation of the structural similarity between (25c) and (25d), it also fails to account for the contrast between (30) and (31).

In contrast, the SVC account straightforwardly explains the parallel structures of (25c) and (25d). The account also allows an explanation of why a third verb is sometimes obligatory and sometimes optional in a SVC with *gei* as the second verb (examples 30-32). Contrary to Paul's (1987) generalization that a SVC always ends with a *gei* phrase unless its object is abstract and cannot be transferred, there are many exceptions, such as (33).

(33)   a.   Zhangsan zhu tang gei ta   he
               Zhangsan cook soup GEI s/he drink
               'Zhangsan cooked soup for him/her to drink.'

       b.   *Zhangsan zhu tang gei ta
               Zhangsan cook soup GEI s/he

In (33), a third verb is obligatory after *gei* even though the object of *gei* (i.e. *ta*) is non-abstract and clearly transferrable. With the contrast of (32a) and (33a), we also show that the obligatoriness is not dependent on the third verb.[5]

Last but not least, as observed in Li (1990) and Chao-fen Sun (p.c.), the prepositional preverbal *gei* marks both the GOAL and BENEFICIARY arguments and no longer has the full predicative meaning. The post-DO *gei*, on the other hand, has the full predicative meaning involving the act of giving. In other words, the post-DO *gei* has yet to be reduced to an argument marking

device and still has a lexical predicative meaning. This is another strong argument against analyzing the post-DO *gei* as a preposition.

To sum up, there are arguments clearly in favor of a verbal account of post-DO *gei*. First, the control facts suggest that a SVC account is supported by descriptive evidence. Second, a SVC account is also supported by theoretical assumptions oncerning the universal hierarchy of controllers. Third, the SVC analysis allows a more elegant account of the typology of all of the structures involving *gei*, and not just a subset. Lastly, we showed that a PP account limited to a *gei* phrase without an ensuing verb (i.e. the mixed prepositional/SVC account) is superfluous because the optionality of the verb following the post-DO *gei* phrase cannot be predicted by the transitivity of the leading verb alone. In sum, in this section we have shown with theory-neutral motivation that all instances of post-DO *gei* are best accounted for as verbs in serial verb constructions.

4.0 HISTORICAL RAMIFICATIONS

The last argument supporting our account comes from studies of the historical changes of the ditransitive constructions of Mandarin Chinese. The data reported here is based on Peyraube (1986), C. F. Sun (p.c.), and our studies of the historical corpus at Academia Sinica.

According to Peyraube (1986), the critical period of structural changes for Chinese ditransitive constructions occurred between the first and tenth century A. D. Of the three structures discussed in this paper, (34a) and (34b) are attested in documents from the Warring States period (roughly 4th to 2nd century B. C.). The third and fourth, i.e. (35a) and (35b), are innovations studied by Peyraube. Between the tenth century and modern Chinese, the most crucial change is the lexical replacement of the ancient form *yu3* 'to give' with the modern form *gei* in spoken Chinese in the structures in (35). This occured during the fifteenth century. This position is supported by Sun's recent study of the history of Chinese prepositions and our corpus.

(34)   a.   V   IO DO
       b.   V   DO *yu2* IO (*yu2* 'to')

(35) a.   V1   DO V2 IO
      b.   V1-V2 IO   DO

The reason for listing (34b) and (35a) separately is because the first historical change that took place between the first and tenth century was that a group of verbs (V2 in 35a) replaced the preposition *yu2* (in 34b). These verbs were ditransitive verbs which had the neutral meaning of the action of the source giving a theme to the goal, without specifying other attributes of the action. The meaning of V2 was later bleached and *yu3* became the only verb allowed in this position.

A later innovation, starting from roughly the third century A.D., is the emergence of the structure (35b). Similarly, the original group of verbs occurring in the V2 position (in 35b) gradually narrowed to *yu3* until it became the only lexical item allowed in this position. Both structures are preserved in Modern Mandarin with the lexical replacement of *yu3* by *gei*, which by all accounts, occurred in the fifteenth century.

Note the (surface) structural parallelism between (34a), (34b)/(35a), and (35b), and the structures studied here, (1a), (1b), and(1c) (given again below). It is not surprising that our affixation account of the post-verbal *gei* and the SVC acount of the post-DO *gei* are supported by their historical counterparts. Recall that *yu3* is the lexical item replaced by *gei*.

(1) a. verb   IO DO   [double-object construction]
     b. verb   DO *gei* IO [post-DO *gei*]
     c. verb *gei* IO DO   [postverbal *gei*]

In addition, there are also occurrences of post-DO *yu3* which suggest a SVC analysis.

For example in (36), we see clearly that *yu3*, the historical predecesor of *gei*, occurs as the second verb of a verb series (*zhong* DO *yu3*).

(36)   bixia   shouming buguo   bai-nian,
        majesty life   no+more+then hundred-year

        yu   zhong ci   tao   yu3 sheiren   shi zhi
        want plant this peach give who-person eat 3rd-pers
        'The life of your majesty is no more than one hundred years, and which is
        the person that you want to plant this peach for [so as to bear fruit] to
        give him/her to eat?'
        (Dunhuang bianwen [Vernaculars], ca. 10th century A.D.)

Unlike the preverbal preposition which is ambiguous between a beneficiary and a
goal marker, the *yu3* here has the clear meaning of 'to give' and its object (*shei-
ren*) controls the subject of the following verb *shi* 'to eat'.   In addition, the verb
zhong 'to plant' also does not subcategorize for a GOAL argument.   Thus, it
likely that (36) is an instance of SVC with *yu3* as the second verb.

5.0 CONCLUSION

We have shown that the postverbal *gei* that is concatenated to a verb is
actually an affix, which means that the V-*gei* sequence is a complex predicate.
We first demonstrated that *gei* is not a preposition by showing that it allows the
attachment of aspect markers, that it can occur between a verb and an object, that
it can be stranded in ellipsis -- all things that a preposition cannot do. In addition,
we demonstrated that *gei* is a verbal affix because it selects the grammatical
category of its host, because no constituents can intervene between it and the
verb, because the V-*gei* combination shows lexical properties such as semantic
shift and idiosyncratic gaps, and because its affixation is a lexical operation. Our
account of post-verbal *gei* also finds historical correspondences.

In addition, three alternative accounts of the post-DO were given: the
prepositonal account, the SVC account and the mixed prepositional/SVC
account. The prepositional account is ruled out because prepositional objects
cannot be controllers. The mixed account is ruled out because it predicts a
categorical ambiguity for which there is no evidence and because it cannot
account for SVCs when the first verb is ditranstive. The SVC account, however,
predicts the generalization in the control relationship, and also offers a more
elegant explanation of all constructions involving *gei*, as well as being able to
deal with SVCs where the first verb is ditransitive. Thus, both theoretical and

language internal argument shows that the SVC account is superior. Historical precedents are also found for this account. Even though we are making no claim that the historical constructions and the *gei* constructions studied in this paper share identical structures, we think a synchronical account is strengthened if it is found to be compatible with its historical developments.

Lastly, our account entails that, except for locative PPs, all PPs in Chinese are pre-verbal. This account has many potentially interesting implications. One of them is that the SVO/SOV word order change debate can be considered in the new perspective of the shift of the post-verbal PP position to a predominantly pre-verbal position.

ACKNOWLEDGEMENTS

NOTES

1 The modern Mandarin Chinese sentences in (8), (9a) (11), (12), (13), and (32) are from the Academia Sinica modern Chinese corpus. The other example sentences are constructed based on corpus examples.

2. In Huang and Mo (1992) we argued that post-verbal *gei* attached to path verbs. However, this generalization is perhaps too restricted (see Ahrens 1995

for further discussion). The lexical semantic function of *gei* is relevant area for future study.

3. Alert readers may suspect that syllabicity plays a role here, as it well might. However, syllabicity is a phonological feature and as such interface constraints can only be done lexically. The syllabicity account serves to reinforce our lexical analysis.

4. In fact, C. Tang (1990) does include *gei* as an instance in her argument for a post-verbal PP position in Mandarin Chinese.

5. What we observe in the sentences requiring a third verb is that the objects have the role of an incremental theme. This is true for both *dianying* 'movie' in (30) and *tang* 'soup' in (33). On the other hand, the shape of a beeper (32b), water (32a), or a million dollars (29) are not created by the predicates and are not incremental themes. This observation holds for all the cases we studied. The nature of the lexico-semantic constraint that governs this distribution, however, is still unclear to us at this moment.

REFERENCES

AHRENS, Kathleen. 1995. The Meaning of the Double Object Construction in Chinese. *Proceedings of the Sixth North American Conference on Chinese Linguistics.* Volume 1: 1-10. GSIL: USC.

BRESNAN, Joan. 1982. Control and Complementation. In Bresnan ed. *The Mental Representation of Grammatical Relations.* Cambridge: MIT Press.

_____ and Jonni M. Kanerva. 1989. Locative Inversion in Chichewa: A Case Study of Factorization in Grammar. *Linguistic Inquiry.* 20.1:1-50.

CHAO, Yuen-Ren. 1968. A Grammar of Spoken Chinese. Berkeley: University of California Press.

CHENG, Ya-hsia, and Chu-Ren Huang. 1988. Guoyu zhong de Shuangbin Dongci. [Double Objects Verbs in Mandarin]. *The World of Chinese Language.* 48:34-48.

DAI, John X.-L. 1991. Inflectional Morphology in Chinese. Presented at the Third North American Conference on Chinese Linguistics. May 3-5. Cornell University.

HER, One-soon. 1997. *Interaction and Variation in the Chinese VO Construction.* Taipei: Crane Publishing Company.

HUANG, Chu-Ren. 1987. *Mandarin Chinese NP de: A Comparative Study of Current Grammatical Theories.* Cornell University Ph. D. Thesis. Published as Institute of History and Philology Special Publications No. 93. 1989.

_____ 1990a. Mandarin Double Object Construction and Morpho-lexical Rules. Paper presented at the 23rd International Conference on Sino-Tibetan Languages and Linguistics. Arlington, Texas.

_____ 1990b. A Unification-based Theory of Lexical Discontinutiy. *Linguistics.* 28.2:263-307.

_____ 1992. Certainty in Functional Uncertainty. *Journal of Chinese Linguistics.* 20.2:247-287.

_____1992b. A Comparative Study of Tough Constructions and Nominalization. *Proceedings of the Third International Symposium on Chinese Languages and Linguistics* (IsCLL III). Pp. 62-79.

_____ 1993. Mandarin Chinese and the Lexical Mapping Theory--A study of the interaction of morphology and argument changing. *Bulletin of the Institute of History and Philology.* 62.2:337-388. Taipei: Academia Sinica.

_____ and Louis Mangione 1985. A Reanalysis of *de*: Adjuncts and Subordinate clauses. M. Cobler, J. Goldberg, S. Mackaye, and M. Wescoat. Eds. *Proceedings of the Fourth West Coast Conference on Formal Linguistics.* Pp. 80-91. Stanford: Stanford Linguistics Association.

_____ and Fu-Wen Lin. 1992. Composite Event Structures and Complex Predicates: A Template-based Approach to Argument Selection. *The Proceedings of the Third Annual Meeting of the Formal Linguistic Society of Midamerica* (FLSM III). Pp. 90-108. Bloomington: IULC.

_____ and Ruo-ping Mo. 1992. Mandarin Ditransitive Constructions and the Category of *gei*. *Proceedings of the 18th Berkeley Linguistics Society.*

LI, Charles N. and Sandra A. Thompson. 1981. *Mandarin Chinese. A Functional Reference Grammar.* Berkeley: University of California Press.

LI, Yen-Hui Audrey. 1990. *Order and Constituency in Mandarin Chinese.* Dordrecht: Kluwer.

MO, Rou-Ping Jean, Chu-Ren Huang, and Keh-jiann Chen. 1991. Serial Verb Constructions In Mandarin Chinese. Paper presented at the Third

International Conference on Teaching Chinese as a Second Language. December 28-31. Taipei, Taiwan.

NEWMAN, John. 1993. A Cognitive Grammar Approach to Mandarin *gei*. *Journal of Chinese Linguistics*. 21.2:313-336.

PAUL, Watrauld. 1987. The Purposive *Gei*-Phrase in Chinese. *Cahiers de Linguistique Asie Orientale*. Vol 16. No. 2.

PEYRAUBE, Alain. 1986. Shuangbingyu jiegou cong handai zhi tangdai de lishi fazhan [The Historical Development of Double Object Constructions between Han and Tang Dynasties]. *Zhongguoyuwen* No.3: 204-216.

SHEBBA, M. 1987. *The Syntax of Serial Verbs*. Amsterdam: John Benjamins.

TANG, Chih-chen Jane. 1990. Chinese Phrase Structure and the Extended X' Theory. Unpublished Cornell University Ph. D. Thesis.

TANG, Ting-Chi. 1979. Double Object Constructions in Mandarin. *Guoyu Yufa Yanjiu Lunji [Studies in Chinese Syntax]*. Pp. 363-389. Taipei: Student.

_____ 1989. Guanyu Hanyu de Cixu Leixing [On the Word Order Typology of Mandarin Chinese]. *Guoyu Cifa Yufa Yanjiu Lunji [Studies on Chinese Morphology and Syntax]*. Pp. 449-537. Taipei: Student.

TENG, Shou-hsin. 1975. *A Semantic Study of Transitivity Relations in Chinese*. University of California Publications in Linguistics. Vol. 80. Berkeley and Los Angeles: University of California Press. And Taipei: Student. 1977.

XU, Dan. 1994. The Status of Marker *Gei* in Mandarin Chinese. *Journal of Chinese Linguistics*. 22.2:363-394.

汉语双及物句式中「给」的词类与功能
黄居仁*　安可思#
中央研究院
国立臺湾大学

　　本文证明汉语带「给」的双及物句式与英语的双宾句式仅是表面雷同。我们主张动词后的「给」是复合动词的一部分，而在直接宾语后由「给」带领的词组则是序列动词结构（ SVC, Serial Verb Construction)的一部份。除了论据外，我们也提出了这个分析在理论上的重要性和历史语法中可能的佐证。