BEI-passive revisited: a constraint-based approach

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Abstract

This paper revisits Chinese BEI-passive constructions by analyzing two less-studied passive structures: the passive in which the patient argument of the passivized verb maps onto a post-verbal position, as well as the passive with intransitive verbs. I claim that there is no subject in these constructions, by showing that the post-V patient, if there is one, is the object and not the dislocated subject of the clause. I propose that BEI is a raising verb and a passive marker in Chinese and that a grammatical subject is not necessary for every clause.

1 Introduction

The topic of this paper is Mandarin Chinese BEI-passive constructions. The paper is organized as follows. In section 2, I introduce basic BEI-passive structures and review current studies of BEI-passives. I will especially concentrate on the analyses of BEI and point out some problems of these analyses by presenting relevant facts. I then propose my own analysis of BEI and BEI-constructions in section 3. The main conclusions are summarized in section 4.

2 Current analyses of BEI and BEI-passive

The patient/theme argument in Mandarin Chinese BEI-passive clauses can appear either in a pre-BEI position or post-verbally. I first introduce the basic passive BEI structures in Mandarin in 2.1 and then review the previous studies, in 2.2. The grammatical function of the post-V argument is discussed in 2.3.

2.1 Basic passive structures in Mandarin Chinese

The commonly known and most studied passive construction in Mandarin Chinese is the passive ordered as NP-BEI(-NP)-V, in which the patient or theme argument maps onto the pre-BEI position, whereas the immediate post-BEI element – if there is one – corresponds to the agent argument. Constructions with and without an overt post-BEI agent are named *long passive* and *short passives* (Huang et al. 2009), respectively. For example:

(1)   a. Zhang1 san1 bei4 Li3 si4 da3 le0.
　　　　张　　三　被　李　四　打　了
　　　　Zhangsan   BEI Lisi   hit   PERF
　　　　'Zhangsan was hit by Lisi.'

　　　b. Zhang1 san1 bei4 Ø da3 le0.
　　　　张　　三　被　　　打　了
　　　　Zhangsan   BEI   hit   PERF
　　　　'Zhangsan was hit.'

(Huang et al. 2009)

(1a) represents the typical *long passive* construction in Mandarin Chinese. The agent argument (i.e., *Lisi*, the hitter) is overtly expressed and it maps onto the

post-BEI position. (1b) represents the typical *short passive* construction, with no agent argument overtly expressed in the clause. In both cases, the patient argument (i.e., *Zhangsan*, the one being hit) is located before BEI.

Apart from the construction represented in (1), in which the patient argument of a passivized transitive verb is located before BEI, the patient argument can also appear post-verbally, as illustrated by (2):

(2) a. Bei4 ta1 pian4 le0   wu3 ge4   da4 huo2 ren2.
     被 她 骗 了 五 个 大 活 人
     BEI she cheat PERF five CLASS big living man
     (Literally) 'There were cheated five living men by her.'

(Lu 2004)

   b. Bei4 ta1 cai3 zhao2 she2 le0.
     被 她 踩 着 蛇 了
     BEI she step-on   snake PERF
     (Literally) 'There was stepped on a snake by her.'

   c. Bei4 feng1 chui1 dao3 le0   yi4 ke1   shu4.
     被 风 吹 倒 了 一 棵 树
     BEI wind blow down PERF one CLASS tree
     (Literally) 'There was blown down a tree by the wind.'

Surprisingly, despite the huge bulk of research on Chinese BEI-passive constructions, with the patient argument mapping onto the pre-BEI position, little attention has been paid to the situation in which the patient argument is not located before BEI, but appears post-verbally, such as the NP *wu3 ge4 da4 huo2 ren2* 'five living men' after the verb *pian4* 'cheat' in (2a), the NP *she2* 'snake' after the verb *cai3* 'step on' in (2b), or the NP *yi4 ke1 shu4* 'a tree' after the verb *chui1 dao3* 'blow-down' in (2c), respectively.[1,2]

The same order is also widely used in Shanghainese and Cantonese, as is shown in (3) and (4), respectively:

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[1] Though some studies have mentioned them in passing, as in Yu (1989), Lu (2004), Her (2008), or Huang et al. (2009), among others.

[2] For me, when the patient argument maps onto the post-verbal position, the agent argument should be overtly expressed, such as the *ta1* 'she' in (2a) and (2b), or the agent *feng1* 'wind' in (2c). However, after consulting other native speakers, they pointed out that omitting the agent argument is also acceptable:

   (i)   Bei4 pian4 le0   wu3 ge4   da4 huo2 ren2.
        被 骗 了 五 个 大 活 人
        BEI cheat PERF five CLASS big living man
        (Literally) 'There were cheated five living men.'

   (ii)   Bei4 chui1 dao3 le0   yi4 ke2   shu4.
        被 吹 倒 了 一 棵 树
        BEI blow down PERF one CLASS tree
        (Literally) 'There was blown down a tree.'

   (https://www.oursteps.com.au/bbs/archiver/?tid-727247.html&page=2, visiting time: 16:32, 05/12/2020.)

(3)   a. Bah4 da3 khah4 tsho1 zaon3 wa3   theh4 ih4 khu1   zy3.
　　　拔　大　客　车　撞　坏　脱　一　棵　树
　　　BEI big coach　knock broken PERF one CLASS tree
　　　(Literally) 'There was smashed a tree by a big coach.'

　　b. Bah4 yi1 sah4 theh4 sae1 eh4   nyin1.
　　　拔　伊　杀　脱　三　个　人
　　　BEI she kill PERF three CLASS person
　　　(Literally) 'There were killed three people by her.'

(Yu 1989)

(4)   a. Bei2 keoi5 sik6 zo2   jat1 go3   lou5 baak3 gung1.
　　　畀　佢　食　咗　一　个　老　伯　公
　　　BEI it   eat PERF one CLASS old uncle
　　　(Literally) 'There was eaten an old man by it.'

　　b. Bei2 keoi5 sik6 zo2   gei2 go3   lei4.
　　　畀　佢　食　咗　几　个　梨
　　　BEI she   eat PERF some CLASS pear
　　　(Literally) 'There were eaten some pears by her.'

(Yu 1989)

Similarly, though BEI is also widely used with intransitive verbs, little attention has been given, either. In such a construction, the sole argument of the intransitive verb maps onto the post-BEI position. Also, when BEI combines with intransitive verbs, only unergatives can appear in this construction, such as *pao3/pao3 diao4* 'run/run away', *tao2/tao2 zou3/tao2 pao3* 'flee/flee away', *cheng2 gong1* 'succeed', etc. For instance:[3]

(5)   a. Bei4 ta1 pao3 le0.
　　　被　她　跑　了
　　　BEI she run PERF
　　　(Literally) 'It was run by her. (She ran.)'

　　b. Bei4 ta1 cheng2 gong1 le0.
　　　被　她　成　功　了
　　　 BEI she succeed   PERF
　　　 'It was succeeded by her. (She succeeded.)'

Unaccusative verbs, such as *dao4* 'arrive', or *diao4* 'fall', cannot appear in the BEI-passive construction:

(6)   a. *Bei4 ta1 dao4 le0.
　　　被　她　到　了
　　　BEI she arrive PERF
　　　(Intended) 'It was arrived by her. (She arrived.)'

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[3] However, when passivizing intransitive – or rather, unergative – verbs, all the native speakers that I consult, including myself, agree that dropping the agent argument does not feel natural.

b. *Bei4 ta1 diao4 le0.

被　她　掉　　了

BEI   she fall   PERF

(Intended) 'It was fallen by her. (She fell.)'

To reorient a bit, BEI-passives can be used with transitive verbs as well as with intransitive verbs in Mandarin Chinese. When used with transitive verbs – as in (1) and (2) –, the agent argument maps onto the post-BEI position, whereas the patient argument can either appear before BEI (as in (1)), or map onto the post-verbal position (as in (2)). When used with intransitive verbs, only unergative verbs make a grammatical construction. This is illustrated by the contrast between the grammatical cases in (5) and the ungrammatical cases in (6), with BEI combining with unergatives and unaccusatives, respectively. A construction with the agent argument not overtly expressed is acceptable when transitive verbs are passivized, but does not feel natural with intransitive verbs.

To give an analysis of the less studied passive constructions with BEI, especially the BEI-passive in which the patient argument of the transitive verb maps onto the post-verbal position, three questions need to be answered. First, about the grammatical function of the post-V NP: is it an object, or a subject that is somehow dislocated? Second, about the grammatical function of the immediate post-BEI NP: is it an object or an oblique? Third, about BEI itself: is it a preposition, a matrix verb taking thematic arguments, or something else?

2.2 Previous analysis of BEI-passive constructions

To solve these puzzles raised in the last paragraph in 2.1, let us first survey some previous analyses of Chinese BEI-passive constructions. Attempts at analyzing Chinese BEI-passives treat BEI either purely as a passive marker (Xiao et al. 2006, Chow 2018, etc.), as a preposition (Zhu 1982, Li 1990, etc.), as a matrix verb taking two or three arguments (Ma 1985, Her 1989, 2009, Guo et al. 2007, etc.), or as a coverb (Kit 1998). Few words can be said about paths that *simply* treat BEI as a passive marker of the clause because they are untenable. In 2.2.1 we give a brief discussion on studies treating BEI as a preposition. In 2.2.2 we review two representative proposals that treat BEI as the matrix verb taking thematic arguments and discuss the problems they may face. 2.2.3 talks about approaches that treat BEI as a coverb and concludes.

2.2.1 BEI as a preposition

Approaches treating BEI as a preposition mainly appear in early studies, such as Zhu (1982) or Li (1990). The claim is made by considering that BEI resembles the English preposition *by* in that both are followed by the agent argument in their respect passive construction.

Now it is generally agreed that classifying BEI into preposition is not appropriate (Hsu 2009, Kit 1998, Guo 2007, Liu 2016, among others), given compelling evidence that preposition stranding is not allowed in Mandarin

Chinese (Huang 1991, Li 1990, among others)[4] and that dropping the post-BEI element – at least in the passivization of transitive verbs – will not cause any ungrammaticality. Example (7) illustrates a case in which the verb *da3 jia4* 'fight' in its active form needs a prepositional complement introduced by *gen1* 'with'. As one can see, the NP *ta1* 'he' following the preposition *gen1* 'with' cannot be dropped. In contrast, in a passive construction in (8), the agent argument following BEI can be freely dropped:

(7) Wo3 mei2 you3 gen1 *(ta1) da3 jia4.
　　 我　没　有　跟　　他　打　架
　　 I　not　　with　he　fight
　　 'I did not fight with him.'

(Huang 1991)

(8) Zhang1 san1 bei4　(Li3 si4)　da3 le0.
　　 张　　三　被　　李　四　打　了
　　 Zhangsan　BEI　Lisi　　hit　PERF
　　 'Zhangsan was hit (by Lisi).'

Therefore, though the "BEI + NP" sequence seems to resemble the English *by*-phrase in introducing the agent argument of the passivized predicate, it is not logical to analyze BEI as the Chinese counterpart of the English preposition *by*.

2.2.2 BEI as a (thematic) argument-taking predicate

Apart from assuming BEI to be a preposition, most studies adopt the approach of analyzing BEI as the matrix verb of the clause (Ma 1985, Her 1989, 2009, Guo et al. 2007, Hsu 2009, among others). As for the subcategorization of BEI however, no agreement has been reached. Ma (1985), Her (1989, 2009), among others, propose that BEI is a three-place predicate that selects a SUBJ, an OBJ, and a VCOMP (or an XCOMP, depending on different assumptions). For example, Her (1989) assumes that BEI subcategorizes for three functions in its PRED value and that it introduces two control equations. The lexical form of BEI as well as the control equations by Her (1989) are given in (9).

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[4] Notice that, circumpositions in Mandarin Chinese exist. These are a type of adposition combining a preposition that precedes an NP and a postposition following that NP (Liu 2002). In this case, "circumposition stranding" is allowed. For example:

(i) Wo3 men2 **yong4** qi4 che1 **lai2** jie1 song 4 ke4 ren2.
　　 我　们　用　　汽车　来　接送　客　人
　　 we　　with　car　　to　pick-up　　client
　　 'We pick up clients with cars.'

(ii) Qi4 che1 wo3 men2 **yong4 lai2** jie1 song4 ke4 ren2.
　　 汽车　我　们　用　　来　接送　客人
　　 car　we　　with　to　pick-up　　client
　　 'As for the car, we use it to pick up clients.'

(Liu 2002)

(ii) without any element inside the circumposition *yong4 lai2* 'with … to' is perfectly acceptable in Mandarin Chinese. However, *pre*position stranding is not allowed, as (7) shows.

(9) BEI, V

      (↑PRED) = 'BEI <(↑SUBJ) (↑OBJ) (↑VCOMP)>'
      (↑SUBJ) = (↑VCOMP OBJ)
      (↑OBJ) = (↑VCOMP SUBJ)

<div align="right">(Her 1989)</div>

The f-structure in (10) gives a straightforward illustration of the control equations proposed by Her (1989):

(10)   Zhang1 san3 bei4 Li3 si4 ma4   le0.

      张   三 被 李 四 骂   了

      Zhangsan   *BEI* *Lisi*   *curse* *PERF*

      'Zhangsan was cursed by Lisi.'

$$
\begin{bmatrix}
\text{PRED} & \text{'BEI < SUBJ, OBJ, COMP >'} \\
\text{SUBJ} & [\text{PRED} \quad \text{'Zhangsan}_i\text{']} \\
\text{OBJ} & [\text{PRED} \quad \text{'Lisi}_k\text{']} \\
\text{VCOMP} & \begin{bmatrix}
\text{PRED} & \text{'ma <SUBJ, OBJ, COMP>'} \\
\text{SUBJ} & [\text{PRED 'PRO}_k\text{']} \\
\text{OBJ} & [\text{PRED 'Zhangsan']}
\end{bmatrix}
\end{bmatrix}
$$

<div align="right">(Her 1989)</div>

Concerning the subcategorization of BEI proposed by Her (1989), Hsu (2009) points out that the object-to-subject equi is doubtful within the existing theories of raising (Alsina 1996, Falk 2001, among many others). In addition, one has to explain "why Mandarin in particular allows this sort of object equi construction in addition to more standard cases of equi, and why other languages do not seem to do so at all." Wong and Hancox (1999) in turn observe from the perspective of current Lexical Mapping Theories (LMTs, Bresnan and Kanerva 1989, Bresnan and Moshi 1990, etc.) that, if BEI should be treated as the matrix verb subcategorizing for an OBJ that maps onto the post-BEI position, then a clash would occur because the post-BEI element is both an OBJ (which is classified as [+o]) and an agent (which is intrinsically [-o]).

Apart from the studies that assume BEI to subcategorize for three grammatical functions, some studies also assume that BEI only subcategorizes for a SUBJ and an XCOMP, as Guo et al. (2007) or Hsu (2009), among others. For example, Guo et al. (2007) propose that, for a passive sentence like the one in (11), the lexical form of BEI and the f-structure can be represented as in (12) and (13), respectively:

(11) Zhe4 xie1 shu4 ju4 bei4 wo3 hu1 lve4.
这　些　数　据　被　我　忽　略
these　data　BEI　I　ignore
'These data was ignored by me.'

(Guo et al. 2007)

(12) BEI, V
　　　(↑PRED) = 'BEI <(↑SUBJ) (↑COMP)>'
　　　(↑SUBJ) = (↑COMP OBJ)

(Guo et al. 2007)

(13) F-structure for (11)

$$\begin{bmatrix} \text{PRED} & \text{'BEI } < \text{SUBJ, COMP} >\text{'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'data'} \\ \text{DET} & [\text{ PRED 'these' }] \end{bmatrix} \boxed{1} \\ \text{COMP} & \begin{bmatrix} \text{PRED} & \text{'omit <SUBJ, OBJ>'} \\ \text{SUBJ} & [\text{PRED 'I' }] \\ \text{OBJ} & \boxed{1} \end{bmatrix} \end{bmatrix}$$

(Guo et al. 2007)

Assuming BEI to only subcategorizes for a SUBJ and a COMP avoids the feature conflicting problem in Her (1989), but still faces the object-to-subject equi problem: as one can see, the OBJ of COMP bears the same tag as the SUBJ of the matrix f-structure in (13) and again, an object-to-subject raising is quite suspicious.

2.2.3 BEI as a coverb

Some words need to be said about previous analyses that treat BEI as a coverb (Li and Thompson 1989, Ramsey 1989, Kit 1998, etc.). Li and Thompson (1989) observe that BEI cannot be a (normal) verb in any context, since it must appear in a passive sentence together with another verb and cannot occur in a sentence alone. (14a) shows a normal passive clause in which BEI combines with a transitive verb *pi1 ping2* 'criticize', whereas (14b) only contains BEI, leading to an ungrammatical construction:

(14) a. Wo3 bei4　ma1　ma1 pi1 ping2 le0.
　　　我　被　妈　妈　批　评　了
　　　I　BEI　mother　criticize PERF
　　　'I was criticized by mom.'

　　b. * Wo3 bei4　ma1 ma1.
　　　我　被　妈　妈
　　　I　BEI　mother
　　　(Intended) 'I was done something by mom.'

Li and Thompson (1989:365)

Further evidence supporting the assumption that BEI should not be fully treated as a verb comes from three verb tests in Li (1990:100): first, verbs can be attached to by aspect markers such as LE; second, verbs can appear in "V-not-V" form in wh-questions; third, verbs can be used as a simple answer to a question. (15), (16) and (17) show that BEI behaves differently from normal verbs in that it can only pass the second test (i.e., the V-not-V test):

(15) a. Ta1 mai3 le0   hen3 duo1 shu1.
　　　 他 买 了   很   多   书
　　　 he buy PERF many   book
　　　 'He bought many books.'

Li (1990:100)

　　 b.* Zhang1 san1 bei4 le0   Li3 si4 da3.
　　　　 张   三 被 了   李 四 打
　　　　 Zhangsan   BEI PERF Lisi   hit
　　　　 'Zhangsan was hit by Lisi.'

(16) a. Ta1 mai3 bu4 mai3 shu?
　　　 他 买 不 买 书
　　　 he buy not buy book
　　　 'Is he buying books?'

Li (1990:100)

　　 b. Zhang1 san1 bei4 mei2 bei4 Li3 si4 da3?
　　　　 张   三 被 没 被 李 四 打
　　　　 Zhangsan   BEI not BEI Lisi   hit
　　　　 (Literally) 'Was Zhangsan hit by Lisi or not?'

(17) a. – Ta1 mai3 shu1   ma0?
　　　　 他 买 书   吗
　　　　 he buy book Q-PART
　　　　 'Is he buying books?'

　　 – Mai3/ Bu4 mai3.
　　　　 买 / 不 买
　　　　 buy / not buy
　　　　 'Yes/No.'

Li (1990:100)

　　 b. – Zhang1 san1 bei4 Li3 si4 da3 le0   ma0?
　　　　 张   三 被 李 四 打 了   吗
　　　　 Zhangsan   BEI Lisi   hit PERF Q-PART
　　　　 'Was Zhangsan hit by Lisi?'

　　 – *Bei4/ *Mei2 Bei4.
　　　　 被 没 被
　　　　 BEI / not BEI
　　　　 (Intended) 'Yes/No.'

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The fact that BEI only shows the second property indicates that it should not be treated as a normal verb denoting action.

Out of such considerations, Kit (1998) proposes that BEI is a coverb that shares properties of both prepositions and verbs. As for its lexical entry, Kit (1998) assumes that it subcategorizes for a SUBJ, an OBJ, and an XCOMP. For a passive clause like (10), the lexical entry of BEI is considered to be:

(18) BEI,   CV, PRED 'BEI<(↑ SUBJ) (↑ OBJ) (↑ XCOMP)>'

<div align="right">(Kit 1998)</div>

As one can observe, approaches as such are not essentially different from those that treat BEI as a normal verb (like Her 1989), except that BEI is named as "coverb" to indicate the awareness that BEI has some properties that differentiate itself from normal verbs.

In conclusion, previous studies treating BEI as a pure passive marker, a preposition, or the matrix verb taking thematic arguments all seem to be somehow untenable. First, one can consider BEI to be a passive marker to a certain extent, since it must appear – together with another verb – in a passive sentence. But BEI should not *only* be treated as a passive marker, because it shows partial verbal properties, as observed by Li (1990), Kit (1998), among others. Second, BEI is not a preposition, for the immediate post-BEI NP can be dropped without causing ungrammaticality and that Mandarin Chinese does not allow preposition stranding. Third, assuming BEI to be a (thematic) argument-taking verb also faces some problems: these arguments are in fact the arguments of the verb that BEI combines with, and control equations are needed to identify the functions subcategorized by BEI and the functions subcategorized by the verb combining with BEI. Then an object-to-subject raising is doubtful within existing theories of raising and equi, as in Her (1989) or Guo et al. (2007). Moreover, a SUBJ is assumed in all these studies and it is not clear how this approach would help to analyze the data described in (2)-(5), in which the intuition is that no subject exists. Finally, studies calling BEI as a coverb show the awareness that BEI is not a normal verb, but contribute no essential difference from previous studies that treat it as the matrix verb.

2.3 Grammatical function of the post-V argument

Before giving an analysis of BEI, let us first survey the grammatical function of the patient argument that maps onto the post-verbal position, such as those represented in (2). One may therefore wonder if the post-V NP in (2) is a dislocated subject. Based on a subjecthood test and an objecthood test, I argue that the grammatical function that this patient argument maps onto is an object.

The subjecthood test I adopt is the floating quantifier test. Floating quantifier is a valid subjecthood test for many languages, like Catalan (Alsina 1996) or Tagalog (Kroeger 1993). It is also valid for Mandarin. For instance, the universal quantifier *quan2 bu4*/*suo3 you3* 'all', when modifying the subject,

can appear either before the subject, left-attaching to it, or float to the position before the verb phrase:

(19) a. Quan2 bu4 tong2 xue2 zai4　kan4　shu1.
　　　全　部 同　学　在　看　书
　　　all　　　students　PRES read　book
　　　'All the students are reading books.'

　　 b. Tong2 xue2 quan2 bu4 zai4　kan4　shu1.
　　　同　学　全　部　在　看　书
　　　students　　all　　　PRES read　book
　　　'The students are all reading books.'

By contrast, when modifying an object, such a quantifier can only appear right before the object that it modifies. Floating it to anywhere else is not allowed:

(20) a. Tong2 xue2 zai4　kan4 quan2 bu4 shu1.
　　　同　学　在　看　全　部 书
　　　students　　all　　PRES read　book
　　　'The students are reading all the books.'

　　 b.* Tong2 xue2 quan2 bu4 zai4　kan4　shu1.
　　　同　学　全　部 在　看　书
　　　students　　all　　　PRES read　book
　　　(Intended) 'The students are reading all the books.'

As we can see, only (20a) is grammatical. The universal quantifier that modifies the object *shu1* 'book' appears right before it. In (20b), the quantifier floats to a pre-VP position. The sentence is grammatical when meaning "the students are all reading books", as in (19b), but it is not grammatical when meaning "the students are reading all the books".

　People may wonder if the phenomenon might be explained in terms of thematic roles – that is, if being patient/theme disallows the floating of its modifier –. For such a discussion, let us see a typical unaccusative clause with *lai2* 'come'. In Mandarin, unaccusative verbs such as *lai2* 'come' allows its patient argument to appear either before or after it,[5] as is shown in (21):

(21) a. Ke4 ren2 lai2　le0.
　　　客　人　来　了
　　　guest　　come　PERF
　　　'Guests came.'

　　 b. Lai2　le0　ke4 ren2.
　　　来　了　客　人
　　　come PERF　guest
　　　'Came guests.'

Examples in (22) illustrate the case in which the patient argument of the unaccusative verb *come* appears before the verb and allows quantifier floating:

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[5] Whereas the sole argument in unergative clauses can only appear pre-verbally.

(22) a. Quan2 bu4 ke4 ren2 lai2   le0.
　　　全　 部 客 人 来　 了
　　　all　　 guest　 come PERF
　　　'All guests came.'

　　 b. Ke4 ren2 quan2 bu4 lai2   le0.
　　　客 人 全　 部 来　 了
　　　guest　 all　　 come PERF
　　　'Guests all came.'

However, when the argument appears post-verbally, floating its modifying quantifier to anywhere else is ungrammatical, as (23) shows:

(23) a. Lai2 le0   quan2 bu4 ke4 ren2.
　　　来 了　 全　 部 客 人
　　　come PERF all　　 guest
　　　'Came all guests.'

　　 b.* Quan2 bu4 lai2   le0   ke4 ren2.
　　　全　 部 来　 了　 客 人
　　　all　　 come PERF guest
　　　(Intended) 'Came all guests.'

The grammaticality of (23) with the patient argument being immediately pre-verbal rejects the assumption that quantifier floating can be settled in terms of thematic roles. A reasonable explanation is that, the patient *ke4 ren2* 'guests', when being pre-verbal, is realized as the subject, thus allowing its quantifier to float. In contrast, when mapping onto the post-verbal position, the same patient NP is realized as the object and to float its quantifier is not allowed.

Therefore, the fact that the pre-verbal patient NP in (24a), i.e., *quan2 bu4 pan4 tu2* 'all traitors' allows its quantifier to float to the pre-verbal position, as in (24b), is evidence that it is the subject of the clause.

(24) a. Quan2 bu4 pan4 tu2 bei4 ta1 dai4 bu3 le0.
　　　全　 部 叛 徒 被 他 逮 捕　 了
　　　all　　 traitor　 BEI he arrested PERF
　　　'All traitors were arrested by him.'

　　 b. Pan4 tu2 bei4 ta1 quan2 bu4 dai4 bu3 le0.
　　　叛 徒 被 他 全　 部 逮 捕 了
　　　traitor　 BEI he all　　 arrested PERF
　　　'Traitors were all arrested by him.'

Similarly, the fact that the post-verbal patient NP in (25a), which is also *quan2 bu4 pan4 tu2* 'all traitors', does not allow its quantifier to float, is evidence that it is the object of the clause:

(25) a. Bei4 ta1 dai4 bu3 le0   quan2 bu4 pan4 tu2.
　　　被 他 逮 捕 了　 全　 部 叛 徒
　　　BEI he arrest　 PERF all　　 traitor
　　　'All traitors were killed by him.'

b. * Quan2 bu4 bei4 ta1 sha1 le0   pan4 tu2.

全　部 被 他 杀 了　　叛　徒

all　　BEI he kill PERF traitor

'Traitors were all killed by him.'

The second test is proposed by Zhang (2000), and I name it as "focus SHI test". SHI is a multifunctional word with wide use in Mandarin Chinese. When it is used as a focus marker to introduce new information, it appears right before the element that needs to be introduced. (26b) and (26c) illustrate cases in which the SUBJ and the VP are marked as informationally new, respectively:

(26)　a. Ta1 xiu1　hao3 le0　　zi4 xing2 che1.

他 修　好 了　　自 行　车

he repair good PERF bike

'He has repaired bike.'

　b. **Shi4** ta1 xiu1　hao3 le0　zi4 xing2 che1.

是 他 修　好 了　自 行　车

SHI he repair good PERF bike

'It is he that has repaired bike.'

　c. Ta1 **shi4** xiu1　hao3 le0　　zi4 xing2 che1.

他 是 修　好 了　　自 行　车

he SHI repair good PERF bike

'What he has done is repair bike.'

However, not all elements can be preceded by SHI, such as the case with objects. By contrast, a subject can be marked by SHI when being introduced as new information, as we have seen above. (27) shows such a case in which SHI precedes the post-verbal object and results in an ungrammatical structure:

(27)　　Ta1 xiu1　hao3 le0　(***shi4**) zi4 xing2 che1.

他 修　好 了　　是 自 行　车

he repair good PERF SHI bike

(Literally) 'What he has repaired is bike.'

(Zhang 2000)[6]

People may wonder if (27) is ungrammatical because the post-verbal element is marked as discourse old via its position and is therefore incompatible with SHI.[7] The fact is that, the post-verbal NP can be either discourse old or new. It is incompatible with SHI even if it is discourse-new, shown in (28):

(28) – Ta2 xiu1　hao3 le0　　shen2 me0?

他 修　好 了　什　么

he repair good PERF what

'What has he repaired?'

– Ta1 xiu1 hao3 le0 (***shi4**) zi4 xing2 che1.

他 修 好 了 是 自 行 车

he repair good PERF shi bike

(Literally) 'What he has repaired is bike.'

The same happens with unaccusative constructions. When the patient argument appears pre-verbally, it can be proceeded by SHI. In contrast, when it maps onto the post-verbal position and is proceeded by SHI, the construction is ungrammatical:

(29) a. *Lai2 le0 shi4 ke4 ren2.

来 了 是 客 人

come PERF SHI guest

(Intended) 'It is the guests that came.'

b. Shi4 ke4 ren2 lai2 le0.

是 客 人 来 了

SHI guest come PERF

'It is the guests that came.'

The difference between (29a) and (29b) further confirms our explanation of the quantifier floating contrast between (25a) and (25b). Here in (29b), the patient *ke4 ren2* 'guests', being immediately pre-verbal, is realized as the subject, thus allowing the SHI marker. In (29a), the same patient is realized as the object when mapping onto the post-verbal position, thus the SHI marker is disallowed.

Therefore, the fact that in passive constructions with transitive verbs, in which the patient argument is post-verbal and cannot be marked by SHI, provides evidence that this NP is the object and not the subject of the clause:

(30) a. *Bei4 ta1 pian4 le0 **shi4** wu3 ge4 da4 huo2 ren2.

被 她 骗 了 是 五 个 大 活 人

BEI she cheat PERF SHI five CLASS living man

(Intended) (literally) 'What was cheated by her were five living men.'

b. *Bei4 ta1 cai3 zhao2 **shi4** she2 le0

被 她 踩 着 是 蛇 了

BEI she step-on SHI snake PERF

(Intended) (literally) 'What was stepped on by her was a snake.'

c. * Bei4 feng1 chui1 dao3 le **shi4** yi4 ke1 shu4

被 风 吹 倒 了 是 一 棵 树

BEI wind blow down PERF SHI one CLASS tree

(Intended) (literally) 'What was blown down by the wind was a tree.'

Before concluding this section, some words need to be said about the constructions in which no subject exists, as in (21b), (23a), or (25a), etc. (21b) reminds us of the example given by Kibort (2001), i.e., a locative inversion construction without a locative:

(31) And then, came those visitors. (Kibort 2001)

To account for this, Kibort (2001) proposes a "demotion" approach within LMT.[8] (31) is subjectless because, since there is no locative element, nothing can be "promoted" to the SUBJ. The Subject Condition as an inviolable constraint in traditional LMTs (Bresnan and Kanerva 1989, Bresnan and Moshi 1990, etc.) is thus challenged. If it is so, then it is not so surprising that some Mandarin constructions also lack a subject, as in (21b), (23a), or (25a), etc.

3 A unified approach to BEI constructions

3.1 The lexical entry of BEI

By now it is clear that BEI is not a preposition, nor does it behaves totally like normal verbs. Now it is time to rethink BEI as a coverb, though previous analyses apparently name it as coverb but essentially treat it like other normal verbs (as in Kit 1998). Exploring BEI as a coverb (or, a light verb, in words of But 1993) that forms a complex predicate with the main verb seems to be a viable option.

Light verbs in complex predicate constructions are studied in many languages, such as Catalan (Alsina 1996) or Urdu (Butt 1993). When analyzing Catalan causative constructions as a complex predicate, Alsina (1996) suggests that causative verbs (which equals *light verbs*) have two arguments: a *causer* and a *causee*. The *causee* binds an argument of the base verb (i.e., the main verb with which the light verb forms a complex predicate), mapping together onto the same function. Butt (1993) in turn considers the predicate composition to be a *fusion* process that melds the matrix patient with an argument of the embedded base verb. Once fused, the embedded argument is no longer available for mapping, and linking rules will only be used with the remaining arguments. Though formal representations in these two approaches differ, their essential spirit is the same: both of them assume permissive or causative construction to have a monostratal f-structure involving a single complex predicate formed by a light verb and the main verb, and both imply that predicate composition and argument mapping take place in the syntax, rather than in the lexicon.

Let us see a causative construction in Catalan, represented in (32):

(32) El mestre fa   llegir un poema al   nen.
     the teacher make read a   poem to-the boy
     'The teacher is making the boy read a poem.'

(Alsina 1996:190)

The corresponding a-structure is:

(33) A-structure of *fa-llegir* 'make-read':

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[8] That is, to add the [+o] feature to the theme argument, thus demoting it to OBJ.

'cause < [P-A]$_2$ [P-P]$_1$ read <[P-A]$_1$>>'[9]

<div align="right">(Alsina 1996:191)</div>

One can observe from previous studies on complex predicate – like Alsina (1996) or Butt (1993), etc. – that in these constructions, both the light verb and the main verb contribute their own thematic arguments. Then one can see an essential difference between BEI and light verbs (or coverbs). That is, whereas light verbs are at least partially predicated by taking an external argument, BEI does not have thematic arguments at all. All the thematic arguments one can find in a BEI-passive come from the verb that BEI combines with. This suggests that treating BEI as a coverb or light verb is not appropriate. If no thematic arguments can be contributed by BEI, nothing can be used to bind (in words of Alsina 1996) or to fuse with (in words of Butt 1993) an argument of the main verb.[10] However, this is quite suggestive of raising verbs such as *seem*, which also takes no thematic arguments. For a sentence such as:

(34) The geneticist seemed to clone dinosaurs.

<div align="right">(Falk 2001:128)</div>

The lexical entry for *seem* is suggested to be represented as:

(35) *Seem*:   V   (↑ PRED) = 'seem <(↑ COMP)> (↑ SUBJ)'

<div align="right">(Falk 2001:128)</div>

This analysis can easily be adapted to the lexical entry of BEI and Mandarin passives. That is, to treat BEI as a raising verb and to treat Chinese passive to be a raising construction. In addition, given that BEI can only occur in passive constructions, and must co-occur with another (normal) verb (Li and Thompson 1989), I propose that BEI should also be the passive marker of the clause. As a raising verb, BEI lexically specifies both the grammatical function and the grammatical category of their single argument: it is an object and a CP:[11]

(36) Lexical entry of BEI:

$$\textit{Bei,} \quad < \text{Arg} > \\ | \\ \text{OBJ} \\ | \\ \text{CP}$$

As a passive marker, BEI blocks the linkage of the agent argument of the main verb to a direct grammatical function, but allows it to map onto an oblique. The agent argument can either go unexpressed or be expressed as a post-BEI NP. In this paper, I represent the argument-to-function mapping by using the

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[9] [P-A] is short for proto-agent, whereas [P-P] is short for proto-patient (Dowty 1991).

[10] By "main verb" I refer to the verb with which BEI combines, for it contributes the semantic content of the clause denoting action.
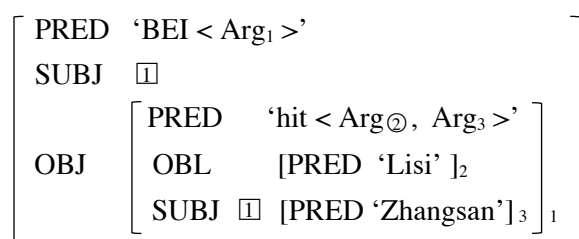
[11] Here I follow Alsina et al. (2005), Forst (2006), and Patejuk and Przepiórkowski (2016), among others, in not assuming a COMP in the inventory of grammatical functions, and I assume that the syntactic function of the clausal phrase is OBJ, which maps onto the clausal constituent in c-structure.

same subscripted integers. The passivization is indicated by circling the subscripted index of that argument and the raising process is represented by marking two functions with the same tag. Then the f-structures of (1a) and (1b) can be represented as in (37) and (38), respectively:
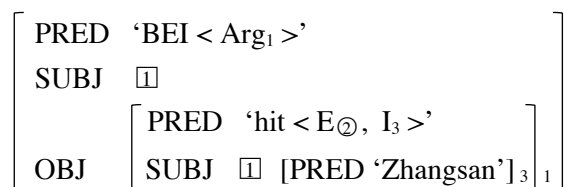
(37)   Zhang1 san1 bei4 Li3 si4 da3 le0.
　　　 张　　三　被　李 四 打 了
　　　 Zhangsan　BEI Lisi　　hit　PERF
　　　 'Zhangsan was hit by Lisi.'

<div align="right">(repeating (1a)</div>

$$\begin{bmatrix} \text{PRED} & \text{'BEI} < \text{Arg}_1 > \text{'} \\ \text{SUBJ} & \boxed{1} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'hit} < \text{Arg}_{②}, \text{Arg}_3 > \text{'} \\ \text{OBL} & [\text{PRED 'Lisi' }]_2 \\ \text{SUBJ} & \boxed{1}\ [\text{PRED 'Zhangsan'}]_3 \end{bmatrix}_1 \end{bmatrix}$$

(38)   Zhang1 san1 bei4 Ø da3 le0.
　　　 张　　三　被　　打 了
　　　 Zhangsan　BEI　hit　PERF
　　　 'Zhangsan was hit.'

<div align="right">(repeating (1b))</div>

$$\begin{bmatrix} \text{PRED} & \text{'BEI} < \text{Arg}_1 > \text{'} \\ \text{SUBJ} & \boxed{1} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'hit} < \text{E}_{②}, \text{I}_3 > \text{'} \\ \text{SUBJ} & \boxed{1}\ [\text{PRED 'Zhangsan'}]_3 \end{bmatrix}_1 \end{bmatrix}$$

In (37) and (38), the mapping of the agent argument of *da3* 'hit' to a direct grammatical function is blocked. However, nothing prevents this argument to optionally be realized as an oblique. In this way, the optionality of the post-BEI patient gets a natural explanation. As for the patient argument of *da3* 'hit', it maps onto the SUBJ of the passivized predicate, which then raises as a *nonthematic* SUBJ of BEI.

Note that here we are assuming an NP to bear the oblique function. This is not a problem for Mandarin Chinese, for obliques do not necessarily require a preposition/postposition in this language, as Ma (1985) and Tan (1987) observe. Evidence for this claim comes from NPs denoting location. That is, both NPs and PPs can be used to denote location in Mandarin Chinese:

(39) a. Yi4 jian1　　fang2 zhu4 lia3 ren2.
　　　 一　间　　　房　住　俩　人
　　　 one CLASS room live　two person
　　　 'In one room live two persons.'

b. Zai4 yi4 jian1　fang2 zhu4 lia3 ren2.
在　一　间　房　住　俩　人
in　one CLASS　room　live　two　person
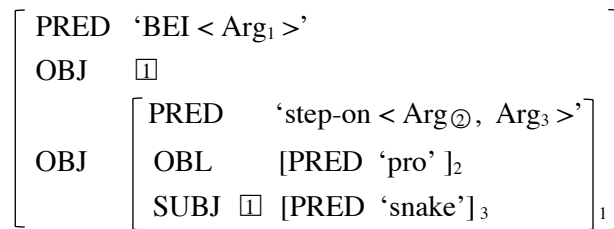'In one room live two persons.'

Therefore, assuming that the post-BEI agent bears the OBL function is not a problem for Mandarin. A similar assumption about the post-BEI agent is also adopted by Chow (2018) for Cantonese.

3.2 Patient in post-V position

Let us then turn to the passive construction in which the patient argument of the transitive verb maps onto the immediate post-V position. I have argued in 2.3 that when appearing post-verbally, the patient argument is the object of the clause. In (39), the internal argument of BEI is expressed as the SUBJ of the passivized transitive verb *cai3* 'step-on', but when raising to the matrix f-structure, it is the non-thematic OBJ of BEI:

(40)　Bei4 ta1 cai3 zhao2 she2　le0.
被　她　踩　着　蛇　了
BEI　she step-on　　snake PERF
'A snake was stepped on by her.'

<div align="right">(repeating (2b))</div>

$$
\begin{bmatrix}
\text{PRED} & \text{'BEI} < \text{Arg}_1 > \text{'} \\
\text{OBJ} & \boxed{1} \\
\text{OBJ} & \begin{bmatrix}
\text{PRED} & \text{'step-on} < \text{Arg}_{②},\ \text{Arg}_3 > \text{'} \\
\text{OBL} & [\text{PRED 'pro' }]_2 \\
\text{SUBJ} & \boxed{1}\ [\text{PRED 'snake'}]_3
\end{bmatrix}_1
\end{bmatrix}
$$

When BEI combines with intransitive verbs, the linkage of the sole argument is suppressed and it maps onto an oblique function.[12] Then no argument is left to map onto a direct grammatical function, thus no function is raised to the matrix f-structure. The f-structure in (41) illustrates this point.

(41)　Bei4 ta1 pao3 le0.
被　她　跑　了
BEI　she run　PERF
'She ran.'

<div align="right">(repeating (5a))</div>

---

[12] Recall that the agent argument in passive constructions with intransitive verbs is always expressed, though theoretically, it is optional. The reason is not clear at the moment. I leave this issue for further study.

$$\begin{bmatrix} \text{PRED} & \text{'BEI} < \text{Arg}_1 > \text{'} \\ & \begin{bmatrix} \text{PRED} & \text{'run} < \text{Arg}_{②} > \text{'} \\ \text{OBJ} & \text{OBL} & [\text{PRED 'pro' }]_2 \end{bmatrix}_1 \end{bmatrix}$$

Recall that, when combining with intransitive verbs, only unergatives make the construction grammatical. Unaccusative verbs cannot be passivized by BEI, which contributes evidence to confirm the Unaccusative Hypothesis. I will not go into details here for the space limitation.

One may wonder if there is a thematic null subject in (40) and (41), as opposed to our assumption that no subject exists in the matrix clause, since "a lot of things called passive in the literature turn out not to be passive in any useful sense. Some so-called subjectless constructions turn out to have thematic null subjects. (Maling 2010)" Yet in the very same paper, the author points out that in real impersonal active constructions, an agentive *by*-phrase is impossible. Here in (40) and (41) however, the agent argument can appear as an oblique,[13] and there are no other thematic arguments left to map onto a "thematic null subjects". Constructions such as (40) and (41) are real subjectless constructions, which implies that a grammatical subject is not necessary for every clause.

4 Conclusions

This paper analyzes the less studied BEI-passive constructions in Mandarin Chinese, i.e., passive constructions in which the patient argument of the transitive verb appears post-verbally, as well as passives with intransitive verbs. BEI is proposed to be a raising verb and the passive marker that blocks the linkage of the agent argument of the verb that it combines. An implication is that a subject is not necessary for every clause. The Subject Condition as an inviolable well-formedness condition in current mapping theories should therefore be reconsidered.

Two points remain unsolved and are left to further studies. First, in passive constructions with unergative verbs, it is not clear why it is obligatory to express the agent argument as an oblique function, which is theoretically an optional operation. Second, it is not clear why a post-V patient in a passive clause (with transitive verbs) maps onto an OBJ whereas a pre-BEI patient maps onto the SUBJ of the construction. Given the importance of word order in analytic languages, the role of word order in the mapping process needs to be further explored to get a better comprehension of argument realization issues in Mandarin Chinese.

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[13] And in fact, must appear, in (41), though the reason remains unknown to us at the moment.

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