Of all the co-verbs which exist in Chinese as deverbals prepositions, the Mandarin Chinese *ba- and long passive *bei*-constructions are strikingly similar as they both involve argument alternations which move the internal object argument of the lexical verb to a higher position:

1a) **SUBJECT** BA **OBJECT**1 **VERB** **PRO**1

1b) **OBJECT**1 **BEI** SUBJ **VERB** **PRO**1 (adapted from Feng (2002:148))

Furthermore, *ba* and *bei* are unique among co-verbs in not forming phrasal constituents with the nominal argument coming immediately after (2a)) and not assigning theta-roles, since the nominal argument (**OBJECT** in 1a, **SUBJECT** in 1b) is better analyzed as an argument of the matrix lexical verb merged in its specifier (2b), which separates *ba* and *bei* from other theta-assigning co-verbs which do form phrasal constituents with their arguments (2c):

2a) 

\[ \text{"ba zhe-kuai rou ni xian qieqie ba / "bei Lisi Zhangsan zuotian da-le} \]

*BA this-CL meat you first cut-cut **SFP** BEI Lisi Zhangsan yesterday hit-ASP

\[ \text{‘this meat, you cut it first’ (Li (2006:382))} / \text{‘by Lisi, Zhangwan got hit yesterday.’ (Huang, Li, Li (2009:116))} \]

2b) 

\[ \text{ta bai men xi-hao (he) chuanghu ca-ganjing / ta bei qinren huaiyi (he) wairen zhize} \]

*BA door wash-finish and window wipe-clean **BEI** REI relative suspect and outsider blame

\[ \text{‘he washed the door and wiped the window clean’ (Li (2006:383))} / \text{‘he was suspected by his relatives and blamed by outsiders’ (Hashimoto (1987:42))} \]

2c) 

\[ \text{gen Zhangsan wo hen chudelai / yong dao ta sha-le hengduo ji /} \]

with Zhangsan I very get.along use knife kill-ASP many chicken

\[ \text{‘with Zhangsan I get along very well’ / ‘with a knife he killed many chickens’ on the table I put a pot of flower’ / ‘to Lisi Zhangsan is very polite’ (Huang, Li, Li (2009:116))} \]

Numerous analyses posit **AA’-movement of the internal argument to account for the surface word order and Differential Argument Marking (DAM) properties in *ba* and *bei*-constructions (cf. Serzant and Witzelach-Makarevich (2017)), as *ba* and *bei* tend to select referential/specific object arguments and highly transitive, ‘affective’ verb phrases that must be marked for aspect (3a) (Liu (1997), Li (2006)), though *bei* can also select other verbs (3b)) and extra Applicative arguments like adverbials which are incompatible with *ba* (3c) (Huang, Li, Li (2009:157-160)):

3a) 

\[ \text{women ba Lisi ma*(le)-*(yidun) *(de hen lihai) / Lisi bei women ma*(le)- *yidun) *(de hen lihai) } \]

*BEI Lisi scold-ASP once very serious Lisi BEI we scold-ASP once very serious

\[ \text{‘We scolded Lisi once very seriously’ / ‘Lisi was scolded by us once very seriously’ (Huang, Li, Li (2009:157))} \]

3b) 

\[ \text{*laoshi ba ta-de zhitiao kanjian-le / ta-de zhitiao bei laoshi kanjian- le} \]

*BEI teacher BA he-POSS paper.strip see-ASP he-POSS paper.strip **BEI** teacher see-ASP

\[ \text{‘The teacher saw his paper strip’ / ‘his paper strip was seen by the teacher’ (Huang, Li, Li (2009:159))} \]

3c) 

\[ \text{Linyi bei Wangwu jichu-le yi-zhi quanleida / *Wangwu ba Linyi jichu-le yi-zhi quanleida} \]

**BEI** Wangwu hit-ASP one-CL home.run Wangwu BA Linyi hit-ASP one-CL home.run

\[ \text{Linyi had Wangwu hit a home run on him’ / ‘Wangwu hit a home run on Linyi’ (Huang, Li, Li (2009:159))} \]

However, the object arguments in *ba- and *bei-constructions need not be definite/specific and can be headed by the indefinite article (**yi**ge ‘a(n)’) (4)), which puts doubt in **A’-movement to Topic/Focus. An alternative explanation might be that the nominal argument (**yi**ge jihui ‘an opportunity’, *ge chefu ‘a driver’ in 4)) is not as much definite/specific but delimited as it is selected by telic verbs (*cuoguo ‘miss’, *zhauzou ‘arrest’ in 4)) (Ritter and Rosen (2000:211)):

4) 

\[ \text{ta ba yi ge jihui cuoguo-le / you ge chefu bei dabe zhauzou-le} \]

*BEI one CL opportunity miss-ASP **EXIST** CL driver **BEI** soldier arrest-ASP

\[ \text{‘He missed an opportunity.’ / ‘there was a driver who was taken away by soldiers’ (Li (1993:41))} \]

A-movement is also unlikely in light of intervening arguments between the theta-positions of arguments generated within the lexical verb phrase (Hale and Keyser (1993)) and their surface positions, which prohibits Spec-to-Spec movement on grounds of Minimality/Locality (Rizzi (1990), and this has led to **ad hoc** and suspect postulation of escape-hatches in the form of Null Operator Projections (NOP) via movement to the specifier of **ba** and **bei** is argued to be possible (Feng (1995, 2002), Ting (1998), Huang (1999)). Most problematic is that none of these movement analyses say anything about the general ‘affectedness’ of the lexical verb in these constructions, which has been relegated to vague pragmatic implication (Li (2006)). In order to account for these DAM properties, this paper proposes an Applicative analysis of **ba**- and long passive **bei**-constructions which involve externally merging new coindexed arguments in line with the thematic and formal constraints of Applicatives and DAM cross-linguistically (Aissen (2003), Pylkkänen (2008)). Furthermore, the Chinese data suggests that there may be additional functional Voice heads (Passive (**bei**) /Active (**ba**)) on the clausal spine above aspectual/thematic heads which involve semantically-driven rather than Case-driven argument alternations as seen in European languages (Chappell (1983)). This is supported by the historical formation of Chinese co-verbs which involves monoclusal restructuring of serial verbs and the formation of Voice heads above Asp(ect).

In the verbal/clausal domain, one can recognize three argument-alternating functional heads in Chinese (Passive-Active-Affect), since while **bei** can dominate and passivize **ba** (5a), both can also dominate **gei** (5b) which is optionally inserted as an unaccusative head denoting ‘affectedness’ (Tang (2001), Kuo (2010)):
5a) ta bei pengyou ba yi-ge taitai gei pian-zou-le
He BEI friend BA one-CL wife GEI cheat-away-ASP
‘He was cheated by his friend of one of his wife.’ (Chen (2003:1173))
5b) didi ba bei gei da-sui-le / beizi bei ta gei da-po-le
younger.brother BA cup GEI hit-break-ASP cup BEI he GEI hit-break-ASP
‘Younger brother broke the cup’ (Tang (2001:283)) / ‘the cup was broken by him.’ (Tang (2001:259))

This hierarchy of arguments along with their base theta-positions (SpecBEI… SpecBA… SpecGEI… SpecPred… SpecTrans (cf. Bowers (2002)) where the internal object argument (e.g. ta… yi ge taitai ‘a wife of his’ in 5a)), which seems to show possessor raising (ta ‘his’) from the original DP argument (ta (de) yi ge taitai) (Kuo (2009)) as is characteristic of Applicatives (Pylkkanen (2008:8ff)) and the external subject argument (e.g. pengyou ‘friend’ in 5a)) of the matrix lexical verb (e.g. pianzou ‘cheat away’ in 5a)) are intertwined in such a way (ta… pengyou… t.i yige taitai,…) that Spec-to-Spec A-movement is strictly forbidden by principles of Minimality/Locality. Rather, it can be argued that ba, gei and gei are Applicative heads which introduce new patientive, agentive and affected arguments which are coindexed with the corresponding arguments in the lexical verb phrase, as shown by optional resumptive pronouns:
6) Zhanssan bei Lisi (gei) da-le (ta) yixia / Lisi ba Linyi (gei) da-le (ta) yixia
Zhanssan BEI Lisi GEI hit-ASP him once Lisi BA Linyi GEI hit-ASP him once
‘Zhanssan was hit by Lisi.’ (Huang, Li, Li (2009:127)) / ‘Lisi hit Linyi once.’ (Huang, Li, Li (2009:162))

These resumptive pronouns (ta in 6)), which rule out A-movement as seen in short bei-passives (Huang (1999:439ff)), suggest that the lexical verb does not lose argument relationships but rather gains new arguments in ba-, bei- and gei-constructions which are coreferential with the arguments in the lexical verb phrase, and this entails that the lexical verb must undergo head movement in order to form the appropriate argument structure for the associated A-positions in bei (patientive, ba (agentive) and gei (affected)). These DAM properties can be traced back to the lexical origins of ba ‘to take/hold’ and bei ‘to receive/undergo’ in serial verb constructions (Bennett (1968)) where they undergo clause union when the second verb phrase contains arguments that can be reanalyzed as coreferential with the arguments in the first verb phrase, which, in the case of ba, requires a prosodically strong, highly ‘affective’ verb phrase that can select the object of ba as its own preposed internal argument (7a)) (Feng (2002:143-146)) and for bei the verb phrase should have canonical SV(O) order whose object can be externally merged in the specifier of bei as the patient of the passivized verb (7b)): 7a) hai ba shen-xin xi ren zhi
also BA body-heart carefully examine it
‘he also took his physique and carefully examined it’ > ‘he also carefully examined his physique’ (Dunhuang wenhuayu)

7b) chen bei shangshu zhaowen
I BEI official summon
‘I received the summon of the officials’ > ‘I was summoned by the officials’ (Catzhonglangji)

There are asymmetries between Passive (bei) and Active (ba) Applicative heads, while both ba and bei share common derivational properties of coindexed argument-alternation between the new argument introduced and the argument in their verb phrase complements, the differences in scope of complementation entail that ba dominates gei (5a-b)) which merges the ‘affected’ internal object argument in SpecGEI and forces verbal movement of the lexical verb in consistency with the aspectual/tematic properties of ‘affectedness’ (7a)), whereas bei merged higher than ba (5a) may select a wider range of active verbs (3a-c) as long as the ‘patientive’ internal object argument can be merged in SpecBEI (7b)).

References: