

The Syntactic Derivation of Chinese Long Bei-Passives: A Comparison of Null Operator Analysis, Focus Analysis, and Analysis under Labeling Theory

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Abstract

The syntactic derivation of Chinese long *bei*-passives is central to generative grammar. Three major frameworks exist: *null operator* analysis, focus analysis, and Labeling Theory analysis. Within the Minimalist Program, this study compares the first two approaches and supplements them with Labeling Theory, evaluating their strengths and weaknesses. The *null operator* analysis accounts for the agent's syntactic status via co-reference between the initial NP and the verb's empty object, but overuses unsupported empty categories and violates economy. The focus analysis unifies derivation through EF-driven cross-phase movement in line with Chinese information structure, yet incorrectly treats the initial NP as a non-argument focus, contradicting subject tests and speaker intuitions. By contrast, Labeling Theory uses minimal search and feature agreement to reduce theoretical redundancy, maintains the initial NP as a structural subject, and explains cross-linguistic variation in passives principledly. Overall, the three accounts complement one another: the *null operator* analysis laid early foundations, focus analysis stresses information-structural constraints, and Labeling Theory better satisfies minimalist principles. Combining them can strengthen the theoretical explanation of Chinese passives.

1. Introduction

The Chinese *bei*-construction, as a prototypical syntactic structure expressing passive meaning, is not only central to understanding the grammatical properties of Chinese but also plays an important role in the development and refinement of generative grammar theory. Since the introduction of generative syntax to Chinese, the syntactic status of *bei* has been a subject of debate. Scholars, working within different theoretical frameworks, have successively classified *bei* as a preposition, a verb, a light verb, or a functional category with strong nominal features. These differing classifications have led to diverse theoretical accounts of the derivational mechanisms of *bei*-passives (Wang, 2011, p. 12). Meanwhile, based on the presence or absence of an agent post-*bei*, scholars generally distinguish between long and short *bei*-constructions. However, whether these two types share a unified generative basis remains a point of significant theoretical divergence.

Within the research lineage on the derivational mechanism of *bei*-passives, the *null operator* analysis proposed by Huang et al. (2009, p. 123) occupies a prominent position. This approach, developed within the Principles and Parameters framework, treats *bei* as a verb and constructs indirect

predication and control relations in *bei*-passives via the covert movement of *null operators* (NOP) and null pronouns (PRO), attempting to reconcile traditional movement analyses with complementation analyses. However, with the advent of the Minimalist Program (MP), particularly Phase Theory, this approach, which relies heavily on covert elements, has been criticized for theoretical redundancy and for contravening the economy principles of minimalist syntax. Based on the phase-based derivational theory of the recent Minimalist Program, Ma and Song (2015, p. 470) proposed the focus analysis. This approach treats *bei* as an intransitive raising verb, with EF-driven cross-phase focus movement as the core mechanism. It unifies the derivation of long and short *bei*-passives and provides a new perspective to address many theoretical challenges in *bei*-passive research.

Currently, comparative studies of these two approaches remain insufficient. Existing research often interprets each theoretical framework in isolation, lacking a systematic analysis of their core differences, applicability boundaries, and theoretical limitations. Against this backdrop, this study adopts the core principles of the Minimalist Program as evaluative criteria, focusing on the unified derivation of long *bei*-passives. It first clarifies the theoretical core and empirical limitations of the *null operator* analysis, then examines the innovations and remaining shortcomings of the focus analysis. Through dialogue and critical comparison, this study seeks to reveal the essential characteristics of Chinese *bei*-passive derivations, addressing gaps in existing research and laying a foundation for a more explanatory theoretical framework.

2. Literature Review

2.1 Review of the Syntactic Status of *Bei*

The *bei* construction has long been a central topic in syntactic research, and advances in its study have contributed significantly to the development of generative grammar. *Bei* has historically been analyzed as a preposition, a verb, a light verb, or a functional category with strong nominal properties. The *bei* construction is also classified into long and short forms, which have been studied differently (Wang, 2011, p. 12).

First, the prepositional analysis treats *bei* as a preposition. *Bei* assigns an inhibited external argument and absorbs the Case-assigning ability of the predicate, causing the nominal phrase functioning as the object to move to the subject position of the *bei* construction in order to obtain Case, while the inhibited external argument becomes an adjunct (Li & Thompson, 1981). This analysis is only suitable for long *bei* constructions; for short *bei* constructions, the disappearance of Case-assigning ability cannot be reasonably explained (Wang, 2011, p. 12). Li Chao (2007, p. 98) further argues that the historical development of the *bei* structure in Modern Chinese confirms the principles of layering, continuity, and differentiation in grammaticalization theory; in the Modern Chinese system, the *bei* in the “*bei* + verb” construction is a non-categorial grammatical word, whereas the *bei* in the “*bei* + agent + verb” construction is a preposition.

Second, the verbal analysis (Tang, 2001, p. 257) argues that *bei* cannot be a preposition and can only function as a special verb taking a small clause as its object, or as a light verb in generative grammar taking a small-clause-like complement. The subject of the small clause is the agent phrase following *bei*, and the predicate is either non-restrictive or causative. With the emergence of the Minimalist Program, *bei* in syntactic derivation is regarded as a light verb (*v*), emphasizing its auxiliary role to other verbal phrases. Xiong Zhongru (2005, p. 212) argues that *bei* as a light verb can assign Case to the noun it introduces and predicts that the Case-assigning ability of the verb in the assisted VP will be absorbed.

Addressing the problems faced by early assumptions about *bei*'s lexical category, Li Hongmei (2004, p. 177) proposed analyzing *bei* as a functional category unique to Chinese with strong nominal features, represented by a P-feature, which requires an XP to move to its specifier position and be checked off through feature checking. Zhao Wenchao (2008, pp. 80–82) treats *bei* as a functional category because it lacks descriptive content in Chinese but clearly expresses passive grammatical function. Structurally, the *bei* construction is essentially a small clause structure, differing only in that it contains the functional head *Bei* and a clausal complement following it.

2.2 Review of the Derivation of the *Bei* Construction

In generative syntax research, most scholars follow Huang et al. (2009, p. 112) in classifying *bei* constructions into long and short forms based on the presence of an agent following *bei*. For example, 'Li Ping *bei* Zhang Laoshi pipi-le' is a long *bei* construction, whereas 'Li Ping *bei* pipi-le' is a short *bei* construction. Since the early stages of generative linguistics, there have been two opposing approaches to analyzing Chinese passives.

One is the movement analysis, which assumes that Chinese passives are analogous to English typical passives, derived through NP movement. When the morpheme *bei* appears, the underlying object moves to the surface subject position. Early proponents include P. Wang (1970), Li (1985, 1990), Travis (1984), and Koopman (1984) (Huang, Li & Li, 2009, p. 113). The main view is that the passive morpheme *bei* suppresses (or dethematizes) the subject argument of the main verb and absorbs its accusative Case feature, which is normally assigned to the Theme object of the main verb. The Caseless object NP moves to the non-thematic subject position. The agent argument is realized as a PP adjunct. The thematic subject must be related to the empty category in the object position, coindexed with the NP trace. However, the movement approach has some problems. First, the subject in a passive does not always fully inherit the Patient or Theme role from the NP trace; it can receive its own thematic role, as in 'Zhangsan guyi *bei* da-le' ('Zhangsan was deliberately beaten'). Second, *bei*-NP is treated as a PP without sufficient evidence, lacking support from thematic relations, constituency, or binding relations (Huang, Li & Li, 2009, pp. 115–118).

The complementation analysis better resolves these issues. Its advocates include Hashimoto (1969) and Wei (1994), who mainly assume that *bei* is the main verb taking an embedded clause as its complement, and its object is deleted due to identity with the main clause subject. Hashimoto (1969) was an early prominent proponent of the complementation analysis. According to this method, *bei* is the main verb with an embedded clause, and its object is deleted due to identity with the main clause subject. This explanation is reasonable because *bei* is a binary predicate with its own subject argument, naturally accommodating subject-oriented adverbs. Moreover, *bei* and the agent NP do not form a constituent, and reflexive pronouns can be bound by 'Li Si' or 'Zhangsan'. However, one problem is that the embedded clause's object must be obligatorily deleted, and whether a genuine pronominal can appear in the object position remains controversial (Chomsky, 1981, p. 55; Huang, 1984, pp. 531–574).

Building on this background, Huang et al. (2009, pp. 120) adopt Feng (1995)'s null operator analysis, proposing that Chinese passives should be analyzed with reference to English *tough* constructions under Principles and Parameters theory. In this framework, the Chinese passive marker *bei* functions as a verb V, and the core of the syntactic derivation is that the empty category in the object position of the embedded CP moves via non-argument movement (A'-movement) to the embedded CP's specifier position. The null operator (NOP) then establishes an indirect predication/control relation with the main clause subject, rather than the direct constraint assumed in the complementation analysis. With the

advent of the Minimalist Program (MP), researchers have increasingly applied this new theory to traditional phenomena such as *bei* constructions. Since 1957, generative syntax has roughly undergone three stages: Principles and Parameters theory, early Minimalist Program, and recent Minimalist Program. The early version was represented by Chomsky (1993, pp. 1–53; 1995), while the recent version began with Chomsky’s “Minimalist Inquiries” (MI) (2000, pp. 89–155) and “Derivation by Phase” (DbP) (2001, pp. 482–496) (Cheng & Shen, 2022, p. 14). Both versions are guided by methodological and substantive minimalism, aiming to construct the simplest linguistic system and seek principled explanations (Cheng & Shen, 2022, p. 14). With the strong Minimalist Program (Chomsky, 2008, pp. 133–166), a bottom-up research path was established, and constraints on evolvability gave rise to a series of new concepts and explanatory mechanisms (Cheng & Shen, 2022, p. 40).

Relevant concepts for long passive derivation include: first, Merge, the simplest combinatory operation, which puts two syntactic objects (α , β) into the same set. External Merge occurs when α and β are distinct; Internal Merge occurs when β is part of α (Chomsky, 2004, p. 104). Second, Agree operates in [head–complement] configurations, using uninterpretable features on T and v as probes and uninterpretable features on nouns as goals, matching and simultaneously eliminating both (Chomsky, 2000, p. 89; 2001, p. 482). Third, a phase is defined by a functional category containing uninterpretable features, including the phase head H, the phase edge, and the phase domain, mainly CP and transitive vP. According to the Phase Impenetrability Condition (PIC), once a phase is completed and sent to the interfaces, it no longer receives operations, except for the head H and its edge α (Chomsky, 2001, p. 482). Finally, the core idea of labeling theory is that Merge creates a set $\{\alpha, \beta\}$, which must be labeled to be recognized at the interfaces. Labeling is achieved via Minimal Search and reflects a Third Factor principle (Chomsky, 2013, pp. 33–49).

Based on the recent Minimalist Program, some scholars have proposed a phase-based focus analysis of Chinese passives (Ma & Song, 2015, pp. 470–481), claiming that both long and short *bei* constructions lack a true subject. The sentence-initial NP may be a non-argument, rooted in Chinese typology as a non-subject-prominent language. Chen (2025) presents a more refined syntactic analysis of the Chinese *bei*-construction, a special structure that exhibits both typical passive properties and characteristics of tough-movement. Within the theoretical framework of composite A/\bar{A} -movement, he argues that the Chinese passive marker *bei* acts as the core functional head of passives, bearing a composite feature probe $[\phi+\bar{A}]$. This triggers the object to undergo successive cyclic composite A/\bar{A} -movement, which is finally realized as the subject via a subsequent operation of A-movement. This account directly explains the mixed properties of both A-movement and \bar{A} -movement observed in the *bei*-construction. However, the above study rarely provides a systematic comparison of competing analytical approaches with respect to their theoretical economy and treatment of thematic relations, and leaves room for further discussion regarding the comprehensive evaluation of the applicability of various derivational models for Chinese passive constructions. Building on previous studies, this paper compares Huang et al.’s (2009) null operator analysis and Ma & Song’s (2015) focus analysis, and proposes a supplementary analysis of long passives from the perspective of labeling theory, highlighting existing limitations and laying the foundation for methodological refinement.

This paper addresses the following research questions:

- (1) How does Huang et al.’s (2009) null operator analysis derive long passives, and what are its strengths and limitations?

(2) How does Ma & Song's (2015) focus analysis derive long passives, and what are its strengths and limitations?

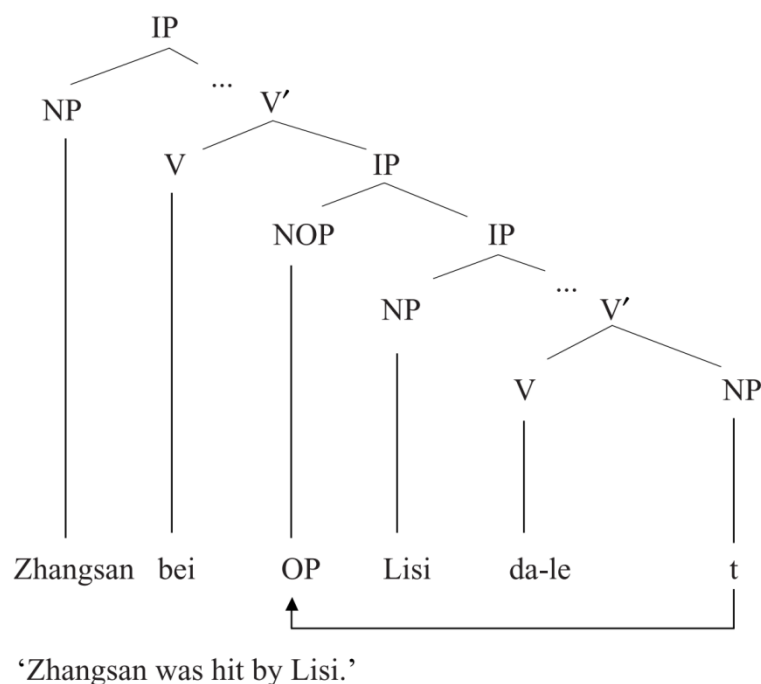
(3) From the perspective of the labeling theory in the recent Minimalist Program, how can the syntactic derivation of Chinese long passives be optimized, and what implications do these revisions have for future research on Chinese passives?

3. Rethinking the Null Operator Analysis

The essential spirit of the null operator (NOP) analysis is that the analysis of Chinese passive sentences parallels treatments of the English tough construction. In the standard Principles-and-Parameters (P&P) literature following Chomsky (1981), the complement of the tough predicate is analyzed as involving null operator (NOP) movement and predication (Huang et al., 2009, pp. 119–120). Derivationally, the object of the embedded clause CP is a null category that moves to the Specifier position of the embedded CP. The trace *t* left in the original object position is the result of NOP movement, and the semantic coindexing between the trace and the matrix subject 'Zhangsan' is established via the NOP as an intermediary. The relation between this null category and the subject 'Zhangsan' is one of predication. Here, NOP movement is an instance of non-argument movement (A'-movement), with the NOP adjoined to the Spec-IP position.

Figure 1

Syntactic tree under the null operator analysis (Huang et al., 2009, p. 120)



The advantage of this analysis is that it combines the strengths of both NP-movement and complementation approaches while avoiding their respective problems. First, it accounts for why the *bei* + *NP* sequence cannot move like a PP or function as a nominal modifier. Specifically, the subject is assigned its own theta role, allowing subject-oriented adverbs to appear in Chinese passive sentences. The analysis posits that the NP following *bei* is the subject, forming a constituent with the following VP but not with *bei* itself. Second, coordination tests (e.g., “(?)*He was scolded twice by Li, and kicked three times by Wang”) confirm that the NP-VP sequence forms a constituent. Finally, the agent NP can antecede the subject-oriented anaphor *ziji*, since the agent is the subject of the embedded IP. In this analysis, the coindexing between the matrix subject of *bei* and the null object of

the lower verb is established indirectly: the null object is first adjoined to IP and is then bound by the matrix subject as an instance of predication (Huang et al., 2009, pp. 120–124).

However, the null operator analysis has certain limitations. First, Minimalist theory advocates theoretical economy (Cheng & Shen, 2022, p. 6), whereas this analysis relies heavily on empty categories such as NOP, which lack overt linguistic evidence. This multi-tiered indirect dependency increases theoretical redundancy. Second, the NOP-based approach fails to account for typical features of Chinese passives (Ma & Song, 2015, p. 472): why the passive verb must be transitive, why its postverbal object position is obligatorily null, why the NP following *bei* is always the agent while the initial position is always the patient, etc. Moreover, the analysis treats long and short passives as structurally highly divergent, generated via distinct NOP and PRO movements, thereby ignoring their intrinsic connection and failing to align with native speakers’ intuition that short passives derive from long passives by omitting the agent.

4. A Unified Analysis of Long Passives in Chinese Based on Phase Theory

Ma and Song (2015, pp. 470–480) propose a unified analysis grounded in phase theory, centering on focus-driven non-argument movement and combined Agree operations to derive both long and short Chinese passives. The theoretical foundation treats syntactic derivations in terms of phases, with the core phases being the transitive light verb phrase *v*P and the CP phase. The transitive light verb head *v* carries an Ejection Feature (EF) that acts as a probe, triggering specific constituents within its domain to undergo non-argument movement (A’-movement) out of the phase. The phase head C likewise carries an EF feature, which can drive constituents across phases. Movement follows the asymmetry principle: subject arguments are moved by the EPP feature within a phase, whereas object arguments are moved by the EF feature, allowing iterative long-distance movement across phases.

Figure 2

Focus-driven movement in long passives (Ma & Song, 2015, p. 474)

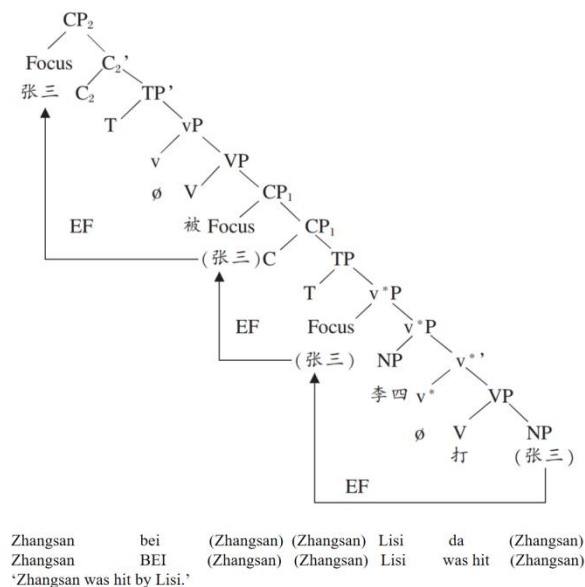
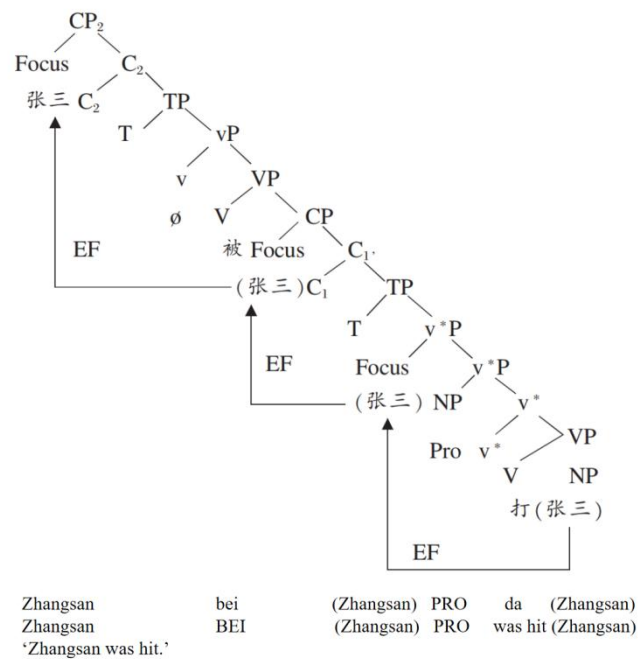


Figure 3

Focus-driven movement in short passives (Ma & Song, 2015, p. 474)



The preverbal NP in Chinese passives (e.g., ‘Zhangsan’) is not a base-generated subject but a patient-focus element. Its movement is successively triggered by the EF features of phase heads, ultimately reaching the sentential focus position. Consider the long passive ‘Zhangsan bei Lisi da’ and the short passive ‘Zhangsan bei da’. The patient ‘Zhangsan’ is initially generated in the object position of the verb. First, the EF feature of the vP phase head *v* triggers movement to the v*P edge, leaving a silent copy. Then, the EF feature of the CP₁ head C moves ‘Zhangsan’ to the CP₁ edge, satisfying phase-edge requirements and avoiding phase impenetrability violations. Finally, the EF feature of the matrix CP₂ focus projection C moves ‘Zhangsan’ to Spec-CP₂ at the sentence-initial position, establishing

full-sentence focus. The agent ‘Lisi’ or PRO moves only within CP₁, constrained by phase impenetrability, and cannot enter the matrix clause. Non-argument movement of the patient and argument movement of the agent follow separate syntactic chains, avoiding intervention effects; the phase impenetrability condition restricts only argument movement, leaving non-argument focus movement unaffected (Ma & Song, 2015, pp. 470–480).

From a syntactic perspective, Chinese passives lack a canonical matrix subject: *bei* as an intransitive verb cannot project vP with an external argument, so the matrix Spec-TP position has no base-generated subject, and the initial NP is a focus element derived through cross-phase movement. Semantically, the focus status is further supported by the possibility of adding focus markers such as *shi* or *lian* (‘Zhangsan shi bei Lisi da-le’, ‘lian Zhangsan bei da-le’), and by adverbs such as *guyi* that can target either the patient or the agent. The semantic coindexing between the initial patient NP and the postverbal empty object is established via operator-variable relations, without relying on empty operators or pronouns. The only difference between long and short passives lies in whether the external argument in v*P is overt (‘Lisi’) or covert (PRO); the movement mechanism and focus projection paths are identical. In short passives, the obligatoriness of *suo* co-occurring with the agent further indicates that they are derived from long passives with omitted agents.

The focus-based analysis has several key advantages: it provides a unified syntactic derivation for long and short passives based on phase theory; it resolves the dual-category ambiguity of *bei* by treating it as a uniform intransitive raising verb selecting only a restricted CP complement; it eliminates redundant theoretical constructs such as NOP and PRO; and it explains the emergence of empty postverbal objects naturally via EF-driven non-argument movement. By defining the preverbal NP as a patient-focus element and designing a cross-phase iterative movement path, the analysis aligns with focus-marking words (*shi*, *lian*) and adverbial targeting, providing robust empirical support. The derivation respects both phase impenetrability and probe-goal agreement, ensuring strong internal coherence. This approach also captures Chinese typological characteristics of non-subject prominence and integrates cross-linguistic comparisons with English passives. Operator-variable semantics simplifies the semantic relation between the sentence-initial NP and the empty object, aligning with discourse-level prominence requirements.

However, some limitations remain. First, the claim that the initial NP is a non-argument focus rather than a subject conflicts with native speaker intuitions: speakers consistently perceive ‘Zhangsan’ in ‘Zhangsan bei da-le’ as the sentence subject. Moreover, diagnostic criteria for subjecthood in Chinese (Sun & Shi, 2025, p. 107) indicate that focusability, substitutability with *wh*-pronouns, and unmarked syntactic position should be considered. Under these criteria, there is insufficient reason to exclude sentence-initial NPs from the subject category, and analyzing them solely as non-argument focus may underestimate internal syntactic evidence.

Second, the empirical coverage is limited: the analysis primarily considers canonical *NP + bei + (NP) + transitive verb* passives, excluding atypical structures such as passives with retained objects (e.g., ‘Zhangsan bei tou-le qianbao’), where ‘Zhangsan’ is the patient and ‘wallet’ is the retained object. The focus-based movement account does not directly explain these constructions.

Finally, the analysis does not fully explore cross-linguistic or typological differences. While *bei* is an independent intransitive verb in Chinese, English passive morphology fuses with the verb. Although consistent with Minimalist principles of lexical-parameter sources, this overlooks fundamental typological differences: English is a subject-prominent language requiring a subject, while Chinese is topic-prominent, with weaker subject obligatoriness and stronger information-structure constraints on

syntax. The study stops at surface-level lexical comparison and does not fully examine how these typological differences shape passive derivations.

5. Analysis of Long Passives under the Labeling Theory

The labeling theory is a supplement to the Merge operation, responsible for identifying syntactic objects generated by Merge so that they can be interpreted at the interfaces (Chomsky, 2013, pp. 33–49). Labeling is carried out through Minimal Search, targeting the most prominent head or feature within the syntactic object. There are two basic cases. The first involves a syntactic object of the form {H, XP}, where H is a head and XP is a phrase. Minimal Search selects H as the label, allowing the object {H, XP} to be interpreted as H at the interface. The second case involves an object of the form {XP, YP}, where neither XP nor YP is a head. In this situation, Minimal Search cannot determine a definite result to identify the syntactic object, resulting in labeling failure. However, this object can be rescued in two ways: one is to modify the object by moving out one member of the set, leaving only a visible head as the label; the other is for the two heads to share a prominent feature through Agree, using this feature as the label for the syntactic object (Chomsky, 2013, pp. 33–49).

Based on the labeling theory, this paper optimizes the syntactic analysis of long passives. The core structure of a long passive is Subject + *bei* + NP + VP. Taking ‘*beizi bei didi za-le*’ (‘The cup was smashed by the younger brother’) as an example, the derivation process is explained in detail. The derivation begins with selecting the necessary lexical items (LIs) from the lexicon (LEX) to form the lexical array (LA), including lexical categories ‘*beizi*,’ ‘*didi*,’ ‘*za-le*’ and verb ‘*bei*,’ C (complementizer), T (tense), v (verb), and D (determiner). Since the verb ‘*za-le*’ is transitive and can take two arguments, i.e., an agent and a patient, and can introduce an external argument, it constitutes a strong vP. Furthermore, the lexical array can be divided into subarrays, each marked with separate braces: after the lexical items in a subarray enter the computation system, the remaining items in the subarray are successively retrieved until exhausted, after which the next subarray begins to enter the computation.

$$LA = \{\{\text{bei beizi didi za-le}\} \{C T v\}\}$$

$$N = \{\text{beizi}_1 \text{didi}_1 \text{za-le}_1 \text{bei}_1 C_1 T_1 v_1\}$$

All lexical items, when selected into the lexical array (LA) and lexical set (N), carry interpretable and uninterpretable features and then enter the computation system. The computation begins with semantic selection (s-selection), and the derivation proceeds bottom-up. First, agreement operations are performed on the transitive v*P phase:

$$\text{Step 1. Merge}(\text{za-le}, \text{beizi}) \rightarrow \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}$$

$$\text{Step 2. Merge}(v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}) \rightarrow \{v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}\}$$

$$\text{Step 3. Move } \text{za-le}(\text{za-le}, \{v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}\}) \rightarrow \{\text{za-le}, \{v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}\}\}$$

$$\text{Step 4. Merge}(\text{didi}, \{\text{za-le}, \{v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}\}\}) \rightarrow \{\text{didi}, \{\text{za-le}, \{v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}\}\}\}$$

$$\text{Step 5. Merge}(T, \{\text{didi}, \{\text{za-le}, \{v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}\}\}\}) \rightarrow \{T, \{\text{didi}, \{\text{za-le}, \{v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}\}\}\}\}$$

$$\text{Step 6. Merge}(\text{bei}, \{T, \{\text{didi}, \{\text{za-le}, \{v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}\}\}\}\}) \rightarrow \{\text{bei}, \{T, \{\text{didi}, \{\text{za-le}, \{v, \{\text{za-le}\{\text{za-le}, \text{beizi}\}\}\}\}\}\}\}$$

Step 7. Move $beizi_{\{beizi, \{bei, \{T, \{didi, \{za-le, \{v, \{za-le\{za-le, beizi\}\}\}\}\}\}} \rightarrow \{beizi, \{bei, \{T, \{didi, \{za-le, \{v, \{za-le\{za-le, beizi\}\}\}\}\}\}$

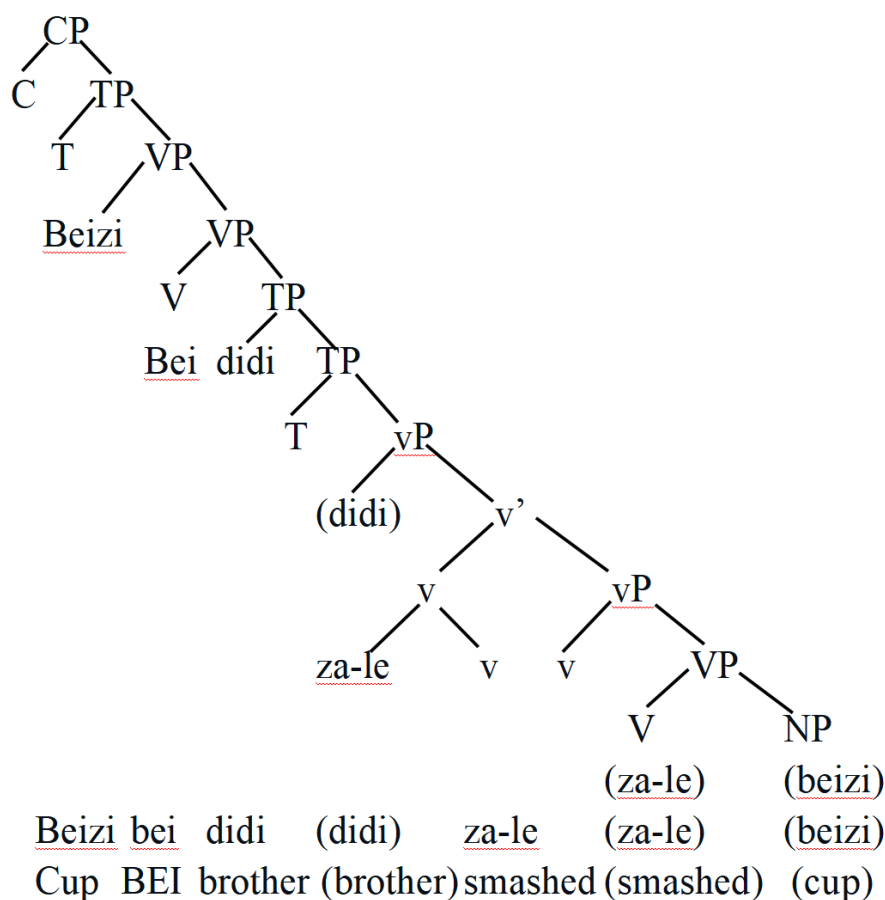
Step 8. Merge $(T, \{beizi, \{bei, \{T, \{didi, \{za-le, \{v, \{za-le\{za-le, beizi\}\}\}\}\}\}) \rightarrow \{T, \{beizi, \{bei, \{T, \{didi, \{za-le, \{v, \{za-le\{za-le, beizi\}\}\}\}\}\}\}$

Step 9. Merge $(C, \{T, \{beizi, \{bei, \{T, \{didi, \{za-le, \{v, \{za-le\{za-le, beizi\}\}\}\}\}\}\}) \rightarrow \{C, \{T, \{beizi, \{bei, \{T, \{didi, \{za-le, \{v, \{za-le\{za-le, beizi\}\}\}\}\}\}\}\}$

This study continues to demonstrate the derivation under the labeling theory:

Figure 4

The analysis of long passive sentences based on the labeling theory



1. $[VP\ za-le\ beizi_{\{\phi:3, sg; Case:_\}}]$
2. $[VP\ v_{\{\phi:3\}}[VP\ za-le\ beizi_{\{\phi:3, sg; Case: Acc\}}]]$
3. $[v'\ za-le\ v_{\{\phi:3\}}[VP\ ~~za-le~~\ beizi_{\{\phi:3, sg; Case: Acc\}}]]$
4. $[VP\ didi_{\{\phi:3, sg; Case:_\}}[v'\ za-le\ v_{\{\phi:3\}}[VP\ ~~za-le~~\ beizi_{\{\phi:3, sg; Case: Acc\}}]]]$
5. Transfer: $[VP\ didi_{\{\phi:3, sg; Case:_\}}[v'\ za-le\ v_{\{\phi:3\}}[VP\ ~~za-le~~\ beizi_{\{\phi:3, sg; Case: Acc\}}]]]=\sqrt{\quad}$

a) Merge ‘za-le’ with ‘beizi’ to form a VP; ‘beizi’ carries valued ϕ features and unvalued Case features; b) introduce the phase head v with unvalued ϕ features, establishing Agree between v and ‘beizi’ to mutually check uninterpretable features; c) following Chomsky’s Distributed Morphology hypothesis, ‘za-le’ is treated as a root, which is raised to v, assigning the verb category (Chomsky, 2007, p. 21); d) Merge ‘didi’ with v’. ‘Didi’ carries unvalued Case features. According to the VP-internal subject hypothesis, the predicate-internal subject structure ‘didi za-le beizi’ is initially constructed in separate workspaces and then combined, forming an unlabelable {XP, YP} object. To obtain a label, one constituent must be moved. Typically, the external argument EA ‘didi’ moves to [Spec, T], making v the only visible head of the lexical array (LA), and thus the VP containing {za-le beizi} is labeled as v or vP. Labeling theory eliminates the teleological perspective that external argument movement is driven by the EPP; specifically, the external argument moves not because of the EPP but because Minimal Search requires it to leave the predicate-internal subject structure to unambiguously identify v as the head and label the structure.

6. [TP T_{ ϕ :3}[vP didi_{ ϕ :3, sg; Case:_}[v' za-le v_{ ϕ : 3 }[VP za-le beizi_{ ϕ :3, sg; Case: Acc}]]]]]
7. [TP didi_{ ϕ :3, sg; Case:_}[TP T_{ ϕ :3}[vP didi_{ ϕ :3, sg; Case:_}[v' za-le v_{ ϕ : 3 }[VP za-le beizi_{ ϕ :3, sg; Case: Acc}]]]]]]]
8. [v' bei_{ ϕ :3}[TP didi_{ ϕ :3, sg; Case:_}[TP T_{ ϕ :3}[vP didi_{ ϕ :3, sg; Case:_}[v' za-le v_{ ϕ : 3 }[VP za-le beizi_{ ϕ :3, sg; Case: Acc}]]]]]]]]]
9. [VP bei_{ ϕ :3}[TP didi_{ ϕ :3, sg; Case:Obl}[TP T_{ ϕ :3}[vP didi_{ ϕ :3, sg; Case:_}[v' za-le v_{ ϕ : 3 }[VP za-le beizi_{ ϕ :3, sg; Case: Acc}]]]]]]]]]
10. [VP beizi_{ ϕ :3, sg; Case:Nom}[VP bei_{ ϕ :3}[TP didi_{ ϕ :3, sg; Case:Obl}[TP T_{ ϕ :3}[vP didi_{ ϕ :3, sg; Case:_}[v' za-le v_{ ϕ : 3 }[VP za-le beizi_{ ϕ :3, sg; Case: Acc}]]]]]]]]]]]
11. [TP T_{ ϕ :3}[vP beizi_{ ϕ :3, sg; Case:_Nom_}[VP bei_{ ϕ :3}[TP didi_{ ϕ :3, sg; Case:Obl}[TP T_{ ϕ :3}[vP didi_{ ϕ :3, sg; Case:_}[v' za-le v_{ ϕ : 3 }[VP za-le beizi_{ ϕ :3, sg; Case: Acc}]]]]]]]]]]]]]
12. [CP C [TP T_{ ϕ :3}[vP beizi_{ ϕ :3, sg; Case:_Nom_}[VP bei_{ ϕ :3}[TP didi_{ ϕ :3, sg; Case:Obl}[TP T_{ ϕ :3}[vP didi_{ ϕ :3, sg; Case:_}[v' za-le v_{ ϕ : 3 }[VP za-le beizi_{ ϕ :3, sg; Case: Acc}]]]]]]]]]]]]]]]]]]]]]
13. Transfer=[CP C [TP T_{ ϕ :3}[v' beizi_{ ϕ :3, sg; Case:_Nom_}[vP bei_{ ϕ :3}[TP didi_{ ϕ :3, sg; Case:Obl}[TP T_{ ϕ :3}[vP didi_{ ϕ :3, sg; Case:_}[v' za-le v_{ ϕ : 3 }[VP za-le beizi_{ ϕ :3, sg; Case: Acc}]]]]]]]]]]]]]]]]]]]]]=√

Next, T is introduced and merged with the subject-predicate structure {didi, za-le, beizi} to form β . Following Chomsky (2015), because T’s features are weak, it cannot serve as a label, so β remains unlabeled. The operation g merges ‘didi’ internally to Spec-T to form γ . ‘Za-le’ becomes the only visible head in α [_{α} za-le v_{ ϕ : 3 }[VP za-le beizi_{ ϕ :3, sg; Case: Acc}]], and is therefore labeled. Subsequent operations merge “bei” with TP, assign oblique Case to ‘didi,’ move ‘beizi’ to Spec-VP with nominative Case assignment, introduce T to mark present tense, and finally merge C to indicate a declarative clause. The derivation reaches the phase level, and under feature inheritance, C transmits its features to T, forming a CP and completing the derivation.

6. Discussion

This study makes distinct original contributions to the syntactic analysis of Chinese long bei-passives. The core novel theoretical insight lies in its provision of a principled, Universal Grammar (UG)-

grounded account of movement motivation, which eliminates the language-specific, ad hoc Edge Feature (EF) mechanism that the focus analysis hinges on. Unlike the focus analysis, which attributes preverbal NP movement to information-structural focus driven by language-particular edge features, this analysis frames movement as a mandatory repair strategy for labeling failure, driven by the universal Third Factor principle of Minimal Search. This not only strictly conforms to the Minimalist Program's core economy principle, but also resolves the critical contradiction between the focus analysis's non-argument focus claim and native speaker syntactic intuitions, as it fully preserves the structural subject status of the sentence-initial NP while accommodating its discourse-level prominence. Empirically, this analysis systematically accounts for atypical retained-object passive constructions by predicting which internal argument will raise to meet labeling requirements. It also offers a unified cross-linguistic explanation for passive structure variations via feature strength contrasts, integrating Chinese *bei*-passives into a universal syntactic framework without relying on language-specific functional projections.

First, from the perspective of theoretical economy, the labeling theory analysis of long passives shows clear advantages compared to the null operator analysis. Huang et al. (2009, pp. 119–124) rely on A'-movement to establish coindexing between the sentence-initial NP and the empty postverbal object. The core problem of this analysis is that the coindexing relationship can only be inferred indirectly (Chomsky, 1995, p. 202). In contrast, labeling theory interprets internal argument raising as a necessary consequence of rescuing an unlabelable {XP, YP} object. Movement is not to establish control or predication, but to allow Minimal Search to successfully identify the head (Chomsky, 2013, pp. 33–49). This explanation reduces theoretical assumptions and grounds the motivation for movement directly in syntactic computation, conforming to the methodological economy of the Minimalist Program (Chomsky, 2000, p. 89). Empirically, labeling theory provides a more direct account of the obligatory correspondence between the sentence-initial NP and the empty postverbal object in Chinese long passives. The null operator analysis treats the empty position as a trace of non-argument movement but cannot explain its high stability in Chinese. Labeling theory views it as a structural consequence of Agree and successful labeling: if the object does not raise, the {VP, NP} structure cannot receive a legal label, and the derivation crashes. This explanation avoids additional assumptions about the existence of abstract operators.

Second, compared with phase-based focus analysis, labeling theory is more principled in explaining the fundamental motivation of movement. Ma & Song (2015, pp. 470–480) rely on EF-feature-driven non-argument movement across phases, analyzing the sentence-initial NP as patient-focus and unifying long and short *bei* passives. While this approach significantly improves on Huang et al. (2009) by avoiding empty category assumptions, its core mechanism still depends on language-specific EPP features, which lack independent morphological or semantic evidence (Bošković, 2021, p. 58). Labeling theory does not invoke additional feature types; it treats movement as a passive repair strategy triggered by labeling failure, motivated by the universal principle of Minimal Search rather than language-specific functional features.

Third, empirically, labeling theory better accounts for the dual status of sentence-initial NPs. Focus analysis categorizes the NP in 'Zhangsan bei Lisi da-le' entirely as non-argument focus, but this NP also satisfies multiple subject diagnostics, indicating that it is not purely an information-structural focus. Labeling theory allows the NP to receive nominative Case and agree with C, preserving its structural subject status without denying its discourse prominence.

In summary, labeling theory shows advantages over null operator and focus analyses in three respects. First, theoretically, it eliminates unverifiable devices such as NOPs and EPP features, reducing the

motivation for movement to labeling requirements in Minimalist computation (Chomsky, 2015, p. 9). Second, empirically, it directly explains the stability of postverbal empty objects, the obligatory presence of the sentence-initial NP, and its Case assignment in long passives. Third, typologically, it does not assume Chinese-specific focus priority but explains cross-linguistic surface differences through feature strength contrasts, integrating Chinese *bei* passives into a universal grammar framework (Hayashi, 2020, p. 288).

However, controversies remain regarding labeling and feature strength (Hayashi, 2020). First, the feature strength parameter is contentious, as it has limitations when applied to radically pro-drop languages like Chinese, where long passives lack overt agreement morphology and do not strictly require a filled subject position. Extending feature strength to other languages risks theoretical redundancy. Second, the semantic contribution of labels is not fully clarified; the role of labels in the conceptual-intentional system is opaque (Bošković, 2021). Using labeling to account for the semantics of passives does not directly link labels to patient-focus, and formal semantic models can account for passive meaning without invoking labels, highlighting a gap in semantic interface explanatory power.

7. Conclusion

This paper compares Huang et al.'s null operator analysis, phase-based focus analysis (Ma & Song, 2015), and labeling theory analysis of long passives in Chinese, considering how these derivational approaches provide differentiated theoretical explanations. The null operator analysis reconciles traditional movement and complementation approaches and accounts for the syntactic position and binding of the agent, but it over-relies on unobservable empty categories, violating Minimalist economy, and fails to unify long and short passive derivations or explain the transitivity restrictions of passive verbs. Phase-based focus analysis, using EF-feature-driven non-argument movement, treats the sentence-initial NP as patient-focus and constructs a unified derivational path for long and short passives. It avoids redundant empty category assumptions and aligns with Chinese non-subject-prominent typology. However, treating the sentence-initial NP entirely as non-argument focus conflicts with native speaker syntactic intuitions and cannot account for passives with retained objects, nor does it provide sufficient cross-linguistic typological explanation. Labeling theory separates Merge from projection identification and explains movement through Minimal Search and feature agreement. It also provides a coherent derivational path for CP and vP phases and accounts for cross-linguistic differences in passives. However, its reliance on feature strength parameters is controversial, and the semantic role of labels remains unclear. Overall, each approach has strengths and weaknesses. Null operator analysis lays the foundation, focus analysis highlights information-structural constraints, and labeling theory aligns with the Minimalist goal of principled explanations. Future research should integrate the advantages of all three approaches, considering the interaction between Chinese morphology and information structure, to optimize the theoretical model of passive derivation and reveal the syntactic essence of Chinese passives within universal grammar.

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