[Article]

Subject-Object Asymmetries in Box Theory*

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Abstract: This article points out empirical and theoretical problems with Box Theory proposed by Chomsky (2024) and revised by Kitahara (2024) and Kitahara and Seely (2024), claiming that these problems are solved if we impose limit on accessibility to a 'box' based on Labeling Theory. This article proposes that only a member of an unlabeled set provide instruction to a higher phase at CI and externalization, demonstrating that this proposal provides a principled account for subject-object asymmetries in English *wh*-movement, *wh*-in-situ, and topicalization.

Key phrases: Box Theory, Labeling Theory, *wh*-movement, *wh*-in-situ, topicalization

1. Introduction

The aim of this article is to account for subject-object asymmetries in English *wh*-movement, *wh*-in-situ, and topicalization, based on a recent minimalist framework, Box Theory (Chomsky 2024). Although Box Theory imposes severe restrictions on Merge and offers interesting toolkit to analyze displacement phenomena in terms of *phase-level access to a 'box,'* it awaits further theoretical and empirical refinement. Building on a revised version of Box Theory proposed by Kitahara (2024) and Kiahara and Seely (2024) and Labeling Theory by Chomsky (2013, 2015), this article proposes that a 'box' is accessible to a phase head only if it is a member of an unlabeled set, demonstrating that this proposal provides a simple and principled explanation to asymmetries between subjects and objects in English *wh*-movement and topicalization.[1]

This article is organized as follows. Section 2 briefly looks at empirical observations on subject-object asymmetries in English *wh*-movement, *wh*-in-situ, and topicalization. Section 3 introduces Box Theory proposed by Chomsky (2024) and developed by Kitahara (2024) and Kitahara and Seely (2024), pointing out that its conceptual and empirical problems. Section 4 spells out my proposal to refine Box Theory on the basis of Labeling Theory, and accounts for the facts outlined in section 2. Section 5 concludes.

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[1] This article pays attention only to standard English *wh*-movement and topicalization, leaving displacement phenomena in other languages/dialects for future inquires.

2. Subject-Object Asymmetries in *Wh*-Constructions and Topicalization

This section introduces empirical observations on subject-object asymmetries in *wh*-movment, *wh*-in-situ, and topicalization in English.

We first look at a well-known subject-object asymmetry with respect to overt *wh*-movement: the *that*-trace effect. As shown in (1), the object *wh*-phrase can be extracted out of the clause headed by the overt complementizer *that*, whereas the subject *wh*-phrase cannot.

(1) a. Who do you think that Sue met *t*?
b. * Who do you think that *t* met Sue? (Pesetsky (2017: 2))

This subject-object asymmetry, however, is not seen when an embedded clause is not headed by an overt complementizer, as shown in (2).

(2) a. Who do you think Sue met *t*?
b. Who do you think *t* saw Sue? (Pesetsky (2017: 2))

These contrasts raise the question why a subject and an object are *asymmetric* with respect to extraction when a clause is headed by a complementizer, whereas they are *symmetric* when it is not.

In contrast to overt *wh*-movement, *wh*-in-situ in a subject and object is symmetric regardless of complementizer. It does not show sharp difference in acceptability between a subject and object, as shown in (3): *Wh*-in situ may appear both in the object position as in (3a) and in the subject position as in (3b), although the latter is somewhat marginal.

(3) a. Who said (that) John bought what?
b. ? Who said (that) who bought the book? (Lasnik and Saito (1993: 126))

In fact, overt *wh*-extraction in (4a) and the *wh*-in-situ in (4b) shows remarkable difference in acceptability.

(4) a. * Who do you think that *t* left?
b. ? Who thinks that who left? (Lasnik and Saito (1993: 116))

Long-distance topicalization shows the same pattern with overt long-distance overt *wh*-movement in (1) and (2). As illustrated in (5), the embedded object may undergo topicalization whether the embedded clause is headed by the overt complementizer *that* or not as in (5a), whereas the embedded subject cannot undergo topicalization when the complementizer is headed by *that* as in (5b).

(5) a. That race, I think (that) John won *t*.
b. * John, I think that *t* won the race.
c. John, I think *t* won the race. (Lasnik and Saito (1993: 82))

Again, there is no ban on extraction of the subject when the complementizer is phonologically null, as illustrated in (5c).

Short-distance topicalization also shows subject-object asymmetry, as convincingly argued by Lasnik and Saito (1993). Let us first consider (6).

(6) a. * John thinks that Mary likes himself.
b. John thinks that himself, Mary likes *t*. (Lasnik and Saito (1993: 110-111))

(6a) shows that the reflexive *himself* in the embedded object position cannot be locally bound by its antecedent in the matrix subject position. However, the reflexive is successfully bound by its antecedent if the object undergoes topicalization to the left periphery of the embedded clause. In other words, the landing site of embedded topicalization belongs to the same binding domain with the matrix subject. With this in mind, consider (7).

(7) a. * John thinks that himself likes Mary.
b. * John thinks that himself, *t* likes Mary. (Lasnik and Saito (1993: 110-111))

(7a) shows that the reflexive in the embedded subject cannot be bound by the matrix subject. If the subject could undergo topicalization, the reflexive would be successfully bound by the matrix subject. However, as shown in (7b), there is no improvement in acceptability in the sentence with topicalization of the reflexive in the subject position. This fact suggests that topicalization is not applicable to a subject.

Summarizing so far, we get the table 1: Subject-object asymmetries are found in overt extractions (*wh*-movement and topicalization) when the embedded clause is headed by *that*. The asymmetry is not found either when a phrase is overtly extracted from the clause with the null complementizer or when there is no overt extraction. This article attempts to explain these facts on the basis of the frameworks outlined in the next section: Box Theory and Labeling Theory.

Table 1

	Wh-Mvmt	Wh-Mvmt	Wh-in-Situ	Topicalization	Topicalization
Complementizer	*That*	Null C	That/NullC	*That*	Null C
Subject	*(1b)	^{OK}(2b)	^{OK}(3b)	*(5b)	^{OK}(5c)
Object	^{OK}(1a)	^{OK}(2a)	^{OK}(3a)	^{OK}(5a)	^{OK}(5a)

3. Frameworks

This section reviews recent theoretical frameworks in minimalist syntax: Box Theory proposed by Chomsky (2024) and refined by Kitahara and Seely (2024), and Labeling Theory proposed by Chomsky (2013, 2015).

3.1. Chomsky (2024)

Merge is the only structure building operation in human language assumed in minimalist syntax. Merge is defined in Chomsky (2021) and Chomsky et al. (2023) as the set-forming operation in (8), where it maps the set of syntactic objects (workspace, WS) and any arbitrary number of syntactic objects (SOs) P_1, …., P_n within WS onto another workspace WS' that includes the set consisting of P_1, …., P_n.

(8) Merge (P_1, …, P_m, WS) = WS' = [{P_1, …., P_n}, …]

Merge has two modes of application: External Merge (EM) and Internal Merge (IM). EM takes two items P, Q in WS, generating the set {P, Q} in a new workspace WS'.[2]

(9) External Merge (P, Q, WS)
  a. Input: WS = [P, Q]
  b. Output: WS' = [{P, Q}]

On the other hand, IM takes one item P in WS and its term Q, generating the set {P, Q} in WS'.[3]

(10) Internal Merge (P, Q, WS)
  a. Input: WS = [{$_P$ … Q, R}]
  b. Output: WS' = [{Q, {$_P$ … Q, R}}]

Although Merge in (8) is maximally simply defined as a set-forming operation, third-factor conditions understood in the context of laws of nature (Chomsky 2005) and conditions specific to human language (Language Specific Conditions, LSCs) impose several restrictions on forms and functions of Merge. To be more specific, Chomsky (2024) proposes Principles [S] and [T] in (11) as a guideline for inquiry, arguing that Merge is constrained by conditions attributed to these principles.

(11) a Principle [S]: The computational structure of language should adhere as closely as possible to SMT. (Chomsky (2024:19))
  b. Principle [T]: All relations and structure-building operations (SBO) are thought-related, with semantic properties interpreted at CI. (Chomsky (2024:22))

Principle [S] states the faculty of language conforms the Strong Minimalist Thesis (SMT), which requires that structures of I-language are generated by maximally simple operations governed by third-factor principles such as computational efficiency. Principle [T] is the idea that language is a thought-generating system, and every structure-building operation is associated with interpretation at CI.

Let us first illustrate how EM is guided by Principles [S] and [T]. Principle [S] dictates that input to Merge (P and Q in (9)) must be picked out by Minimal Search (MS), a third factor principle that looks for a target of an operation with least effort. In the case of EM, P and Q are eligible to EM only if they are members of WS. Furthermore, Principle [T] requires that EM is associated with theta-related interpretation at CI, and P and Q are eligible to EM only if they are a pair of a theta-assigner and a theta-assignee.[4]

Let us next see how IM is conditioned by Principe [S] and [T]. Principle [S], or more specifically Minimal Search, limits the input of IM (P and Q in (10)) to a member of WS and its term. Moreover, Principle [T] dictates that only a member of a theta-structure is eligible to IM. Crucially, this entails that once an item has undergone IM from a theta-position to a non-theta position, it never moved out of there via IM (that is, there is no successive-cyclic movement in this framework). Another important component of Principle [T] is duality of semantics, according to which EM creates an argument structure (propositional domain), whereas IM creates force- and information-related structures with scopal properties (clausal domain). That is, an item that has undergone IM has no interactions with a

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[2] This article assumes with Chomksy (2024: 23) that a general non-binary set forming operation Form Set takes lexical items as an input and constructs a set of lexical items that serves as an initial state of WS.

[3] Term is defined as follows: X is a term of Y if and only if either X is an element of Y, or X is an element of a term of Y.

[4] Functional categories and adjuncts are put aside. See Chomsky (2024: 23, fn. 17).

theta-structure, and rendered accessible to discourse-related operations at CI.

To summarize, we get the table 2 that shows how input and output of EM and IM are constrained by conditions attributed to Principles [S] and [T].[5]

Table 2

	External Merge	Internal Merge
P and/or Q		
Principle S: Minimal Search	Members of WS	A member of WS and its term
Principle T: Theta structure	Theta assigner and assignee	Theta assignee
{P, Q}		
Principle T: Duality of semantics	Propositional domain	Clausal domain

With this severely restrictive notion of Merge in place, Chomsky (2024) proposes Box Theory, which derives sentences with displacement in a strikingly different way than in previous minimalist frameworks such as Chomsky (2021) and Chomsky et al. (2023). Let us consider the derivation of *What did you buy?* illustrated in (2).

(12) a. {buy, what} (EM of *buy* and *what*)
b. {v*, {buy, what}} (EM of v*)
c. {[what], {v* {buy, t_{what}}}} (IM of *what* to Spec-v*)
----------------------------------- v*P phase
d. {you, v*P} (EM of *you*)
e. {I, {you, v*P}} (EM of I)
f. {you, {I, {t_{you}, v*P}}} (IM of *you*)
g. {C_Q, {you, {I, {t_{you}, v*P}}}} (EM of C_Q)
----------------------------------- CP phase

(12a-c) shows the derivation in the v*P phase. First, *buy* and *what*, a pair of a theta-assigner and an assignee, externally merges, yielding the set in (12a). Second, the set is externally merged with v*, bringing about (12b). Third, *what* in the theta-position undergoes IM to the v*P edge, yielding (12c)[6]. Since *what* has undergone IM, it escapes from the propositional domain and receives interpretation in the clausal domain (For expository purpose, this article puts a framed box around an item that has undergone IM and rendered accessible to clausal domain)[7]. After the v*P phase is closed, the derivation in the CP phase is started as in (12d-g).[8] First, *you* and v*P, a pair of a theta-assignee and an assigner, externally merges to yield (12d). Next, INFL (henceforth, I) is introduced by EM as in (12e). Then, *you*

[5] Table 2 summarizes what kind of conditions the SOs P, Q, and {P, Q} are subject to, rather than *when* they are subject to these conditions. This article uses the term *input* as a cover term for the SOs that constitutes a domain of Merge (i.e., P, Q in (9) and (10)) and the term *output* as the one for the SO that constitutes the range of Merge (i.e., {P, Q} in (9) and (10)). Table 2 does not mean that the input P, Q must satisfy theta-theory *just before* EM, and the output {P, Q} duality of semantics *just after* EM. We leave the question left open in which stage of derivation the input and output of Merge are ruled in/out by Principle [T].

[6] This article uses the notation of the trace *t* to indicate a lower copy (i.e., an inscription c-commanded by another one structurally identical to it, see Chomsky 2021) for expository purpose.

[7] Notice that the square box is used only for ease of exposition: There is no additional operation like 'boxing' that marks an item that has undergone IM.

[8] Chomsky (2024: 34: fn. 31) stipulates that the inner Spec-v* created by IM belongs to the v*P phase, whereas the outer Spec-v* created by EM of EA enters into the next phase.

internally merges to Spec-I as in (12f). Finally, the interrogative complementizer C_Q is introduced as in (12d) and the CP phase completes.

Notice that, crucially, *what* raised to the v*P edge does not undergo successive-cyclic IM to Spec-C as assumed in the previous minimalist frameworks like Chomsky (2021) and Chomsky et al. (2023). It is because IM is applicable only to theta-marked items, and *what* raised to the phase edge is no longer in a theta-position. However, since *what* has undergone IM to the phase edge (i.e., 'boxed'), it is rendered accessible to discourse-related interpretations. Chomsky proposes that at the CP phase-level, C_Q accesses the 'boxed' item for instruction on how to assign it a scope at CI and how pronounce it at externalization, as schematized in (13).

(13) {C_Q, {you, {I, {you, {what, {v* {buy, t_{what}}}}}}}}

In English *wh*-question, the 'boxed' *wh*-phrase is assigned matrix scope and pronounced at Spec-C_Q.

Notice also that Chomsky (2024) assumes that the phase edge (i.e., Spec-v*) is accessible to C, regardless of whether it is the inner Spec-v* created by IM (the 'boxed' position), or the outer Spec-v* (i.e., predicate internal subject position associated with theta-marking). Based on this assumption, Chomsky (2024) tries to account for movement of the subject illustrated in (14), whose derivation in the embedded CP phase is illustrated in (15).

(14) Who does it seem [*t* ate sandwich]? (Chomsky (2024: 34))

(15) a. {who, v*P} (EM of *who* and v*P)
b. {I, {who, v*P}} (EM of I)
c. {who, {I, {t_{who}, v*P}}} (IM of *who* to Spec-I)
d. {C_Q, {who, {I, {t_{who}, v*P}}}} (EM of C)

According to Chomsky, *who* in Spec-I is not accessible to the matrix C_Q, whereas the one in Spec-v* is, because only the latter is in the phase edge. Then, C_Q accesses *who* in Spec-v*, externalizing it in the matrix Spec-C_Q.

This system, however, is not without problems. Firstly, as pointed out Kitahara (2024) and Kitahara and Seely (2024), it undergenerates sentences with passivization like (16), whose derivation is shown in (17).

(16) Who was arrested?

(17) a. {arrest, who} (EM of *arrest* and *who*)
b. {be, {arrest, who}} (EM of *be*)
c. {I, {be, {arrest, who}}} (EM of I)
d. {who, {I, {be, {arrest, t_{who}}}}} (IM of *who* to Spec-I)
e. {C_Q, {who, {I, {be, {arrest, t_{who}}}}}} (EM of C_Q)

In this derivation, *who* is directly raised to Spec-I in one-fell-swoop, so neither *who* in Spec-I nor *who* in the sister of *arrest* is accessible to C_Q because neither counts as a phase edge. Thus, Chomsky's system, which assumes that C_Q can only access an item in a phase edge, fails to generate (16).

Secondly, as far as I correctly understood, Chomsky's assumption that both the inner and outer phase edge is accessible to C is inconsistent with duality of semantics, a component of Principle [T]. Duality of semantics states that argument structures (the propositional domain) are constructed only by EM, whereas information-related structures (the clausal domain) are created only by IM. If outputs of EM and IM are conditioned by the duality, an item introduced by EM, being in a propositional domain, will never provide an instruction to a higher phase-level interpretation associated with a clausal domain. Thus, Chomsky's proposal that *who* in (15a) introduced by EM into Spec-v* is accessible to C_Q seems to incur contradiction with the duality.[9]

Thirdly, the analysis in (15) overgenerates the sentence with the *that*-trace effect in (1b) and (5b), whose structure is shown in (18).

(18) a. {C_Q … {that, {who, {I, {t_{who}, v*P}}}}} (=(1b))

b. {C … {that, {John, {I, {t_{John}, v*P}}}}} (=(5b))

Chomsky's assumption that Spec-v* is accessible from C incorrectly predicts that (1b) and (5b) is derived if C/C_Q accesses the lower copy of *who* in (18a) and *John* in (18b) and externalizes them in the matrix Spec-C/C_Q.

In the next subsection, we introduce Kitahara's (2024) and Kitahara and Seely's (2024) framework that avoids the first and second problems.

3.2. Kitahara (2024); Kitahara and Seely (2024)

Kitahara (2024) and Kitahara and Seely (2024) propose a revised version of Box Theory that eliminates the notion of phase edge, providing a unified analysis of the v*P and CP phases. Their proposals are listed in (19).

(19) a An argument undergoes EM and then IM to Spec-V/I, regardless of whether it is a *wh*-phrase or not.

b. Such IM-ed element, being 'boxed' in Chomsky's (2024) terms, is accessible to higher phase heads at later phase-level interpretation at the interfaces.

(adapted from Kitahara and Seely (2024: 11))

Let us see how *What did you buy?* is derived with these assumptions. Consider (20).

(20) a. {buy, what} (EM of *buy* and *what*)

b. {what, {buy, t_{what}}} (IM of *what* to Spec-V)

c. {v*, {what, {buy, t_{what}}}} (EM of v*)

---------------------------------- v*P phase

d. {you, v*P} (EM of *you*)

e. {I, {you, v*P}} (EM of I)

f. {you, {I, {t_{you}, v*P}}} (IM of *you*)

g. {C_Q, {you, {I, {t_{you}, v*P}}}} (EM of C_Q)

---------------------------------- CP phase

9 This analysis also raises the question of why the lower copy is accessible to C_Q, skipping the higher one c-commanding it. The lower copy would be inaccessible to C_Q if access from C_Q is an instantiation of MS. See also the discussion in section 3.2.

The derivation in (20) is different from the one in (12) in that (i) there is no notion of phase edge, (ii) both an internal argument (IA) and external argument (EA) are obligatorily raised to Spec-V and Spec-I, respectively, to value unvalued phi-features on V/I and Case features on IA/EA in Spec-Head configuration, and (iii) the IM-ed IA and EA are 'boxed' in Spec-V/I.

Their analysis nicely provides a simple and unified analysis the v*P and CP phases schematically represented as in (21a) and (21b), respectively.

(21) a. {v*, {IA, {V, …}}}
b. {C, {EA, {I, …}}}

The v*P and CP phases are symmetric in that they commonly have the form of {Ph, {XP, {Y, …}}, where Ph is a phase head, XP is an argument raised to Spec-Y, and Y is a head selected by Ph. The items accessible to a higher phase head are these IA and EA, which have undergone phase-internal IM from a theta-position to non-theta one. Notice that their analysis overcomes the problem about duality of semantics found in Chomsky's (2024) framework: C_Q is accessible only to an item escaped from a propositional domain (theta-position) created by EM to a clausal domain (non-theta position) made by IM.[10]

Their analysis also overcomes the problem noted in (16), whose derivation is illustrated in (22).

(22) a. {arrest, who} (EM of *arrest* and *who*)
b. {be, {arrest, who}} (EM of v)
c. {I, {be, {arrest, who}}} (EM of I)
d. {who, {I, {be, {arrest, t_{who}}}}} (IM of *who* to Spec-I)
e. {C_Q, {who, {I, {be, {arrest, t_{who}}}}}} (EM of C_Q)

The IA *who* is directly raised from the sister of V to Spec-I. C_Q then accesses the 'boxed' *who* in Spec-I, externalizing and assigning a matrix scope to it.[11]

Their analysis, however, is not without problems. First of all, their analysis undergenerates the sentence with object topicalization in (23), where the two *Bill*s are repetitions.

(23) Bill, Bill met *t* yesterday. (Chomsky 2024: 29)

The derivation of (23) is illustrated in (24).

[10] Kitahara (2024) and Kitahara and Seely (2024) also eliminate the stipulation by Chomsky (2024) that the inner Spec-v* belongs to the v*P phase, whereas the outer Spec-v* is not (see footnote 8). In their system, there is no notion of inner/outer edge, and the EA in sister of v*P is invariably outside the v*P phase.

[11] An anonymous reviewer of *Tokai English Studies* (*TES*) asked what rules out the derivation in which *who* in (22) undergoes IM to Spec-V, followed by C_Q accessing the IM-ed *who*. This derivation is, however, ruled out under Kitahara's (2024) assumption that *who* is raised to Spec-I to value uPhi and Case in Spec-Head configuration: if it raised Spec-V, it would not undergo further IM to Spec-I. This brings about crash at the interface because of uPhi on I and Case on *who* left unvalued.

(24) a. {meet, Bill} (EM of *meet* and Bill)
b. {Bill, {meet, t_{Bill}}} (IM of *Bill* to Spec-V)
c. {v*, {Bill, {meet, t_{Bill}}}} (EM of v*)
---------------------------------- v*P phase
d. {Bill, v*P} (EM of *Bill*)
e. {I, {Bill, v*P}} (EM of I)
f. {Bill, {I, {t_{Bill}, v*P}}} (IM of *Bill*)
g. {C_Q, {Bill, {I, {t_{Bill}, v*P}}}} (EM of C_Q)
----------------------------------- CP phase

Both the *Bill*s in the subject and object positions are 'boxed' because they are raised to Spec-V/I. Reaching the matrix CP phase level, C have to accesses *Bill* in Spec-V to yield (23), as schematized in (25).

(25) {C, {Bill, {I, {t_{Bill}, {v*, {Bill, {meet, t_{Bill}}}}}}}}

Crucially, Kitahara (2024) and Kitahara and Seely (2024) assume that access from C is an instantiation of Minimal Search, and C terminates its search once it finds the closest accessible item. In (25), *Bill* in Spec-I asymmetrically c-commands *Bill* in Spec-V. Under MS, *Bill* in Spec-I is accessible to C, whereas *Bill* in Spec-V is not because the former blocks access to the latter. Thus, (23) cannot be generated under the assumption that both the subject and the object are equally accessible to C.

Secondly, their system overgenerates sentences in (1b) and (5b), whose structures are illustrated in (26).

(26) a. C_Q … {that, {who, {I, {t_{who}, v*P}}}} (=(1b))
b. C … {that, {John, {I, {t_{John}, v*P}}}} (=(5b))

Who in (26a) and *John* in (26b) are raised from theta-position to non-theta one, and 'boxed' in Spec-I. Then, C_Q/C accesses Spec-I to provide an instruction to the matrix CP phase, thereby overgenerating (1b) and (5b). Notice that the CP and v*P phases in Kitahara (2024) and Kitahara and Seely's (2024) framework are symmetric in that both the subject and object are 'boxed,' so that it remains unclear where the subject-object asymmetries noted above come from. The goal of section 4 is to clarify the sources of asymmetries, adopting Labeling Theory (Chomsky 2013, 2015) outlined below.

3.3. Chomsky (2013, 2015)

Chomsky (2013, 2015) proposes that structures generated by Merge undergo labeling after the completion of each phase. Labeling is a process to pick out a prominent element under MS that serves as an instruction to the interfaces. Let us see how the structures in (27) are labeled.

(27) a. {H, XP} (label: HP)
b. {t_{XP}, YP} (label: YP)
c. {$XP_{[F]}$, $YP_{[F]}$} (label: <F, F>)

In the H-XP structure in (27a), MS unambiguously locates H and provides it as the label of (27a). In the XP-YP structure in (27b), where XP is a lower copy while YP is not, MS unambiguously locates Y, the head of YP, selecting it as the label of (27b). In the XP-YP structure in (27c), where X and Y, the heads of XP and YP, involve features F to be shared between them, MS simultaneously locates heads X and Y, providing the pair of shared features <F, F> as the label of (27c). If the XP and YP do not have shared features, the structure cannot have a label because MS cannot uniquely locate a head that serves as a label.

Let us see how MS provides labels to the SOs contained in *Mary met Bill*, whose derivation in the v*P phase is shown in (28).

(28) a. {meet, Bill} (EM of *meet* and *Bill*)
b. {Bill, {meet, t_{Bill}}} (IM of *Bill* to Spec-V)
c. {v*, {Bill, {meet, t_{Bill}}}} (EM of v*)

After v*P phase is completed at the stage in (28c), SOs contained in the v*P phase undergo labeling as in (29), along with other phase-level operations associated with interpretation at the interfaces.[12]

(29) $\{_{v^*P}\ v^*, \{_{\langle Phi, Phi\rangle}\ Bill_{[vPhi]}, \{_{VP}\ meet_{[uPhi]}, t_{Bill}\}\}\}$

Notice that Chomsky assumes that V involves unvalued phi-features (uPhi), which enters into feature sharing with valued one (vPhi) on the IA raised to Spec-V. Given this, the SO = {Bill, {meet, t_{Bill}}} is labeled <Phi, Phi>.

Let us next see the derivation in CP phase in (30).

(30) a. {Mary, v*P} (EM of *Mary*)
b. {I, {Mary, v*P}} (EM of I)
c. {Mary, {I, {t_{Mary}, v*P}}} (IM of *Mary* to Spec-I)
d. {C_Q, {Mary, {I, {t_{Mary}, v*P}}}} (EM of C_Q)

After the CP phase is completed at the stage in (30d), the SOs contained in the CP phase undergo labeling as in (29).

(31) $\{_{CP}\ C_Q, \{_{\langle Phi, Phi\rangle}\ Mary_{[vPhi]}, \{_{IP}\ I_{[uPhi]}, \{_{v^*P}\ t_{Mary}, v^*P\}\}\}\}$

The uPhi on I enters into feature sharing with vPhi on the EA raised to Spec-I, providing <Phi, Phi> as the label of the SO = {Mary, {I, …}}.

[12] Phase-level operations associated with interfaces are labeling, head-raising, and transfer (Chomsky (2015)), as well as copy-formation between structurally identical inscriptions (Chomsky (2021); Chomsky (2024)), and access from C to a 'boxed' item (Chomsky (2024)).

4. A Proposed Analysis

*4.1. Asymmetry between the CP and v*P Phases*

Building on Labeling Theory and Box Theory outlined above, this section proposes a non-uniform analysis of CP and v*P phases that accounts for the asymmetries between a subject and an object.

Firstly, this article proposes that access from C is not unconstrained: C can only access to a phrase immediately contained within an unlabeled set.

(32) C is accessible only to a member of an unlabeled set.

Suppose that we have structures like (33), where Ph is a phase head, and XP is an external or internal argument raised to Spec-Y.

(33) a. $\{C \ldots \{Ph, \{_{??}\ \boxed{XP}, \{_{YP}\ Y, \ldots\}\}\}\}$

b. $\{C \ldots \{Ph\ \{_{<F, F>}\ XP_F\ \{_{YP}\ Y_F, \ldots\}\}\}\}$ ×

In (33a), the heads of XP and YP, X and Y, involve no features to be shared between them. Given (32), C is accessible to the XP, because it is a member of the set {XP, YP} that cannot have a label when transferred to the interface. In (33b), by contrast, the heads of XP and YP involve features F to be shared between them, so the set {XP, YP} is labeled <F, F> when transferred. Then, C cannot access to the XP, because it is a member of the set {XP, YP} labeled <F, F>. A crucial assumption here is that, unlabeled set does not cause crash at the interface, contra Chomsky (2013, 2015). Instead, this article proposes that the unlabeled set has interpretation at interfaces as an "escape hatch" for access from higher phase head. Recall that in Kitahara and Seely's (2024) framework, the notion of a phase edge (A'-position) is eliminated and C may access every internally merged item in Spec-I or Spec-V (A-positions). Although this article assumes with Kitahara and Seely's (2024) that phase edge is eliminable, but argue that distinction between edge (A'-position) and non-edge (A-position) is made in terms of a label: a member of an unlabeled set (e.g., XP in (33b)) does not serve as an position accessible to C_Q, whereas a member of a labeled set (i.e., XP in (33a)) serves an 'edge' accessible to C_Q. Thus, the proposed system makes dissociation of A/A' properties in terms of how an SO created by IM is labeled at the interfaces.

This proposal entails that IM *per se* does not create force- and information-related structures with scopal properties (clausal domain). Rather, the structure created by IM is *indirectly* associated with interpretation at the clausal domain through the agency of a label: IM creates an unlabeled XP-YP structure, and this unlabeled structure gives an 'instruction' to the interfaces to interpret an SO contained in this set as an item associated with discourse-level interpretation when it is accessed by C. In other words, in the proposed system, duality of semantics (especially, association of IM with clausal interpretation) is no longer independently stipulated as a component that governs applicability of IM. Instead, the effect of duality of semantics follows from the fact that IM brings about an unlabeled XP-YP structure, which provides an 'instruction' to a later CP phase in accordance with (32). Thus, Table 2 is revised into Table 3, with duality of semantics of Merge eliminated from principles constraining the output of Merge.[13]

[13] Table 3 also eliminates the cell for duality of semantics governing the output of EM (i.e., requirement that the set {P, Q} created by EM constitute a propositional domain) in Table 2, because this effect is

Table 3

	External Merge	Internal Merge
P and/or Q		
Principle S: Minimal Search	Members of WS	A member of WS and its term
Principle T: Theta structure	Theta assigner and assignee	Theta assignee

Secondly, this article assumes that in English, I involves uPhi but V does not, contra Chomsky (2015). It follows that IA does not have to raise to Spec-V to enter into Spec-Head agreement with V, and the derivation in the v*P phase in (28) proceeds as in (34), which yields the labeled set in (35).

(34) a. {meet, Bill} (EM of *meet* and *Bill*)
b. {v*, {meet, Bill}} (EM of v*)

(35) {$_{v*P}$ v*, {$_{VP}$ meet, Bill}}

Notice, however, that nothing bars raising of the object to Spec-V, given that Merge is applied freely unless it violates Principles [S] and [T]. The v*P phase may proceed as in (36), with *Bill* raised to Spec-V via free IM, yielding the labeled set in (37).[14]

(36) a. {meet, Bill} (EM of *meet* and *Bill*)
b. {Bill, {meet, t_{Bill}}} (IM of *Bill* to Spec-V)
c. {v*, {Bill, {meet, t_{Bill}}}} (EM of v*)

(37) {$_{v*P}$ v*, {$_{??}$ Bill, {$_{VP}$ meet, t_{Bill}}}}

Crucially, the SO = {Bill, {meet, t_{Bill}}} has no label since V has no phi-features to be shared with the IA. Notice also that the assumption that I involves uPhi but V does not entails that the CP and v*P phase are asymmetric in terms of labeling: in the v*P phase, IA raised to Spec-V is a member of an unlabeled set, whereas EA raised to Spec-I is a member of the set labeled <Phi, Phi>. This difference between CP and v*P, along with the assumption in (32), predicts that IA raised to Spec-V is accessible to C (i.e., 'boxed'), whereas EA raised to Spec-I is not, as schematically represented in (38).

(38) a. {C …{v*, {$_{??}$ [XP], {$_{VP}$ V, …}}}}

b. {C … {C {$_{<Phi, Phi>}$ {$XP_{[vPhi]}$, {$_{IP}$ $I_{[uPhi]}$, …}}}}} ×

Thirdly, this article assumes that uPhi is available only at externalization, because it plays no role beyond marking verbal agreement morphologically. Accompanied with Labeing Theory, this assumption predicts that the set containing EA raised to Spec-I is labeled at externalization, but has no label at CI because uPhi on I to be shared with the EA is not available at CI. Given this, the labeled structure in the CP phase is schematically represented as in (39).

independently obtained from theta theory governing the input of EM, namely the requirement that the SOs P and Q be a pair of theta assigner and assignee.

[14] An anonymous revewer of *TES* asked how IM of *Bill* to Spec-V in (36b) satisfy Principle [T]. In (36b), theta-theory, the only component of Principle [T], is satisfied because IM is applied to a theta-position. Recall that, unlike Chomsky (2024), this article does not assume duality of semantics as an independent component of Principle [T].

(39) a. $\{_{CP}\ C\ \{_{<Phi,\ Phi>}\ \{XP_{[vPhi]}, \{_{IP}\ I_{[uPhi]}, \ldots\}\}\}\}$ (Externalization)

b. $\{_{CP}\ C\ \{_{??}\ \boxed{XP}, \{_{IP}\ I, \ldots\}\}\}\}\}$ (CI)

A crucial assumption here is that an SO may have different labels at CI and externalization. This entails the XP in (39a) is not 'boxed' whereas the one in (39b) is: XP in (39a) cannot provide instruction on how to externalize it at a later phase because it is a member of a labeled set at externalization, whereas XP in (39b) may take a scope at a higher Spec-phase because it is a member of an unlabeled set.

Finally, we assume with (Chomsky 2021, 2024) that derivation is *Markovian*: It cannot look back at the derivational history. Adopting this idea, this article suggests that not only the history of Merge but also that of labeling is 'ignored' at a later stage of derivation. In other words, this article proposes that at a phase cycle Ph_n, the interface cannot look back at the history of labeling in a lower phase cycle Ph_m, where n>m. To illustrate this, consider (40).

(40) a. $\{_{\alpha}\ Ph_n, \{_{\beta}\ XP, \{_{\gamma}\ Y, \ldots\}\}\}$ (Ph_n cycle)

b. $\{_{\delta}\ Ph_{n+1}, \{_{\varepsilon}\ XP', \{_{\zeta}\ Y', \{_{\alpha}\ Ph_n, \{_{\beta}\ XP, \{_{\gamma}\ Y, \ldots\}\}\}\}\}\}$ (Ph_{n+1} cycle)

When the phase Ph_n in (40a) is completed, the SOs in this phase, namely α, β, and γ, undergoes labeling. In the next phase Ph_{n+1} in (40b), where the SOs δ, ε, ζ are labeled, the interface cannot know what were the labels of α, β, and γ, because they belong to Ph_n phase. A question arises here what happens when Ph_{n+1} necessitates information on the label of a lower phase, say β, to provide instructions to the interfaces. This article assumes that in that case, not only the SOs δ, ε, ζ , but also the SOs α, β, γ undergoes labeling at the Ph_{n+1}. That is, the SO β undergoes labeling twice: at the Ph_n and Ph_{n+1} phases.[15,16]

4.2. Asymmetries between subjects and objects in Wh-*Movement and Topicalization*

The system proposed above provides a simple and principled explanation of the subject-object asymmetries with respect to overt *wh*-movement shown in (1), repeated here as (41).

(41) a. Who do you think that Sue met *t*?

b. * Who do you think that *t* met Sue?

Let us first consider (41a), whose derivation in the embedded v*P phase is illustrated in (42).

(42) a. {see, who} (EM of *see* and *who*)

b. {who, {see, t_{who}}} (IM of *who* to Spec-V)

c. {v*, {who {see, t_{who}}}} (EM of v*)

Reaching the v*P phase level in (42c), the SOs in (42c) undergo labeling at externalization as in (43a)

[15] An anonymous reviewer of *TES* points out that we do not have to independently assume that a label assigned at an earlier stage of derivation is 'ignored' at a later stage in label-free syntax (Chomsky 2013, 2015), because label is not an object represented in the structure as in Bare Phrase Structure (Chomsky 1995) but is 'read-off' from set structures at each derivational step when SOs in a phase get accessed by the interfaces. For this reason, we take this property as a natural consequence of label-free syntax.

[16] This assumption is consistent the view that although an SO in a lower phase is inaccessible to Merge, it never disappears from the structure (Chomsky et al. (2019)).

and CI as in (43b).

(43) a. $\{_{v*P}$ v*, $\{_{??}$ $\boxed{\text{who}}$ $\{_{VP}$ see, $t_{who}\}\}\}$ (Externalization)

b. $\{_{v*P}$ v* $\{_{??}$ $\boxed{\text{who}}$ $\{_{VP}$ see, $t_{who}\}\}\}$ (CI)

Crucially, the SO = [who [see who]] has no label both at externalization and CI because it is an XP-YP structure without features to be shared between them. When the derivation reaches the matrix CP phase level, C_Q accesses *who* in Spec-V at both interfaces, with *who* interpreted and externalized in Spec-C_Q.

Let us next consider (41b), whose derivation in the embedded CP phase is illustrated in (44).

(44) a. {who, v*P} (EM of *who* and v*P)

b. {I, {who, v*P}} (EM of I)

c. {who, {I {t_{who} v*P}}} (IM of *who* to Spec-I)

d. {that, {who, {I, {t_{who}, v*P}}}} (EM of *that*)

The SO created in (44d) undergoes labeling at externalization as in (45a) and at CI as in (45b).

(45) a. $\{_{CP}$ that, $\{_{<Phi, Phi>}$ $who_{[vPhi]}$, $\{_{IP}$ $I_{[uPhi]}$, $\{_{v*P}$ t_{who} v*P}}}} (Externalization)

b. $\{_{CP}$ that, $\{_{??}$ $\boxed{\text{who}}$, $\{_{IP}$ I, $\{_{v*P}$ t_{who}, v*P}}}} (CI)

Recall that uPhi on I is visible at externalization but is invisible at CI. At externalization, the SO = {who, {I, {t_{who}, v*P}}} is labeled <Phi, Phi> via feature-sharing of phi-features with *who* in Spec-I, whereas it has no label at CI since it lacks features to be shared, so that *who* in Spec-I is accessible to C_Q at CI but not at externalization. Thus, (41b) cannot be generated because *who* cannot be pronounced at the matrix Spec-C_Q.

The subject-object asymmetry in topicalization in (5a, b), repeated here as (46), is accounted for in the same way.

(46) a. That race, I think (that) John won *t*.

b. * John, I think that *t* won the race.

Let us first consider (46a), whose structure of the v*P at externalization and CI is represented as in (47).

(47) a. $\{_{v*P}$ v*, $\{_{??}$ $\boxed{\text{that race}}$, $\{_{VP}$ win, $t_{who}\}\}\}$ (Externalization)

b. $\{_{v*P}$ v*, $\{_{??}$ $\boxed{\text{that race}}$, $\{_{VP}$ win, $t_{who}\}\}\}$ (CI)

The object *the race* is 'boxed' both at externalization and CI, because it is a member of the unlabeled set. Thus, (46a) is successfully derived through access to the object from the matrix C. Let us next consider (46b), which provides the interfaces with the structure illustrated in (48) at the embedded CP phase level.

(48) a. $\{_{CP}$ that, $\{_{<Phi, Phi>}$ $John_{[vPhi]}$, $\{_{IP}$ $I_{[uPhi]}$, $\{_{v*P}$ t_{John}, v*P}}}} (Externalization)

b. {$_{CP}$ that, {$_{??}$ John, {$_{IP}$ I, {$_{v*P}$ t_{John}, v*P}}}} (CI)

The subject *John* is not 'boxed' at externalization but at CI, because the set immediately containing *John* is labeled <Phi, Phi> only at externalization. Thus, *John* cannot be externalized at the matrix Spec-C.

Now, consider how the proposed analysis overcomes the problem with Kitahara (2024) and Kitahara and Seely (2024) noted in (23), repeated here as (49), whose structure labeled at externalization is illustrated in (50).

(49) Bill, Bill met *t* yesterday.

(50) {$_{CP}$ C, {$_{<Phi, Phi>}$ Bill$_{[vPhi]}$, {$_{IP}$ I$_{[uPhi]}$, {$_{v*P}$ t_{Bill}, {$_{v*P}$ v*, {$_{??}$ Bill, {$_{VP}$ meet, t_{Bill}}}}}}}}

As assumed in Kitahara (2024) and Kitahara and Seely (2024), C accesses a 'boxed' item under MS that seeks closest one. Although *Bill* in Spec-I asymmetrically c-commands *Bill* in Spec-V, the former does not block access to the latter, because the former is a member of the set labeled <Phi, Phi>, whereas the latter is a member of an unlabeled set. As a consequence, C successfully accesses the closest 'boxed' item in Spec-V, with *Bill* externalized Spec-C.

4.3. Symmetry between subjects and objects in Wh-*in-Situ*

The contrast between (45a) and (45b) also provides a straightforward explanation for the overt-covert asymmetry in (4), repeated here as (51).

(51) a. * Who do you think that *t* left?
b. ? Who thinks that who left?

Labeling in (45) predicts that *who* in an embedded subject position may take its scope in a higher clause at CI if it remains in-situ at externalization, since *who* in Spec-I, inaccessible to C_Q at externalization, is still accessible to it at CI. Thus, (51b) is successfully derived with *who* taking at the matrix Spec-C_Q while pronounced in the embedded Spec-I.[17]

4.4. Null Complementizer

Let us next consider why subject extraction is grammatical when the embedded complementizer is phonologically null, as shown in (2) and repeated here as (52).

(52) Who do you think *t* saw John?

This article suggests that the embedded subject in (52) may undergo *wh*-movement because of I-to-C movement in the embedded clause (for approaches that account for *that*-trace effects in terms of I-to-C

[17] An anonymous reviewer of *TES* asked what rules out the sentence like **Do you think that who saw John?*, where the embedded *wh*-phrases is accessed by the matrix C only at CI. In English, *wh*-in-situ is not freely available but allowed only in multiple *wh*-question and echo question. This article assumes that access from C at CI is a necessary condition for *wh*-in-situ but not a sufficient condition, leaving open why pair-list interpretation is required in (51b).

movement, see Mizuguchi (2008) and Suenaga (2024)). Consider the derivation of the embedded CP phase is illustrated in (53), where a null C is introduced in (53d).

(53)	a.	{who, v*P}	(EM of *who* and v*P)
	b.	{I, {who, v*P}}	(EM of I)
	c.	{who, {I, {t_{who}, v*P}}}	(IM of *who* to Spec-I)
	d.	{C, {who, {I, {t_{who}, v*P}}}}	(EM of C)

Reaching the embedded CP phase level, the SOs in (53d) undergoes phase-level operations associated with externalization: labeling and I-to-C movement as in (54), where PAST stands for an abstract inflectional past morpheme on I.

(54)	a.	{$_{CP}$ C, {$_{<Phi, Phi>}$ who$_{[vPhi]}$, {$_{IP}$ PAST$_{[uPhi]}$, {$_{v*P}$ t_{who}, v*P}}}}	(Labeling)
	b.	{$_{CP}$ C-PAST$_{[vPhi]}$, {$_{<Phi, Phi>}$ who$_{[vPhi]}$, {$_{IP}$ I, {$_{v*P}$ t_{who}, v*P}}}}	(I-to-C)

In (54a), the SO = {who, {I, {t_{who}, v*P}}} is labeled <Phi, Phi> via feature-sharing. Assuming with Epstein et al. (2022) that feature-valuation is contingent on feature-sharing in labeling, uPhi on PAST get valued after labeling. Next, PAST involving [vPhi] undergoes head-movement to C as in (54b). Since the structure has no features left unvalued, it is successfully interpreted at the sensorymotor system. The derivation terminates when matrix C_Q is introduced, yielding (55).

(55) {C_Q … {C-PAST, {who, {I, {t_{who}, v*P}}}}}

Crucially, given the Markovian property of derivation, we cannot look back at the information about labeling at a lower phase cycles. In (55), the derivation reached the matrix CP phase cannot look back at the history of labeling in the embedded CP cycle. However, C_Q necessitates inspecting labels in lower phases to determine what is accessed by C_Q in (55). This problem is solved if not only the SOs at the matrix CP phase level but also every other SO in (55) undergo labeling, as in (56).[18]

(56) {C_Q … {$_{CP}$ C-PAST$_{[vPhi]}$, {$_{??}$ who$_{[vPhi]}$, {$_{IP}$ I, {$_{v*P}$ t_{who}, v*P}}}}}

Notice that the SO = {who, {I, {t_{who}, v*P}}} has no label at the matrix CP cycle because phi-features on I has already been raised to C. Thus, *who* in the embedded Spec-I is rendered accessible to C_Q thanks to unlabelability of that SO at the matrix CP phase cycle.

Notice that this strategy is not available in the sentence with the *that*-trace effect in (41b), whose structure and labels are represented as in (57).

(57) {C_Q … {$_{CP}$ that {$_{<Phi, Phi>}$ who$_{[vPhi]}$, {$_{IP}$ PAST$_{[vPhi]}$, {$_{v*P}$ t_{who}, v*P}}}}} ×

[18] An anonymous reviewer of *TES* pointed out that the SO = {I, {t_{who}, v*P}} in (56) should not be labeled IP but v*P because I is a lower copy of the raised PAST. This article leaves open whether a lower copy of head movement is rendered 'invisible' to Labeling Algorithm, because it is not clear in our minimalist framework whether 'head movement' is an instance IM or a process at externalization. Notice that whether this SO is labeled v*P of IP is largely irrelevant to argumentation of this article.

(56) and (57) differs in availability of I-to-C movement in the embedded clause: in (56), PAST is raised from I to C, whereas in (57), the overt complementizer *that* occupies C and blocks I-to-C movement. As a consequence, the SO = {who, {I, {t_{who}, v*P}}} is labeled <Phi, Phi> at both matrix and embedded CP phase levels via sharing of phi-features between the subject and I, thereby preventing access to *who* from C_Q. Notice that the assumption that an overt complementizer blocks I-to-C movement is independently supported by the fact show in (54), where the overt complementizer *if* blocks I-to-C movement (Subject-Aux Inversion) of *should*.

(58) a. If you should change your mind, no one would blame you.
b. Should you change your mind, no one would blame you.
c. *If should you change your mind, no one would blame you. (Suenaga 2024: 169)

Availability of subject topicalization in the embedded clause without *that* shown in (5c), repeated here as (59), is also accounted for in the same way.

(59) John, I think *t* won the race.

(59) is structured and labeled at the matrix CP phase as in (60).

(60) $\{$C … $\{_{\text{CP}}$ C-PAST$_{[\text{vPhi}]}$, $\{_{??}$ $\boxed{\text{John}_{[\text{vPhi}]}}$, $\{_{\text{IP}}$ I, $\{_{\text{v*P}}$ t_{John}, v*P$\}\}\}\}\}$

Although the set containing *John* is labeled at the embedded CP cycle, it has no label at the matrix CP because PAST involving phi-features has been already raised from I to C. After closing the matrix CP phase, C accesses *John* in the unlabeled set, externalizing it in the matrix Spec-C. Thus, availability of subject extraction in topicalization is also accounted for by the label-based accessibility proposed in (32) accompanied with the assumption of Markovian property of derivation.

4.5. Subject Wh-*Questions*

Finally, let us see that subject *wh*-questions like (61a) and (16), repeated here as (61b), are derived by the proposed system.

(61) a. Who *t* saw Mary?
b. Who was arrested *t*?

This article proposes that the ordering of labeling and I-to-C movement is free, and (61) is derived if I-to-C movement is followed by labeling. Let us consider how the CP phase-level operations applies to (61). Consider (62), where *who* raises to Spec-I from theta-positions (the sister of v*P in (61a) and the sister of *arrest* in (61b)) in one-fell-swoop.

(62) a. $\{$C$_Q$-PAST$_{[\text{uPhi}]}$, $\{$who$_{[\text{vPhi}]}$, $\{$PAST$_{[\text{uPhi}]}$, …$\}\}\}$ (I-to-C)
b. $\{_{\text{CP}}$ C$_Q$-PAST$_{[\text{uPhi}]}$, $\{_{??}$ $\boxed{\text{who}_{[\text{vPhi}]}}$, $\{_{\text{IP}}$ I, …$\}\}\}$ (Labeling)

First, PAST involving [uPhi] raises to C as in (62a). Next, the SOs in the CP phase undergoes labeling, yielding the labeled set (62b), where the set containing *who* has no label. Since *who* is contained in the unlabeled set, C_Q accesses *who*, externalizing it in Spec-C_Q.

One may wonder how the uPhi on PAST get valued in this derivation: if it does not receive its value from the subject, it causes crash at externalization. This article assumes that valuation is not only contingent on labeling, but also on access from C, as a natural extension of Epstein et al.'s (2022) proposal that valuation takes place between two items located by MS.

(63) Valuation takes place at the interfaces between two items in a relation established by MS.

Relations established by MS are (i) Spec-Head relations in labeling (i.e., the relation between two heads X and Y in an XP-YP structure), and (ii) c-command relations between a phase head and a 'boxed' item. Given this, the uPhi on PAST raised to C in (62b) successfully receives values from *who*, because *who* is accessed by PAST on C under c-command.

5. Conclusion

To conclude, this article pointed out theoretical and empirical problems with Box Theory by Chomsky (2024), Kitahara (2024), and Kitahara and Seely (2024), and proposed a revised version of Box Theory that imposes limit on accessibility of 'boxed' items so that only members of unlabeled sets provide instruction to a higher phase at CI and externalization. Accompanied with the assumption that in English, I involves uPhi whereas V does not, this proposal provided a principled explanation of *asymmetries* between subjects and objects in English *wh*-movement and topicalization. This article also demonstrated that the proposed system accounts for *symmetry* between subjects and objects in English *wh*-in-situ and *wh*-movement out of a clause headed by the null complementizer, adopting the ideas that uPhi on I is not available at CI and that derivation is Markovian.

If this analysis is on the right track, it has theoretical implications on duality of semantics. The duality of semantics, as in its an original form, states that the clausal domain associated with discourse-related interpretation is constructed by IM. However, the analysis proposed here suggests the possibility that IM is not directly associated with the clausal domain, but it is indirectly associated with this domain through the agency of a label. That is, phase-internal IM of IA/EA gives rise to an XP-YP structure, and this XP-YP constitutes an unlabeled SO at the interfaces, as far as there are no features to be shared between them. This unlabeled set provides an instruction to the interfaces to interpret one of its members as being in the clausal domain, thereby rendering it accessible to the CP phase. Thus, if successful, the proposed analysis might open a new way to explain why human language shows effects of duality of semantics.

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