

ON DERIVING ARGUMENT EXTERNALIZATION CONDITION*

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ABSTRACT

This article investigates the placement restrictions on the number of arguments inside the verbal domain. The empirical basis consists of subject inversion cases where overt subject or object movement is not required for EPP-related reasons. Specifically, we look at a variety of inversion constructions where either the subject or the object with uninterpretable Case features must vacate the vP. I will show that the necessity of such argument externalization is a natural consequence of the Phase Impenetrability Condition (Chomsky 2000, 2001).

Key words: argument externalization, transitivity constraint, inversion, EPP, Case, Phase Impenetrability Condition

1. INTRODUCTION

This paper studies the placement restrictions on the number of arguments inside the verbal domain, namely the transitivity constraint witnessed in inversion constructions. Inversion constructions refer to cases where the logical subject is placed in an atypical syntactic position whereas some other constituent apparently occupies the canonical grammatical subject position. In the studies of inversion, it has been widely known that different types of inversion constructions across languages might differ in various aspects among themselves, for instance, the types of predicates compatible with inversion or the distinct

information structures associated with inversion constructions¹. In this paper, instead of jumping into the details of the peculiarities among different inversion constructions, we will confine the scope of our research and focus only on the universal phenomenon that is shared and attested among these constructions, namely the so-called transitivity restriction: there is no language in which both the subject and the object can stay VP internally (Alexiadou and Anagnostopoulou 2001, 2007). The empirical coverage of the current study consists of subject inversion cases where overt subject or object movement is not required for EPP-related reasons. Specifically, we investigate a variety of inversion constructions where subject and object with (undeleted) uninterpretable Case features are disallowed to remain in their externally-merged position so that one of the arguments must vacate the vP. The generalization is represented as in (1) (Alexiadou and Anagnostopoulou (A&A henceforth) 2001, 2007)².

(1) *Argument Externalization Condition (AEC)*:

By Spell-Out, VP/vP can contain only one argument with structural Case feature.

(2) to (5) present the data in point that fall under the AEC. As seen in the examples, non-passivized transitive verbs cannot occur in Locative Inversion (LI), Quotative Inversion (QI), expletive constructions in English or Stylistic Inversion (SI) in French. This is often referred to as the transitivity restriction in the literature (Doggett 2004).

* I would like to thank the anonymous reviewers for their valuable comments which helped me greatly in clarifying various points and improving the paper. All remaining errors are my own responsibility.

¹ In the literature, inversion constructions are believed to bear special information structure compared to sentences with a common or informationally-neutral word order. This fact has been pointed out in works like Bresnan (1994) and it has been argued that in a construction such as locative inversion, the motivation for locative PPs to move into the CP domain is for them to take on a topic interpretation. Or, to put in the minimalist terms, the PP bears [+top] feature so that it has to move into the left periphery to satisfy the checking requirement.

² A more detailed discussion on A&A's proposal comes later in the paper.

(2) *The AEC in English LI*

- a. *On the desk placed John a book.
- b. *Into the room pushed the little girl the cart.

(3) *The AEC in English QI*

- a. *“I should leave now,” told Mary John.
- b. “When should I leave?” asked Mary of John.

(4) *The AEC in English expletive constructions*

- a. There arrived a student.
- b. *There solved a student the problem.

(5) *The AEC in French SI*

- a. *Je me demande quand achèteront les
I wonder when will-buy the
consommateurs les pommes.
consumers the apples
- b. *Je me demande quand achèteront les
I wonder when will-buy the
pommes les consommateurs .
apples the consumers

There are two crucial points that we would like to emphasize here: first, as illustrated above, AEC-related phenomena crucially involve both the subject and the object. This condition simply states that at least one of the DP arguments must be externalized. Moreover, note that in all of the cases presented above, the EPP feature of T has been independently satisfied (by the fronted XP in LI/QI/SI or the expletive). Second, the emergence of the observed transitivity restriction cannot be attributed entirely to the presence of a postverbal external argument such as *John* in (2a). In some previous works it is argued that sentences like (2a) are unacceptable because movement of the PP induces locality violation; precisely, because the structurally lower constituent *on the desk* cannot move over the external argument *John* according to Relativized

Minimality³(Rizzi 1990), (2a) is ruled out. However, if locality were indeed the sole reason responsible for the emergence of the transitivity constraint, we should expect the same logic to apply in the case of unergative verbs as well, as they also have an external argument. Such expectation, however, is not always met. In particular, although it is true that English LI is mostly found with unaccusative and passive verbs (Bresnan and Kanerva 1989 and Hoekstra and Mulder 1990), quite a number of studies have pointed out that LI does occur with representatives of several subclasses of unergative verbs (Levin and Rappaport 1995). Similar situations can be found with expletive constructions as well. This is shown in (6).

- (6) a. Inside the laundry room WORKED two young women.
b. There DANCED several street actors on the market squares.

In other words, although it is undeniable that in subject inversion cases the occurrence of an external argument in the post-verbal position is highly restricted, nevertheless, the fact that they *can* be found with some unergative verbs suggests that we cannot ascribe the transitivity constraint simply to locality or to some general prohibition against there being an external argument in such constructions.

As a result, in what follows I argue that the AEC, the necessity of externalizing at least one DP which bears an uninterpretable Case feature in the vP, is a natural consequence of the Phase Impenetrability Condition (PIC) (Chomsky 2000, 2001).

³ Relativized Minimality (RM) captures the intuition that a local structural relation is one that must be satisfied within the smallest possible environment in which it can be satisfied. The original definition from Rizzi (1990) is given in the following.

- (i) ...X...Z...Y...
(ii) Relativized Minimality : X α -governs Y iff there is no Z such that
a. Z is a typical potential α -governor for Y,
b. Z c-commands Y and does not c-command X.¹
c. α -governors: heads, A Spec, \bar{A} Spec.

In a nutshell, RM states that movement is always to the nearest position of the relevant type.

(7) *Phase Impenetrability Condition*

Only the edge of a phase is accessible for further syntactic operations.

2. PROPOSAL

According to the PIC, in order for syntactic operations to be able to access a certain element within a phase, such element must be located at the edge of that phase, either by merging into that position or moving there. In other words, material within the non-edge (i.e., complement) of a phase can never establish any syntactic dependency outside of the phase at stake. In the following we argue that the AEC can be derived under the current phase theory (Chomsky 2000 and subsequent works) and (8) lists the crucial assumptions couched in this framework that will be referred to in our proposal.

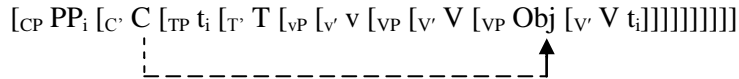
(8) *Some assumptions of phase theory*⁴

- a. Case/ ϕ -features checking is achieved via the Probe-Goal Agree relation⁵.
- b. Syntactic operations are strictly local (i.e., phase-by-phase).
- c. CP and v*P (transitive vP) are phases.

Now let us consider three possible derivations of our concern here. First is a grammatical inversion case. As shown in (9), there is only one phase, CP, in this clause since an intransitive VP does not constitute a phase; therefore, the uninterpretable ϕ -features on C/T can be checked against the c-commanded object DP and the uninterpretable Case feature on the object DP can have its value set by C/T, thanks to the established Agree relation.

(9) *Down the hill rolled a baby carriage.*

CP phase:



⁴ Phase theory, advocated by Chomsky, explores the interaction between the narrow syntactic computation and the external systems from a minimalist perspective. This theory is the current way to study the cyclic nature of the system, and 'phases' are the natural locality hallmark, being directly relevant for syntactic phenomena such as agreement, movement and islands. Assumptions (8a) – (8c) are the fundamental working principles in the phase theory. For more details and how these assumptions are derived, readers are referred to Chomsky (2000, 2001).

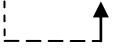
⁵ In a nutshell, in minimalist syntax, in order for one category—the goal—to move to the vicinity of another—the probe—the two must stand in an Agree relation: the probe must c-command the goal, the relation between the two must respect minimality, and each category must have unvalued uninterpretable features whose values can be set by the corresponding features of the other. In passive, for instance, T (the probe) and the DP complement (the goal) are assumed to Agree, as follows: T c-commands DP; this relation respects minimality, because no external argument intervenes; T's unvalued ϕ -features can have their values set by DP; and DP's unvalued Case feature can have its value set by T. As noted in footnote 3, for more details of the Agree system proposed in the recent minimalist program, please refer to Chomsky's original works (2001 and others).

Next let us see how the transitivity constraint is derived in the proposal. Consider (10)⁶.

(10) **Down the hill rolled the mother a baby carriage.*

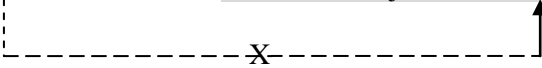
a. *v*P phase:*

..._{[v*P} PP_i [_{v*} v* [_{VP} Subj [_{V'} V [_{VP} Obj [_{V'} V t_i]]]]]]



b. *CP phase:*

_{[CP} PP_i [_{C'} C [_{TP} t_i [_{T'} T [_{v*P} t_i [_{v*} v* [_{VP} Subj [_{V'} V [_{VP} Obj [_{V'} V t_i]]]]]]]]]]



Based on strict cyclicity, at the stage of the v*P phase, the uninterpretable ϕ -features on v* need to be checked before the operation proceeds to the next phase. Therefore, v* probes in its complement domain and the closest goal it reaches is the in-situ subject, which has an uninterpretable Case feature to be resolved. Recall that, under this circumstance, the subject is left in-situ because the clausal EPP requirement is independently satisfied by the fronted PP element. Therefore, the two (v* and the subject) Agree and both eliminate their uninterpretable feature(s). Subsequently, the next CP phase is merged in the structure. At this point, the probe C/T needs to check its uninterpretable ϕ -features; however, this probing mission is doomed to fail since the potential goal, i.e., the object DP, is now within the complement of the v*P, and is thus opaque and inaccessible to any operations outside of the complement domain owing to the PIC. Note,

⁶ In this structure we assume that the arguments are initially realized within the VP projection, which position has been independently argued for and widely assumed in studies of inversion constructions. I refer the readers to the detailed arguments discussed in Anagnostopoulou and Alexiadou (2001), Doggett (2004) and Richards (2006) on LI, Collins and Branigan (1997) on QI and Déprez (1990) on French SI. Also relevant is that in Chomsky (2005) it is argued, under the current minimalist framework, that the considerations regarding classical CED effects suggest the need for the predicate-internal subject hypothesis.

however, that even if we assume equidistance⁷ (Chomsky 1995), where the subject and the object are equidistant to the higher probe v^* , a similar difficulty ensues, as represented in (11). In particular, at the point when the probe C/T needs to check its uninterpretable ϕ -features, the potential goal, namely the subject DP, is now within the complement of the v^*P and thus opaque due to PIC.

- (11) *Assuming equidistance:*

a. v^*P phase:

... [_{VP} PP_i [_{V'} V* [_{VP} Subj [_{V'} V [_{VP} Obj [_{V'} V t_i]]]]]]]

b. *CP phase:*

$[_{CP} PP_i [_C C [_{TP} t_i [_T T [_{vP} t_i [_{v^*} v^* [_{VP} Subj [_{v'} V [_{VP} Obj [_{v'} V$
 $t_j]]]]]]]]]$

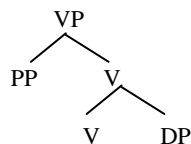
⁷ Equidistance refers to the notion that closeness is relativized to minimal domains (Chomsky 1995, 2001).

- (i) *Closeness in terms of minimal domains*

- a. Terms of the same minimal domain are equidistant to the probe.
- b. The minimal domain of a head *H* is the set of terms immediately contained in the projection of *H*.

To give an illustrative example, the definition of closeness in (i) permits each of the movement for a structure like (ii). In (ii) the PP is the specifier of V and the DP is a complement of V. They are therefore contained within the same minimal domain, and thus equidistant from a higher probing head, given the definition in (ii). Equidistance therefore allows the DP to move over the PP since the PP is not closer to the probe than the DP.

- $$(\ddot{\mathbf{i}}\ddot{\mathbf{i}})$$



Note that in the common *non-inverted* cases with the SVO order, this problem will not arise because the subject has to first raise to the edge position of the v^*P phase *independently* triggered by the clausal EPP property. Under this circumstance, the v^* probe successfully Agrees with the object without further ado. In other words, the movement of the subject to the edge of v^* in run-of-the-mill SVO sentences is not of look-ahead nature (i.e., ruling out the output by looking ahead to a later stage in the derivation) but forced by an independent requirement in the computational system that movement must apply in a strictly local fashion, as it ensures that long movement always proceeds phase-edge by phase-edge.

To sum up, the rise of the AEC follows from the PIC: if both of the DP arguments stay at their first-merge positions, only one of them can eliminate its uninterpretable Case features, leading the derivation to crash⁸. Next, I will briefly discuss three major alternatives proposed in

⁸ One reviewer raised the question as to how we rule out a sentence like (i) (with the intended meaning as noted) under the current proposal. More precisely, the reviewer points out that (i) does not violate AEC or PIC, since in this case there is only one argument (the subject) bearing a structural Case feature in the complement VP which will be sent to Spell-Out.

- (i) *A baby carriage rolled the mother.
 (Intended meaning: The mother did something to the baby carriage.)

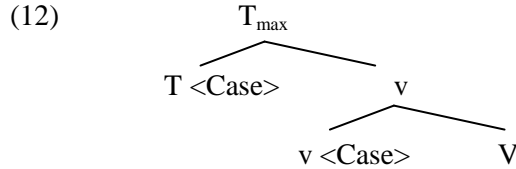
I suggest that a sentence like (i) is indeed well-formed in terms of the AEC, as the reviewer correctly pointed out; however, a sentence with an OVS word order, an order unavailable in English, is ruled out by other independent principles in the grammar of English. In particular, it can be filtered out by the theory of θ -features and its interaction with other grammar components (Bošković 1994, Hornstein 1999, Larson 2011). For our current purpose, in short, under this theory θ -roles are syntactic features on verbs and θ -role assignment is understood as θ -feature agreement. Thus, to receive a θ -role (in the traditional sense) is just to check or value the relevant thematic feature of the predicate (in the agreement system). Now, the reason why (i) is ruled out is briefly described as follows: in addition to other grammatical features (e.g. Case/ ϕ features) the theme DP *baby carriage* bears an interpretable [iTH] feature and agrees with *roll*, thus evaluating the [uTH] feature on *roll*. Next, according to the θ -theory, which assumes that predicates cannot bear more than a single valued feature, the [uAG] feature thus has to be on the little v that selects the verb *roll*; in order to value the [uAG] feature on v and satisfy v 's EPP feature, the only possible goal left is the agent DP *the mother* since the theme *baby*

the literature and point out how their problems can be addressed under the current approach.

3. OTHER ALTERNATIVE ACCOUNTS

It was first pointed out and discussed in A&A (2001, 2007) that a condition like the AEC described in (1) applies universally in the grammar. They argue for this claim through a discussion of a number of word order patterns across languages, where they show that, cross-linguistically, either the subject or the object (or both) must be parsed into a vP-external position. Their proposed reason for the existence of such a condition is that there is a link between v-to-T raising and the ban on the occurrence of multiple DPs within the verbal domain. They argue for a rule which regulates that “v and T cannot both bear active Case features when they form a complex head” (A&A 2001: (46b)); in particular they contend that the complex head in (12), with two active (i.e. undeleted) Case features, is an illicit syntactic object.

carriage does not have an active θ -feature now. Therefore, the DP theme *baby carriage* cannot agree and move to [Spec, vP] and eventually to [Spec, TP]; this very fact accounts for why (i) is ruled out since no corresponding structure can ever be generated in the derivation to produce such a kind of sentence. Note that the difference between sentence (i) and the grammatical examples of LI lies in the nature of the category involved. In LI, it is a PP that undergoes fronting, while in OVS sentences such as (i) it is a DP that raises. As widely assumed in the literature, a PP is not ϕ -complete; therefore, it cannot check the features of the searching probe, which allows the probe to search for another potential goal with matching features. On the other hand, since the DP object is ϕ -complete, it can check all of the uninterpretable features of the probe so that the probe cannot enter into any other Agree relationship with any other category in the tree. In any case, what has been stated above shows that the unacceptability of (i) does not affect our main point here since what we argue in this paper is that PIC is the reason why AEC holds in the computational system, but we are not claiming that AEC is the only determining principle for all argument movement operations.



One potential problem with such a configuration is that the complex head T_{\max} is prohibited from having more Case features than undervied heads. Consequently, only one of the two Case features can pass up to T_{\max} in (12) and the other Case feature fails to enter into any checking relation, leading the derivation to crash. Another possibility, according to A&A, is that (12) creates a fatal ambiguity configuration since the Case features on T_{\max} can be either those of T or those of v. In a nutshell, on account of this rule, it is imperative that at least one Case feature must be checked before the complex head is formed and this is the reason why at least one of the DP arguments must be externalized from the VP in their account.

Despite the significant insights of their works, one critical problem of A&A's proposal is that the ban on multiple DPs in vP can be observed even when no v- T_{\max} conflation occurs. This is exemplified in (13).

(13) *There seemed to have solved a student the question.

As seen above, the verb *solve* is not amalgamated with T_{\max} ; nevertheless, the presence of two DPs (*a student* and *the question*) within the vP leads to ungrammaticality⁹. That is, the correlation of v-to-T raising and the emergence of the AEC does not appear to be sustainable. Since A&A's explanation crucially relies on the v-T conflation, which would result in an illegitimate syntactic object, the unacceptability of (13) falls mysterious under such an account. By contrast, the unacceptability of (13) is expected in the current proposal since the DP *the question*,

⁹ As discussed earlier, the ungrammaticality of (13) cannot be ascribed solely to the presence of an external argument.

with its uninterpretable features unchecked, is still left within the v*P phase no matter whether the operation of v-T raising takes place or not.

Another alternative account for the rise of the AEC is to suggest that the offending structure has an inherently instability¹⁰ so that one of the unstable elements must raise (Chomsky 2005, Moro 2000, Gallego 2006). A fatal problem of this symmetry approach is that it fails to capture the fact that DPs and PPs behave very differently with regard to the AEC. Note that there is a clear contrast between the following:

- (14) a. **“What time is it?” asked Mary John.*
b. *“What time is it?” asked Mary of John.*

All of the problematic cases in the empirical coverage of the AEC, as we have seen so far, have to do with two or more *DPs*, not just any two *XPs*. More importantly, under the symmetry proposal, the derivation is predicted to go wrong when, for example, there are two *PPs* occur in the VP domain, which prediction is not borne out either:

- (15) *“How much did you pay for this dress?” inquired John [of Mary] [about the price].*

Thus, under this approach, it is curious why *PPs* systematically differ from *DPs* because in label determination what matters should simply be that no two syntactic objects of the same size can be merged together. In the current proposal, other things being equal, the contrast in the behavior of *DPs* and *PPs* with regard to externalization is well expected: since *PPs* do not have any uninterpretable Case problem (instead, the *DP* complement of *P* can get Case from *P*), the asymmetry between *DPs* and *PPs* follows in a straightforward manner.

¹⁰ For instance, one possible way to formalize such instability is to say that what goes wrong in the occurrence of multiple *DPs* in *vP* is that a structure like {*XP*, *YP*} with labeling difficulties would be generated. Specifically the problem of {*XP*, *YP*} is that the computational system will encounter difficulties in deciding the label between the two syntactic objects of the same size so that no dependency can be established between *XP* and *YP* and the derivation can no longer proceed.

The last alternative I would like to discuss is the linearization approach (Richards 2006¹¹). Richards (2006) proposes a general theory to capture the ban on multiple objects of the same type that are too close together in different languages. According to this theory, the effects of the AEC can be explained as linearization failures inside the vP phase. In particular, linearization fails whenever the objects to be linearized in a strong phase are insufficiently distinct. In what follows I introduce how this system works in a nutshell.

Under Richards' proposed system, linearization makes reference only to node labels. All and only those nodes within a phase must be linearized (Kayne 1994) and there is a condition on linearization as in (16) at work in the grammar:

(16) *Distinctness*

If a linearization statement $\langle \alpha, \alpha \rangle$ is generated, the derivation crashes.

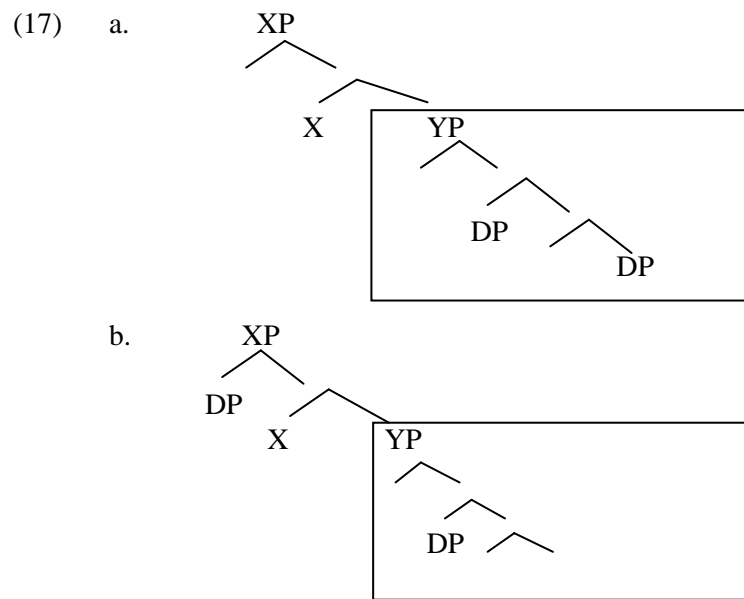
This Distinctness condition rejects trees in which two nodes that are both of type α are to be linearized in the same phase and are in an asymmetric c-command relation. Thus it follows that syntactic nodes with the same label must not be located too close together. To be precise, there is a ban on objects in a c-command relation with the same labels within the same Spell-Out domain¹². Objects of the same type, therefore, need to be separated by a phase boundary; otherwise they cannot be ordered with regard to each other. Three more assumptions are needed in Richards' proposal. First, following Nissenbaum (2000), it is assumed that the phase edge is linearized with the material in the higher phase. Second, DP is not a phase. Thirdly, the Distinctness violation does not involve lexical heads. Next let us consider the abstract cases in (17), for

¹¹ Richards (2006) proposes a general theory to capture the ban on multiple objects of the same type that are too close together in different languages. His work is in fact a much more ambitious project than the current one in that it discusses more empirical facts that those covered here, such as multiple sluicing, DP-internal arguments. In the discussion here we only focus on the evaluation of Richards' theory with regard to the AEC.

¹² Spell-Out occurs several times in the course of a syntactic derivation. It occurs as soon as a strong phase has been constructed. Spell-Out domains (i.e. strong phases) assumed in this account include CP, v*P, PP, KaseP, LinkerP.

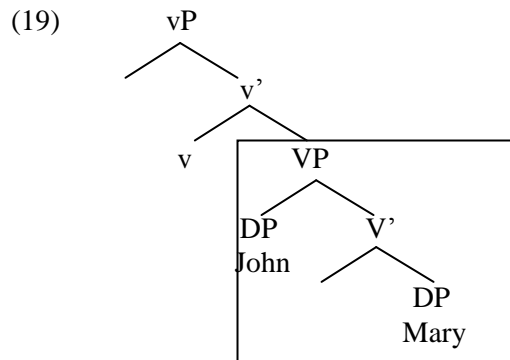
example, and suppose that XP is a strong phase for the purpose of discussion.

The tree in (17a) is unlinearizable because it would generate two objects with the same label (i.e. <DP, DP>) within the same Spell-Out domain; on the other hand, no linearization problem arises in (17b) since the two DP nodes are now separated by a phase boundary.



Next let us consider how Distinctness captures the AEC. To account for (18), following the Distinctness condition, all of the post-verbal material should be in the same Spell-Out domain, which might consist of the tree in (19):

(18) **“It’s cold,” told John Mary.*



The tree in (19) is unlinearizable. Its linearization statement includes $\langle \text{DP}, \text{DP} \rangle$, which represents the relation between the DP *John* and the DP *Mary*; as a result, such linearization statement will cause the derivation to crash.

Here I would like to point out a potential problem with this account. As mentioned in A&A (2007), the VSO orders in clitic-doubling languages such as Greek cannot be accounted for satisfactorily in this linearization account. Specifically, these languages show that multiple DPs are apparently allowed inside the vP as long as some other resort (such as clitic-doubling in this case) is available by which the DPs may eliminate their uninterpretable Case features.

- (20) an ehi idi diavasi [_{VP} prosektika [o Janis
if has already read carefully the-John-Nom
to vivlio]]
the-book-Acc
'if John has already read the book carefully'

Crucially, the fact that, under appropriate circumstances, multiple DPs are able to occur within the vP in clitic-doubling languages comes as a surprise to the linearization approach. In order to capture such facts, one plausible solution involves saying that certain types of agreement allow the grammar to distinguish the agreed-with DP from other DPs, making linearization statements successful (cf. Richards 2006 fn.3). Though this is not impossible to do, it will necessarily make the proposal more complex than it appears and, crucially, with the reference to abstract agreement, the fundamental generalization this proposal would like to achieve is lost: the ban on multiple DPs within the vP is a result of linearization problem at PF, similar to the Obligatory Contour Principle in phonology.

On the other hand, the data from clitic-doubling languages do not pose a challenge for us since, just as noted by A&A, these languages show that multiple DPs are allowed inside the vP because some other resort is available for resolving Case-related problems. In particular, following A&A (1998), we analyze the relation between subject agreement on the verb and the subject in languages permitting VSO constructions as an instantiation of clitic doubling and, more importantly, languages that permit clitic doubling of objects also permit feature movement without phrasal pied-piping in the case of subjects. Verbal agreement in such languages is thus a clitic. Under a generalized view of clitic doubling as feature movement without phrasal pied-piping, the subject in VSO constructions remains VP-internal, but its formal features have already raised and its Case has been checked before Spell-Out. In short, the Case of the in-situ subject is realized on the pronominal verbal agreement which has the status of a clitic and checks its Case/ ϕ features on T. Under this view, the inverted in-situ subject does not have an unchecked structural Case feature, despite appearances to the contrary.

Thus the current proposal, just as A&A's theory, can readily capture this fact.

4. CONCLUSION

To summarize, in this paper I discussed the generalization concerning the placement restrictions of arguments by Spell-Out. The empirical domain consists of constructions where subject movement is not required for reasons that have to do with the EPP, and, in these environments, whenever a sentence contains both a subject and a direct object in vP, one of the arguments must vacate the relevant domain. I suggested that argument externalization be a necessary outcome forced by the PIC. One of the arguments is forced to externalize because the movement of either (or both) argument(s) out of the opaque non-edge domain of the phase can make the argument(s) be re-accessible for further syntactic operations.

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論元外移現象之推導

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本文探討動詞組領域內論元出現及配置限制之現象。我們觀察的語料主要為主語倒置結構，且其中主語或賓語之移位均不為擴充投射原則 (EPP) 所驅使；進一步來說，我們探討許多倒裝結構中一項共有的特性，即若主語或賓語帶有不能詮釋的格位屬性，則其必須由動詞組內移出。本文認為此種論元外移現象可由語段無滲透條件 (PIC) 推導出，乃為此條件之必然結果。

關鍵字：論元外移、及物性限制、倒裝、擴充投射原則、格位、語段無滲透條件