

# On linearization as part of narrow syntax: The case of OSV/OVS structures

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*In this paper I explore an approach to linearization where this is part of core or narrow syntax. Based upon Kayne's (2011/2013) algorithm that processing follows the order of production, that is from left-to-right, and upon the timing condition that there be as little delay as possible between external Merge and eventual Spell-Out, I conclude that the constituent that appears linearized to the left-most extreme for any given sequence is the constituent that has actually completed the valuation of all corresponding features (Probe-Goal framework) before any other constituent. The evidence that I provide for such an approach relates to the accusative Case feature that O fails to value in (OSV) object-topicalization structures in English, and the accusative Case feature that O similarly fails to value in certain subordinate wh-structures (OVS) in Spanish. I defend the theory that Merge applies bottom-up, as in standard minimalist accounts, though I point out that it is perhaps necessary to rethink the concept of (successive) cyclic movement.*

**Keywords:** *first valued-first linearized (to the left); SVO sequences; (derived) OSV/OVS sequences; failure of accusative Case valuation; counter-cyclic elements.*

## 1. Introduction

The present article is part of wider research conducted by the author on the linearization of linguistic structures within a minimalist model of grammar. The aim of the overall research is to be able to account for cross-linguistic canonical orders where S, V, or otherwise O figure in initial position, and also for recurring derived orders within such canonical patterns. As is well known, SVO and SOV are the two most widely-spread canonical surface orders cross-linguistically, the remaining four possible combinations (VSO, VOS, OSV, OVS) corresponding to a much smaller number of languages – except arguably for VSO. In the present article I focus on English (canonical) SVO structures like (1) and on (derived) OSV/OVS structures in English and Spanish like (2) and (3), and my aim is to explore an approach where S and O, respectively, are linearized in the cited structures *previous to the time* of linearization of the other constituents in the sentence.

(1) *John has seen Mary.*

(2) a. *Mary(,) John has seen at the airport.*

b. *Who/Whom has John seen?*

(3) a. *Who/Whom has Peter claimed (that) John saw?*

b. *¿A quién has dicho que María vio?* (Spanish)

to whom have-you said that María saw

‘Who/Whom have you said María saw?’

The evidence that I present for the above-cited linearization process is relative to the failure of accusative Case valuation on the object of both English topicalization structures (see (4a)) and of Spanish subordinate structures whose matrix verb does not value accusative (see (4b)).

- (4) a. \**Her(,) John has seen at the airport.*  
b. *¿De qué se queja Juan que María compra?*  
of what complains.REFLEX Juan that María buys  
'What does Juan complain María buys?'

The discussion is organized as follows. In Section 2, I describe the process that a generalized minimalist framework postulates to apply at narrow syntax in order for an SVO and an OSV/OVS structure, respectively, to be derived. In Section 3, I propose an analysis of linearization where this is part of narrow syntax, which is based on an algorithm by Kayne (2011/2013) in conjunction with a specific timing condition, and I describe the process of computation that corresponds to SVO and OSV/OVS if such an analysis is endorsed. The evidence supporting the proposed analysis is provided in Sections 4 and 5: specifically, the evidence relates to the valuation of accusative Case in OSV/OVS structures. For linearization to be part of narrow syntax as in the approach that is explored here appears to contradict basic tenets of a core mechanism as is (successive-)cyclicity. In Section 5.1 I suggest that it could possibly be the case that cyclicity needs to be relativized. Section 6 is a summary of the discussion.

## 2. The process of derivation in a standard minimalist framework

The standard framework within minimalist theory postulates that linearization is a PF-phenomenon proper that is independent of computation at narrow syntax. In contrast, the present paper explores the idea of linearization as part of core or narrow syntax, a view that incidentally is adopted in various works in the literature (see in this respect Epstein & Seely (2002) or Fox & Pesetsky (2005), or also works within a different framework like Bianchi & Chesi (2014) or Chesi (2015)). In order to be able to specify the place of linearization within the overall process of derivation that is proposed here, I proceed to describing core tenets of the standard mechanism of derivation as applying in narrow syntax.

As is well known, the seminal framework of Chomsky (1995, 2000, 2001, 2004 et seq.) postulates a process of derivation that consists in the operations *Merge* and *Agree*, which are in charge of creating and licensing phrase structure in the component of core or narrow syntax. *Merge* consists in the combination of two syntactic units from the Lexicon/Numeration in order to construct a new syntactic unit, and *Agree* is the relation that is established between an element called *Probe* and an element called *Goal*, which the Probe searches for in order to license formal features, that is features such as  $\phi$ -features (person and/or number),  $\tau$ -features ([+/-present]), or Case-features. *Agree* can take place *in situ*, or it can demand for the corresponding *Goal* to move. Movement is also referred to in current minimalist terms as *internal* or *second Merge*, as opposed to the *external* or *first Merge* operation cited above, that is, the *Merge* of an element from the Lexicon/Numeration into the derivation itself.

At some point after the application of *Merge* and later *Agree*, the operation *Transfer* is argued to send the derivation from narrow syntax to the phonological component ( $\Phi$ ) and to

the semantic component ( $\Sigma$ ), and this way a pair <PHON, SEM> is generated. The operation that sends the derivation to the phonological component is also known as *Spell-Out*, and establishing the point(s) of Spell-Out is one of the basic aspects of the theory of *phases* (Chomsky 2000 et seq.).

In effect, Chomsky (2000 et seq.) postulates that, in order to minimize computational load, speakers segment a derivation (in their minds/brains) into chunks or pieces, which are referred to in the theory as *phases*, and establishes  $vP$  and CP as two such chunks or pieces, basing originally upon the semantic and phonetic independence of these. The principle known as the *Phase Impenetrability Condition (PIC)* states that a plausible point of Spell-Out, that is a point where linguistic material is expected to be sent away to the PF-component, is the complement of a phase. In case such a constituent needs to remain active in core syntax, then it is postulated that the constituent in question makes use of the edge of the phase as a kind of escape hatch: specifically, it is argued to move to the Spec position of the head of the phase.<sup>1</sup>

In accord with the description above, the derivation for a typical SVO sequence like (1) can be schematised as in (5) below.

- (5) a. Merge of V and O  $\rightarrow$  [<sub>VP</sub> V O]  
 b. Merge of  $v$   $\rightarrow$  [<sub>vP</sub>  $v$  [<sub>VP</sub> V O]]  
 c. Merge of S  $\rightarrow$  [<sub>vP</sub> S  $v$  [<sub>VP</sub> V O]]  
 d. Internal Merge of V  $\rightarrow$  [<sub>vP</sub> S  $v$  [<sub>VP</sub> (V) O]]  
 e. Spell-Out of the sister of  $v$  (that is, of VP)  
 f. Merge of T  $\rightarrow$  [<sub>TP</sub> T [<sub>vP</sub> S  $v$  // [<sub>VP</sub> V O] //]]  
 g. Merge of C  $\rightarrow$  [<sub>CP</sub> C [<sub>TP</sub> T [<sub>vP</sub> S  $v$  // [<sub>VP</sub> V O] //]]]  
 h. Internal Merge of S  $\rightarrow$  [<sub>CP</sub> C [<sub>TP</sub> S T [<sub>vP</sub> (S)  $v$  // [<sub>VP</sub> V O] //]]]  
 i. Spell-Out of the sister of C (that is, of TP)  $\rightarrow$  [<sub>CP</sub> C // [<sub>TP</sub> S T [<sub>vP</sub> (S)  $v$  [<sub>VP</sub> V O] //]] //]

Merge of elements from the Lexicon/Numeration (that is, external Merge) is argued to apply *bottom-up from right to left* (except possibly for the bottom-pair Merge, that is, V and O, since O merges to the right of V). The claim that Merge applies bottom-up from right to left results from the observation that Specifiers universally combine to the left of their heads, in conjunction with the circumstance that movement is typically to the left. As is well known, these have become by now two major principles or postulates of Antisymmetry theory (Kayne (1994 and also, soon after and very notably, Zwart (1997)). See (6) and (7) below. Incidentally, I ignore here the so-called *Bare Phrase Structure* model suggested in Chomsky (1995), where linguistic elements enter the derivation in an unordered way, and spatial relations are not considered to abide by Antisymmetry theory.

- (6) The universal base order Spec>head>comp is a consequence of:  
 a. asymmetric c-command relations between constituents  
 b. relations in (a) being ones of precedence.

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<sup>1</sup> As is well known, there are manifold aspects of the theory of phases that are currently under discussion, as is e.g. whether defective  $v$  (that is, the  $v$  that does not project a subject position) is a phase or not, or whether T is a phase or not, or whether T is to be considered a part of the  $v$ -phase or the C-phase (see e.g. Gallego 2010 for a general overview of phase-theory).

(7) Movement in linguistic structure is typically leftwards.

The steps or stages specified in (5) abide roughly speaking by the principles in (4) and (5). In effect, starting with (5a), here V is shown to combine with O, thereby creating VP. The little *v* head enters the derivation and merges with VP, as shown in (5b), and as a consequence *v*P is created. Subsequently, S(subject) is merged in Spec,*v* (5c).<sup>2</sup> Both the Merge of O and the Merge of S is justified through *s(ematic)-selection*: specifically, transitive (and likewise unaccusative) verbs *s*-select an internal argument or object, and transitive (and likewise unergative) verbs *s*-select an external argument.

Just after (5c), (5d) indicates the internal Merge or movement of V to the position of *v*.<sup>3</sup> At this stage, an Agree operation between *v* and O is expected to apply, by means of which O values its accusative Case, and *v* arguably values a D-feature which can be identified as some kind of aspectual feature or *Aktionsart* feature.<sup>4</sup> And, in the wake of (5d), (5e) shows the first operation of Spell-Out to apply in the derivation according to the standard framework: namely, the Spell-Out of the complement of the *v*-phase, which is actually O.<sup>5</sup>

As described above, the PIC mechanism prevents O from being sent to the PF-component in case O were to become the Goal for T. Such would be the situation if the sequence in question is a passive ([*Mary<sub>i</sub> has been [seen Mary<sub>j</sub>]]*]) or an unaccusative structure ([*Pete<sub>i</sub> has [arrived Pete<sub>j</sub>]]*]) or indeed a topicalization structure, as we will see immediately below for a sequence like (2a) or (2b).

As for (5f) and (5g), these represent the Merge of the heads T and C, respectively, and (3h) describes the internal Merge of S in Spec,T. An Agree operation is argued standardly to apply between S and T whereby T values its  $\phi$ -features (person and/or number features) and S, on its part, values its nominative Case feature,<sup>6</sup> and another Agree operation is argued to apply between T and *v*, by means of which T values  $\tau$ -features (+/-present]) against *v*. In addition to  $\phi$ -features, T is argued to value a D-feature against S, which would correspond to the original EPP-feature in the theory (also referred to currently as an *Edge-feature*) and which can be associated with the notion of *subject of predication*.

As observed in the Introduction, this paper focuses on structures introduced by S and structures introduced by O with an aim at explaining certain puzzles of the latter relative to Case within a different approach to linearization. Focusing then on (2a), this is an object-topicalization structure in English, and (2b) is an object *wh*-question.

It is widely known that topicalization structures and *wh*-movement structures (also referred to as focalization structures) have been analysed within generative theory ever since the Government & Binding era as structures where a constituent – a direct object nominal in the examples in (2) – is moved from its original position within the VP up into the Spec position of the Complementizer Phrase introducing the overall sequence. The treatment in question has undoubtedly proven fruitful, and has given rise to an immensely rich amount of

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<sup>2</sup> Note that VP in (5b) can of course take its own Spec, though such a position is not relevant for the present discussion, since it is typical transitive structures that are illustrated throughout. Spec,VP is needed for ditransitive structures, or also for certain types of unaccusative structures.

<sup>3</sup> The elements within parentheses indicate the *copy* created by movement or internal Merge: as is well known, movement is analysed as leaving a copy proper rather than a trace in minimalist syntax.

<sup>4</sup> As entailed by (6), Agree is ruled by a spatial relation, since the Probe is taken to c-command its Goal.

<sup>5</sup> From (5f) onwards, the double slash (//) is used to indicate the material that has already been sent to Spell-Out.

<sup>6</sup> As is well known, Pesetsky & Torrego (2004/2007) establish a connection between the nominative Case feature that S must value on the one hand and the  $\tau$ -features of T on the other. This aspect of the derivation is nevertheless not relevant for the present discussion.

literature.<sup>7</sup> In minimalist terms, the C head in (2a) and (2b) would have a topic-feature and a *wh*-feature, respectively, to value, and therefore an Agree relation is established between C and O, with the result that O is attracted into Spec,C. See the simplified structure in (8) below, which corresponds specifically to (2a).

(8)  $[[_{\text{Spec,CP}} \text{Mary}_O] [_{\text{CP}}] [_{\text{TP}} \text{John}_S \text{ has } [_{\text{vPtS}}] [_{\text{VP}} \text{seen } t_O \text{ at the airport}]]]]$



The derivation process that could, roughly speaking, be schematized for (2a) and (2b) is as follows.

- (9) a. Merge of V and O  $\rightarrow$   $[_{\text{VP}} \text{V O}]$   
 b. Merge of *v*  $\rightarrow$   $[_{\text{vPv}}] [_{\text{VP}} \text{V O}]$   
 c. Merge of S  $\rightarrow$   $[_{\text{vPS}} \text{v } [_{\text{VP}} \text{V O}]]$   
 d. Internal Merge of V  $\rightarrow$   $[_{\text{vPS}} \text{v } [_{\text{VP}} (\text{V}) \text{O}]]$   
 e. Internal Merge of O  $\rightarrow$   $[_{\text{vPS}} \text{O v } [_{\text{VP}} (\text{V}) (\text{O})]]$   
 f. Merge of T  $\rightarrow$   $[_{\text{TP}} \text{T } [_{\text{vPS}} \text{O v } [_{\text{VP}} (\text{V}) (\text{O})]]]$   
 g. Merge of C  $\rightarrow$   $[_{\text{CP}} \text{C } [_{\text{TP}} \text{T } [_{\text{vPS}} \text{O v } [_{\text{VP}} (\text{V}) (\text{O})]]]]]$   
 h. Internal Merge of S  $\rightarrow$   $[_{\text{CP}} \text{C } [_{\text{TP}} \text{S T } [_{\text{vP}} (\text{S}) \text{O v } [_{\text{VP}} (\text{V}) (\text{O})]]]]]$   
 i. Internal Merge of O  $\rightarrow$   $[_{\text{CP}} \text{O C } [_{\text{TP}} \text{S T } [_{\text{vP}} (\text{S}) (\text{O}) \text{v } [_{\text{VP}} (\text{V}) (\text{O})]]]]]$   
 j. Spell-Out of the sister of C (that is, of TP)  $\rightarrow$   $[_{\text{CP}} \text{O C } // [_{\text{TP}} \text{S T } [_{\text{vP}} (\text{S}) (\text{O}) \text{v } [_{\text{VP}} (\text{V}) (\text{O})]]]] //]$   
 k. Spell-Out of C  $\rightarrow$   $[_{\text{CP}} // \text{O C } [_{\text{TP}} \text{S T } [_{\text{vP}} (\text{S}) (\text{O}) \text{v } [_{\text{VP}} (\text{V}) (\text{O})]]]] //]$

If (9) is compared to (5) above, it can easily be acknowledged that the Spell-Out of O in step (5e) is now prevented in (9), since the PIC ensures that O remains in core syntax rather than being sent to Spell-Out. The reason why O must remain in core syntax is due to the fact that a [+topic] or otherwise a [+wh] feature must be valued between C and O, which results in the internal Merge of O in (9i). That is, O is expected to value accusative Case against *v* once the latter is merged and s-selects for S in (9c) – let us recall that *v* has this double function of s-selecting for an external argument and assigning (accusative) Case to an object – and O is also expected to value the above-cited [+topic] or [+wh] feature against C almost at the end of the derivation (see (9i)). Incidentally, the [+topic] or [+wh] feature that the nominal is to value against C can be analyzed as a kind of D-feature on C.

Now, as observed at the beginning of the Section, linearization is considered as a PF-phenomenon proper in the standard framework, and therefore as a phenomenon independent of computation at narrow syntax, that is, independent of the process in both (5) and (9) above.

<sup>7</sup> The sequences in (2) do not of course exhaust the typology of structures introduced by O in English. Consider for instance structures where O is a non-interrogative constituent playing the role of focus rather than topic, or structures where a topic and a focus co-occur with one another. There is actually a full typology of topics and foci as distinguished in the literature. It is widely known that such terms as *topic* or *focus* are part of long-established dichotomies within the area of information structure (cf. topic/comment, focus/presupposition, theme/rheme). In the decade of GB theory, a big body of work came to be published on the syntax-semantics interface of the so-called *left periphery* of sentence structure, mainly as regards the contrasts between the Romance family and the Germanic family.

The aim of this paper is to explore the hypothesis that linearization is part of narrow syntax. More specifically, my aim is to explore the idea that the point (or moment) at which Spell-Out of an element (or set of elements) takes place is to be identified as the point (or moment) at which such an element (or set of elements) is linearized. Since I further maintain the status of linearization as a PF-construct, then, on the present approach, the point at which an element is spelled-out or, the same, linearized is the point at which it is pronounced. In other words, my aim is to explore the hypothesis that S is spelled-out first in SVO, and O is spelled-out first in OSV/OVS. Incidentally, the task of the PF-component does not of course reduce to the parameter of linearization but includes all kinds of phenomena (of a phonetic and/or phonological kind) relative to the pronunciation of a linguistic sequence.

In Section 3 below I formalize the cited identification of linearization (or, the same, Spell-Out) as part of the mechanism of narrow syntax proper, and I provide for the corresponding alternative processes to (5) and (9) above. Afterwards, in Section 4, I proceed to presenting arguments in favour of the proposed analysis.

### **3. Present approach: First valued-First linearized to the left**

In order to support the idea that linearization (or the same, as in the present approach, Spell-Out) is part of the processing in core or narrow syntax, I propose to invoke an algorithm by Kayne, to be found in his recent (2011/2013) Antisymmetry work: see (10) below. Using terms already employed in Section 2 above, I take *parsing* in (10) as synonymous with *processing*, that is with the application of the operation Agree in the standard framework (which, as described in Section 2, is in charge of valuing corresponding features on heads and phrases) and *production* as synonymous with *linearization*.

- (10) Probe-goal search shares the directionality of parsing and of production  
→(=therefore) Probe-goal search proceeds from left to right. (Kayne 2011: 12)

This way, the place or role of the mechanism of linearization in the overall process of derivation can be argued to consist in that the position that a constituent holds in the final surface or PF-structure is the result of the constituent's having valued its features before the constituent that appears to its right.

Now, if the claim in (10) is complemented with the timing condition in (11)

- (11) There must be as little delay as possible between external Merge and eventual Spell-Out

then, as a result, a constituent will be expected first of all to Merge in the derivation, afterwards to engage in all corresponding Agree relations with other constituents, and then to be sent immediately to Spell-Out.

Based upon (10) and (11), and focusing on the subject of analysis of this very paper, the linearization or Spelling-Out and, ultimately, the pronunciation of *the initial constituent* for any given sequence will attend to (12) below. The task in the Sections that follow will be to show evidence in support of (12) as regards specifically structures with S and O, respectively, in initial position.

- (12) The linearization (=pronunciation) of a constituent to the left-most extreme of a given sequence means for the cited constituent to have valued all its corresponding features before any other constituent.

I would like to note that the present analysis does not rely on the existence of phases as described in Section 2 above, though it must be emphasized that I deal only with the linearization of the initial constituent (in SVO and OSV/OVS).

### 3.1 *Linearization of S(subject) in SVO sequences and linearization of O(object) in OSV/OVS sequences*

The evidence that will be presented in this paper in support of (12) has to do with the Case feature valued by O in OSV/OVS sequences. Before reaching that point, however, it is first necessary to specify the process of derivation of an SVO sequence like English (1) according to above-cited (12).

- (13) a. Merge of V and O  $\rightarrow$  [<sub>VP</sub>V O]  
 b. Merge of  $\nu$   $\rightarrow$  [<sub>VP</sub> $\nu$  [<sub>VP</sub>V O]]  
 c. Merge of S  $\rightarrow$  [<sub>VP</sub>S  $\nu$  [<sub>VP</sub>V O]]  
 d. Internal Merge of V  $\rightarrow$  [<sub>VP</sub>S  $\nu$  [<sub>VP</sub>(V) O]]  
 e. Merge of T  $\rightarrow$  [<sub>TP</sub>T [<sub>VP</sub>S  $\nu$  [<sub>VP</sub>(V) O]]]  
 f. Merge of C  $\rightarrow$  [<sub>CP</sub>C [<sub>TP</sub> T [<sub>VP</sub>S  $\nu$  [<sub>VP</sub>(V) O]]]]  
 g. Internal Merge of S  $\rightarrow$  [<sub>CP</sub>C [<sub>TP</sub>S T [<sub>VP</sub>(S)  $\nu$  [<sub>VP</sub>(V) O]]]]  
 h. Spell-Out or linearization of S  $\rightarrow$  [<sub>CP</sub>C [<sub>TP</sub>//S//...  
 i. Spell-Out or linearization of  $\nu$   $\rightarrow$  [<sub>CP</sub>C [<sub>TP</sub>//S  $\nu$ //...  
 j. Spell-Out or linearization of O  $\rightarrow$  [<sub>CP</sub>C [<sub>TP</sub>//S  $\nu$  O//

In effect, if the algorithm in (12) is applied, then the linearization or Spell-Out of O(object) in (13) is retarded as compared to the standardly assumed process in (5) above, with the caveat that in the approach explored here, that is in (13), Spell-Out is identified as linearization (see the justification for this in Section 3 immediately above). Thus, O in (5) is sent to Spell-Out immediately after the internal Merge of  $\nu$  and before the external Merge of T, whereas in (13) O is sent to Spell-Out or, the same, is linearized after the Spell-Out or linearization of both the subject and the verb. Incidentally, I would like to note that the linearization of the verb and the object figure as two different steps or stages in (13) just for the sake of convenience (see (13i–j)). The issue of whether each such constituent is actually a unit of Spell-Out on its own, or whether the verb phrase as a whole can or must constitute a Spell-Out unit is out of the scope of the present discussion. My main interest lies in establishing S as the first element to be linearized in the corresponding SVO sequence.

As regards the specific valuation of features that correspond to S and O in (1)/(13), which is to be contrasted below in this Section with the valuation of features in OSV, it must be recalled from the description in Section 2 above that T probes for S and both engage in an Agree relation whereby T values its phi-features and also a D-feature against S, and the latter values its nominative Case feature. As for the licensing of O, there is general consensus that O must value an accusative Case feature in the Agree relation that is established between  $\nu$  and O. It has been mentioned above in the paper that  $\nu$  is generally agreed to have a double

function of selecting for an external argument (S) and providing the internal argument (O) with accusative Case.

Now, S is clearly pronounced before O in SVO, and (12) comes to say that if S is pronounced before O, then it is processed and linearized before O. The claim or assumption in (12) appears to be in accord with ease of computation (since it establishes one and the same position for linearization and for pronunciation) but this is clearly not solid evidence to support the hypothesis that S is linearized before O in the derivation. That is, if we part from the assumption that linearization belongs within narrow syntax, and to this we add a second assumption such that the time of linearization coincides with that of pronunciation (as in the approach that I am exploring in this article) then it trivially follows that S will be the first constituent to be processed (that is, the first to undergo all corresponding Agree operations) and to be linearized in SVO. In other words, the argumentation is thus far completely circular. The way that I propose to cancel out this circularity is by applying the same kind of assumptions to the derivation of an OSV topicalization structure like (2a), or an OVS *wh*-structure like (2b). As shown immediately below, the effect of this is for the resulting derivation to contradict standard tenets relative to cyclicity, which will need to be discussed. The way to proceed will be to show in Section 4 below that the proposed approach appears to resolve important puzzles relative to accusative Case, that is the typical Case expected to be valued by O against *v*.

- (14) a. Merge of V and O (at the right-most bottom)  $\rightarrow$  [<sub>VP</sub>V O]  
 b. Merge of a null C at the left-most top extreme  $\rightarrow$  [<sub>CP</sub>C...  
 c. Internal Merge of O  $\rightarrow$  [<sub>CP</sub>O C [<sub>VP</sub>V (O)]]  
 d. Spell-Out or linearization of O  $\rightarrow$  [<sub>CP</sub>//O// C [<sub>VP</sub>V (O)]]  
 e. Merge of *v*  $\rightarrow$  [<sub>CP</sub>//O// C [<sub>VP</sub>*v* [<sub>VP</sub>V (O)]]  
 f. Merge of S  $\rightarrow$  [<sub>CP</sub>//O// C [<sub>VP</sub>S *v* [<sub>VP</sub>V (O)]]  
 g. Internal Merge of V  $\rightarrow$  [<sub>CP</sub>//O// C [<sub>VP</sub>S *v* [<sub>VP</sub>(V) (O)]]  
 h. Merge of T  $\rightarrow$  [<sub>CP</sub>//O// C [<sub>TP</sub>T [<sub>VP</sub>S *v* [<sub>VP</sub>(V) (O)]]]  
 i. Merge of TP  $\rightarrow$  [<sub>CP</sub>//O// C [<sub>TP</sub>T [<sub>VP</sub>S *v* [<sub>VP</sub>(V) (O)]]]  
 j. Internal Merge of S  $\rightarrow$  [<sub>CP</sub>//O// C [<sub>TP</sub>S T [<sub>VP</sub>(S) *v* [<sub>VP</sub>(V) (O)]]]  
 k. Spell-Out or linearization of S  $\rightarrow$  [<sub>CP</sub>//O S//...  
 l. Spell-Out or linearization of *v*  $\rightarrow$  [<sub>CP</sub>//O S *v*//

In effect, if (12) is applied to object-initial English structures like (2),<sup>8</sup> then it must be the case that O completes the licensing of its features previous to any other constituent. Since O in (2) is expected to value the D-feature of a [+topic] and a [+*wh*] C(omplementizer), as described for the standard analysis in (9) above, then I would like to propose that O merges internally from the position of sister of V into the corresponding position of CP, with the result that the bottom-to-top cycle as signalled in (9) above is interrupted.<sup>9</sup> That is, whereas the operation Merge is taken to combine heads with phrases, or phrases with phrases, in a

<sup>8</sup> Incidentally, the derivation of a *wh*- movement object-initial structure like (2b) would attend specifically to the process in (14) but with the additional fact that the [+*wh*] head C acts as a Probe for the auxiliary and attracts the latter into its own position.

<sup>9</sup> It must be noted that, in case accusative Case on O is identified as an *Aktionsart* feature on the verb (see brief reference in Section 2 above), then for O not to wait for the Merge of *v* means that the cited feature is valued by V on external Merge of V and O. This issue is nevertheless out of the scope of the present discussion.



bottom-up cyclic fashion, step (14b) above entails that C is introduced counter-cyclically, before the relevant intermediate structure gets inserted.

In the following Sections I argue why this approach could be on the right track.

#### 4. Evidence for the present approach relative to Case

The derivation in (14) above appears to be backed by the ungrammaticality of English (4a) above, and by the phenomenon illustrated by the Spanish *wh*-movement structure in (4b), both of which are repeated below with the original numeration. In the present Section I deal with (4a) while (4b) is the focus of Section 5.

- (4) a. \**Her(,) John has seen at the airport.*  
b. *¿De qué se queja Juan que María compra?*  
of what complains.REFLEX Juan that María buys  
'What does Juan complain María buys?'

In effect, I would like to argue that the lack of grammaticality of topicalization structures where O has pronominal status is not to be expected if, as postulated in the standard framework, O merges as the sister of V and does not merge in the corresponding position in CP until after *v*, S, and T are merged. As reflected in the derivation in (9) above, O is not to be sent to Spell-Out immediately after *v* merges, since it must be kept active until C is merged. Thus, O is argued to remain in the phase edge of *v*P (cf. mechanism of PIC) until the Probe of C searches down for O in order to value its D-feature (or [+topic] feature). In a crucial way, O is expected to value accusative Case against *v* once *v* merges in the derivation, and it is an accusative Case-marked O that is expected to serve later as the Goal for C and to merge internally in the Spec of C, as just described. The ungrammaticality of (4a) points, nevertheless, in the direction of topicalized objects not valuing Case, which would agree in a crucial way with the approach that is proposed in this paper that O merges directly from the position of sister to V into the C domain.

Effectively, there appears to be no reason why the linearization (or Spell-out) of O in (14) above should be delayed further than (14d). O just needs to be s-selected by its verb at the bottom of the derivation before being attracted by the C node into its Spec position. In other words, the grammaticality of (2a) vs. the ill-formedness of (4a) can be taken to indicate that O does not value (accusative) Case in object-topicalization structures, which means that it is not necessary for *v* to merge in the derivation before O is actually licensed. As has been mentioned on several occasions in the paper, the task of *v* consists in s-selecting for S and valuing accusative Case on O. A major justification for this is widely accepted to lie in the fact that accusative Case is not licensed in typical nominative-accusative languages until after nominative Case is licensed (cf. *John.NOM has seen her.ACC*). Such an axiom is therefore not contradicted in the approach to topicalization proposed here.

While it is true that the ill-formedness of (4a) could be due to discourse-related factors as e.g. the oddity of marking a nominal that is not a full-DP as a derived topic, the fact that the degree of grammaticality clearly improves in case accusative Case-marked O is the object of a preposition (see (15) below) appears to indicate that the ill-formedness of (4a) is *not* due to discourse restrictions, or to how information is negotiated in topicalization structures.

(15) *To her(,) John gave a bunch of flowers.*

It is of course necessary to also mention at this point OVS *wh*-structures like English (2b), repeated again below with the same numeration, since it clearly emerges that *whom* exhibits accusative Case. I would like to contend that *whom* does not value structural accusative Case, that is it does not value accusative Case in an Agree relation with *v*, but that the form *whom* is s-selected by V from the Lexicon as such. Arguing that *whom* values a kind of *lexical* Case is a situation that is not possible with e.g. *her* in (4a): this could be explained by the fact that *whom* must, by its very nature of a *wh*-item, be obligatorily attracted to Spec,CP positions (except for so-called echo-questions). I deal again with (2b) in Section 5 below.

(2b) *Who/Whom has John seen?*

I would thus like to conclude that the ungrammaticality of (4a) appears to support the hypothesis that O in (derived) OSV/OVS structures merges directly from the position of sister of V into the C domain, a kind of analysis that complies with the algorithm in (12), though it does so at the expense of cyclicity. The second argument that I would like to provide in favour of the approach proposed here has to do similarly with Case on O, though the relevant structures on this occasion are ones where *wh*-movement applies in multiple successive steps, hence it will be successive-cyclicity that will be put into question. I deal with these in Section 5 below. Later, in 5.1, I deal briefly with the question of rethinking cyclicity.

## 5. More evidence relative to Case: Successive-cyclic movement structures

The algorithm that is explored in the present paper is one like (12), which intuitively is in accord with ease of computation (in the brain/mind of speakers) and which specifically estates that a constituent is linearized to the left as soon as it values all corresponding features. After implementing it on canonical (English) SVO, my aim in Section 4 above has been to present evidence that such an algorithm could be on the right track. The evidence presented is based on the absence of valuation of accusative Case in English OSV structures (except when O happens to be *whom*, which values a kind of lexical accusative Case). In the present Section, I would like to focus on structures where so-called long *wh*-movement applies, since there appears to be solid evidence in favour of (12) within this domain in a language like Spanish.

As described in Section 2 above, OVS structures like English (2b) are ones where the phenomenon or mechanism of *wh*-movement has standardly been argued to apply (see (2b')), *wh*-movement being itself one of the hallmarks of generative theory ever since the Government & Binding framework. The novelty of the approach explored in Section 3 lies in arguing that the specific movement of the *wh*-element from the position of sister to V to the Spec,CP position takes place immediately after the external Merge of the *wh*-element itself as the cited object of V, an analysis that is coupled with the proposed algorithm in (12). See also below the relevant steps of the derivation in (14) above, repeated here with the original numeration.

(2b) *Who/Whom has John seen?*

(2b´) [[<sub>Spec,CP</sub>Who/Whom<sub>O</sub>] [<sub>CP</sub>has<sub>Aux</sub>] [<sub>TP</sub>John<sub>S</sub> t<sub>Aux</sub> [<sub>vPTS</sub> [<sub>VP</sub>see t<sub>O</sub>]]]]

- (14) a. Merge of V and O (at the right-most bottom) → [<sub>VP</sub>V O]  
 b. Merge of a null C at the left-most top extreme → [<sub>CP</sub>C...  
 c. Internal Merge of O → [<sub>CP</sub>O C [<sub>VP</sub>V (O)]]  
 d. Spell-Out or linearization of O → [<sub>CP</sub>//O// C [<sub>VP</sub>V (O)]]  
 ...

Now, the standard framework postulates successive-cyclic *wh*-movement for cases like English (3a) or Spanish (3b, b´), meaning by this that the *wh*-phrase moves from the position of object of the subordinate clause, bottom-up into the Spec,CP position of the main clause in successive steps, that is by stopping in the intermediate CP position: see (16) below.

- (3) a. *Who/Whom has Peter claimed (that) John saw?*  
 b. *¿A quién has dicho que María vio?*  
 to whom have-you said that María saw  
 ‘Who/Whom have you said María saw?’  
 b.´ *¿Con quién ha dicho María que Juan bailó?*  
 with whom has said María that Juan danced  
 ‘With whom has María said (that) Juan danced?’

(16) [[<sub>Spec,CP</sub>Who/Whom<sub>O</sub>] [<sub>C</sub>has<sub>Aux</sub>] [<sub>TP</sub>Peter<sub>S</sub> t<sub>Aux</sub> [<sub>vPTS</sub> [<sub>VP</sub>claimed [<sub>Spec,CPTO</sub> [Cthat] [<sub>TP</sub>John<sub>S</sub> [<sub>vPTS</sub> [<sub>VP</sub>saw t<sub>O</sub>]]]]]]]]]]

In the specific case of Spanish (3b), and exactly the same in (3b´), the *wh*-object is actually a prepositional object, which means that it values Case against the preposition. That is, the respective PPs *a quién* ‘to whom’ and *con quién* ‘with whom’ are s-selected by the subordinate verb and they end up in the Spec,CP position of the main clause,<sup>10</sup> and there is nothing that appears to contradict the fact that the process is as in (17) below, that is once again through successive cyclic movement.

<sup>10</sup> Incidentally, pied-piping is the only mechanism in Spanish as regards *wh*-movement of a PP, that is, preposition-stranded is not allowed.



the verb (or auxiliary) in the main clause has landed in the [+wh] C head position, then the relation of Agree that is typically established between a Spec and a head is responsible for O (in the cited Spec position) to be licensed as an object of the verb in the C head. Since the relevant verbs select for a PP, then the *wh*-element figuring in the initial Spec,CP position appears as such prepositional object.

In the present approach, O in both OSV and OVS structures (like topicalization structures and *wh*-movement structures) is thus expected to value its features before *v* (and likewise, before S or T) merges in the derivation. In accord with (12) then, O figures in initial position in the cited structure because it has its features valued before all other constituents.

### 5.1 On rethinking (successive-)cyclicality

Positing that a topicalized object or a *wh*-object merges internally into the Spec,CP position directly from the position of sister of V, as has been proposed here for (2) and (3), and as is more or less formally schematized in (14), goes of course against (successive-)cyclic movement. I would like to emphasize that nothing can be said against the rationale underlying the claim that movement is bottom-up in a perfectly cyclic way (as in (2)) or successive-cyclic way (as in (3)). The relevant theory has been actually present in generative grammar ever since Chomsky (1973) and has been developed in much detail in works like e.g. Takahashi (1994).

However, I would like to note that it might perhaps be the case that (successive-)cyclicality needs to be relativized, in the sense that the bottom-up Merge of heads and phrases could perhaps be subject to conditions relative to linearization, which cannot be characterized as belonging to the domain of performance, but which are part and parcel of the core process of computation, that is of core syntax. Whether this last statement has sense or not, I would like to emphasize that my purpose in presenting (14) as a process of core syntax proper in this paper – specifically, the process that corresponds to OSV/OVS structures – is the result of considering that an algorithm like (12), which incidentally cannot be said to contradict ease of computation – appears to account in an explanatory way for the accusative Case puzzles in the above-cited structures.

With the caveat then that the approach to linearization that I have explored in this paper must still be completed with the analysis of a wide range of structures like those mentioned in the Introduction, and with the caveat also that for a critique of (successive-)cyclicality to be tenable at all it is absolutely necessary to take into account such phenomena as e.g. binding facts or island effect facts, which appear to be explained in a neat way by the relevant theory, but which are out of the scope of the present paper, I would like to criticize in this last Section two specific kinds of arguments provided in the literature in support of successive-cyclic movement. The first of these relates to the phenomenon of subject inversion in a language like Spanish. The argument relies specifically on the ungrammaticality that is imputed to the kind of structure illustrated in (20b).

- (20) a. *¿Qué pensaba Juan que le **había dicho Pedro que había publicado la revista?***  
 what thought Juan that to-him had said Pedro that had published the journal  
 ‘What did Juan think that Pedro had told him that the journal had published?’  
 b. \**¿Qué pensaba Juan que **Pedro le había dicho que la revista había publicado?***  
 what though Juan that Pedro to-him had said that the journal had published  
 (Adger 2003: 383)

In effect, the argument goes that, since inversion is obligatory in case there is a *wh*-element in Spec,CP – note the contrast between (21a) and (21b) – then (20b), where no inversion applies, is not possible because there is no Spec,CP available for the *wh*-word *qué* ‘what’ to move through on its way to initial position.

- (21) a. *¿Qué quería Juan?*  
           what wanted Juan  
           ‘What did Juan want?’  
       b. \**¿Qué Juan quería?*  
           what Juan wanted  
           ‘What did Juan want?’

Now, though I agree with the grammaticality judgements of (21), both (20a) and (20b) are perfectly grammatical in my own idiolect, and also in the idiolect of the Spanish speakers that I have consulted. Therefore, *qué* ‘what’ could actually have *wh*-moved to absolute initial position in (20) despite the lack of an additional Spec,CP position.

The second piece of evidence that I would like to mention as cited in the literature in favour of successive-cyclic movement through intermediate Spec,CP positions hinges upon the hypothesis that Spec,CP is never an empty position, and that there is always either an overt element or a null operator that is syntactically active. Let us consider (22) below.

- (22) a. *I wonder whether he is feeling okay*  
       b. \**How do you wonder [whether he is feeling]?* (Radford 1997: 291)

The reason for the ungrammaticality of (22b) is claimed to be for Spec,CP of the subordinate clause to be occupied by *whether*, which makes it impossible for *how* to go past it on its way to the matrix Spec,CP. Now, the structure is likewise ungrammatical if the complementiser *if*, which is typically analysed as such C head, is used instead of *whether*, a situation that would be justified (see Radford 1997: 301) through resort to the presence of a null operator in Spec,CP – note (23). This way, the intermediate Spec,CP would *not* be available for the *wh*-element to move past it in (23), exactly as in (22b).

- (23) a. \**How do you wonder [if he is feeling]?*  
       b. [... [<sub>Spec,CP</sub>Op [<sub>Cif</sub> [<sub>TP</sub>he is...]]]]

I would like to note that the claim that all *wh*-structures in general have a Spec,CP position which is occupied by an overt or covert operator appears to be an ad hoc solution that goes against economy of derivation, and that a semantically-based solution should perhaps be provided for the facts above, along the same track as the explanation for the contrast between the ill-formedness of (24b) vs. the grammaticality of (25b).

- (24) a. *I asked [who saw what]*  
       b. \**I asked [what who saw]*

- (25) a. *I asked [which king invaded which city]*  
       b. *I asked [which city which king invaded]*

## 6. Summary

In the present article, I have explored the idea that the order in which the elements making up a sequence are linearized (or, the same, spelled-out) is part of the process of computing that applies at core or narrow syntax. My aim has been to focus on the initial constituent of SVO sequences and of topicalization and *wh*-movement OSV/OSV sequences, though the present discussion is part of a wider research on the topic, which also includes structures with V in initial position, or the head-initial/head-final (VO/OV) issue.

The algorithm that has been implemented estates that the constituent that appears to the left-most extreme of a sequence is the constituent that first completes the corresponding valuation of features. Such an algorithm is arrived at based upon Kayne's (2011/2013) claim that both parsing and production proceed from left to right, and upon the restriction that there be as little delay as possible between external Merge of a constituent and eventual Spell-Out.

The argumentation that has been provided in support of the approach, which incidentally appears to be in accord with ease of computation, relates to the valuation of accusative Case on O. It has been argued that topicalized objects in English can be proven not to value accusative Case, which is explained if O merges directly from the position of sister to V to the position of Spec of C, as entailed by the present analysis of linearization. Similarly, it has been argued that O in Spanish clauses embedded under a matrix verb that does not value accusative Case figure in Spec of C as objects of the preposition that is selected by the cited matrix verb, instead of exhibiting the accusative Case that should correspond to the verb that s-selects them.

The analysis that is proposed in the article endorses that the process of Merge is bottom-up, though it puts into question cyclicity as an absolute value.

## References

- Adger, David. 2003. *Core syntax : A minimalist approach*. Oxford: Oxford University Press.
- Bianchi, Valentina & Chesi, Cristiano. 2014. Subject islands, reconstruction, and the flow of the Computation. *Linguistic Inquiry* 45. 525–569.
- Chesi, Cristiano. 2015. On directionality of phrase structure building. *Journal of Psycholinguistic Research* 44. 65–89.
- Chomsky, Noam. 1973. Conditions on transformations. In Anderson, Stephen & Kiparsky, Paul (eds.), *A Festschrift for Morris Halle*, 232–286. New York: Holt, Rinehart & Winston.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Martin, Roger & Michaels, David & Uriagereka, Juan (eds.), *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, 89–156 Cambridge, Mass: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In Kenstowicz, Michael (ed.), *Ken Hale: A life in language*, 1–52. Cambridge, Mass.: MIT Press.

- Chomsky, Noam. 2004. Beyond explanatory adequacy. In Belletti, Adriana (ed.), *Structures and beyond*, 104–131. Oxford & New York: Oxford University Press.
- Epstein, Samuel David & Seely, T. Daniel. 2002. Rule applications as cycles in a level-free syntax. In Epstein, Samuel David & Seely, T. Daniel (eds.), *Derivation and explanation in the Minimalist Program*, 65–89. Oxford: Blackwell.
- Fox, Danny & Pesetsky, David. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31. 1–45.
- Gallego, Ángel. 2010. *Phase theory*. Amsterdam: John Benjamins.
- Kayne, Richard. 1994. *The Antisymmetry of syntax*. Cambridge, Mass.: MIT Press.
- Kayne, Richard. 2011/2013. Why are there no directionality parameters?. In Byram Washburt, Mary et al., (eds.), *Proceedings of the 28<sup>th</sup> West Conference on Formal Linguistics*, 1–23. Somerville, Mass.: Cascadilla Proceeding Project.
- Lasnik, Howard & Sobin, Nicholas. 2000. The *who/whom* puzzle: On the preservation of an archaic feature. *Natural Language and Linguistic Theory* 18. 343–371.
- Pesetsky, David & Torrego, Esther. 2004/2007. The syntax of valuation and the interpretability of features. In Karimi, Simin & Samiian, Vida & Wilkins, Wendy K. (eds.), *Phrasal and clausal architecture: Syntactic derivation and interpretation. In honor of Joseph E. Emonds*, 262–294. Amsterdam & Philadelphia: John Benjamins Publishing Company.
- Phillips, Colin & Lewis, Shevaun 2013. Derivational order in syntax: Evidence and architectural consequences. *Studies in Linguistics* 6. 11–47.
- Radford, Andrew 1997. *Syntactic theory and the structure of English*. Cambridge: Cambridge University Press.
- Takahashi, Daiko. 1994. *Minimality of movement*. University of Connecticut. (Doctoral dissertation.)
- Zwart, Jan-Wouter. 1997. The Germanic SOV languages and the Universal Base Hypothesis. In Haegeman, Liliane (ed.), *The New Comparative Syntax*, 246–267. London: Longman.

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