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On the Distribution of Headless vP/VP- Movement

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Abstract

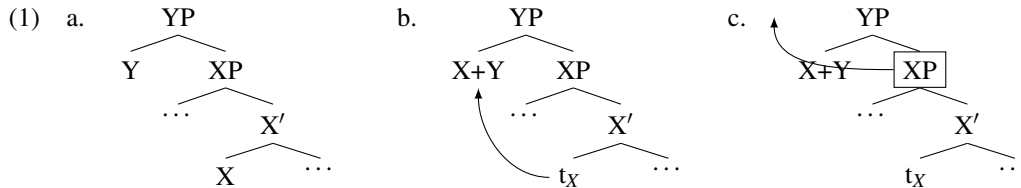
This paper argues that the distribution of headless vP/VP-movement is constrained by Cyclic Linearization (Fox & Pesetsky 2005). It is shown that headless vP/VP-movement in VO languages leads to a linearization failure, while headless vP/VP-movement in OV languages does not. It is also argued that VO languages allow headless vP/VP-movement if a linearization failure can be avoided through a repair strategy of verb-doubling.

On the Distribution of Headless vP/VP-Movement

Akihiko Arano*

1 Introduction

This paper focuses on the derivational possibility of headless XP-movement (Takano 2000, Funakoshi 2012, 2014) where X ranges over v and V. This possibility is shown below:



XP is a complement of Y, and its head undergoes head-movement to Y, making XP headless. (1c) illustrates what we call headless XP-movement.

The aim of this paper is to propose a new account of the cross-linguistic distribution of headless vP/VP-movement that is based on Cyclic Linearization (Fox and Pesetsky 2005). I argue that the distinction between VO and OV plays a crucial role.

2 Proposal: Cyclic Linearization and Headless vP/VP-movement

Under the theory of cyclic Spell-Out (Chomsky 2000, 2001), Fox and Pesetsky (2005) propose that linearization applies cyclically, and orderings established at a given point of the derivation cannot be changed later. Information on linearization is expressed as ordering statements, and the form $\alpha < \beta$ means that “the last element dominated by α and not dominated by a trace precedes the first element dominated by β and not dominated by a trace (Fox and Pesetsky 2005:10).”

Following Fox and Pesetsky (2005), suppose that VP and CP are Spell-Out domains in which linearization takes place, and consider the following derivation:

- (2) a. $[_{VP} X Y] : \text{Spell-Out of VP} \rightarrow X < Y$
 b. $[_{CP} X Z [_{VP} t_X Y]] : \text{Spell-Out of CP} \rightarrow X < Z < Y$

In (2a) we have VP in which X precedes Y. Once VP is spelled out, an ordering statement $X < Y$ is established in PF, and it cannot be modified later in the derivation. CP is the next derivational point at which Spell-Out applies. Within CP, Z is introduced into the derivation, and X is moved above Z.¹ After Spell-Out of CP, we get an ordering statement $X < Z < VP$. Since the first element dominated by VP and not dominated by a trace is Y, this ordering statement is equivalent to $X < Z < Y$. This ordering is consistent with what we got at the VP-level. Thus, the derivation converges.

Let us turn to the following derivation, where Y, instead of X, moves within CP:

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¹Under Fox and Pesetsky’s system, elements undergoing Spell-Out can still undergo movement as long as it does not result in a contradiction with the previous ordering statements. For them, there is no Phase Impenetrability Condition in the sense of Chomsky (2000, 2001). Rather, its effects follow from the architecture of the system.

- (3) a. $[_{VP} X Y] : \text{Spell-Out of VP} \rightarrow X < Y$
 b. $[_{CP} Y Z [_{VP} X t_Y]] : \text{Spell-Out of CP} \rightarrow Y < Z < X \rightarrow \text{ordering contradiction}$

The derivation at the VP-level is the same as before. Within CP, Z is introduced into the derivation, and Y is moved above Z. Spell-Out of CP creates the ordering statement $Y < Z < VP$, which is equivalent to $Y < Z < X$. Note that the ordering statement at the VP-level and the ordering statement at the CP-level are contradictory: The former says that X precedes Y, and the latter says that Y precedes X. Recall that the ordering statement cannot be deleted once it is established. Thus, it leads to a linearization failure and the derivation crashes.

Given this background, consider first the derivation of headless vP/VP-movement in VO languages:

- (4) Headless vP/VP-movement in VO languages
 a. $[_{VP} V IO DO] : \text{Spell-Out of VP} \rightarrow V < IO < DO$
 b. $[_{VP} \text{Subj } [_{v'} V+v] [_{VP} t_V IO DO]]$
 c. $[_{TP} \text{Subj } V+v+T] [_{VP} t_{\text{Subj}} [_{v'} t_V] [_{VP} t_V IO DO]]]$
 d. $[_{CP} [_{VP} t_{\text{Subj}} [_{v'} t_V] [_{VP} t_V IO DO]]] C [_{TP} \text{Subj } V+v+T] t_{VP}]$
 $: \text{Spell-Out of CP} \rightarrow IO < DO < \text{Subj} < V \rightarrow \text{ordering contradiction}$
 d'. $[_{CP} [_{VP} t_V IO DO]] C [_{TP} \text{Subj } V+v+T] [_{VP} t_{\text{Subj}} [_{v'} t_V] t_{VP}]]]$
 $\text{Spell-Out of CP} \rightarrow IO < DO < \text{Subj} < V \rightarrow \text{ordering contradiction}$

At the level of VP ((4a)), Spell-Out applies, and we get the ordering of $V < IO < DO$. This information must be preserved in the rest of the derivation. After the introduction of v and T, the verb and the external argument move out of vP, as shown in (4c). (4d) and (4d') illustrate headless vP-fronting and headless VP-fronting, respectively. These derivations both lead to a linearization failure: As a consequence of headless vP/VP-fronting, the internal arguments are required to precede the verb, but this situation is contradictory to the ordering statement we got at Spell-Out of VP. Thus, VO languages are predicted to prohibit headless vP/VP-fronting.

Let us next consider the relevant derivations in OV languages:

- (5) Headless vP/VP-movement in OV languages
 a. $[_{VP} IO DO V] : \text{Spell-Out of VP} \rightarrow IO < DO < V$
 b. $[_{VP} \text{Subj } [_{v'} [_{VP} IO DO t_V] V+v]]$
 c. $[_{TP} \text{Subj } [_{VP} t_{\text{Subj}} [_{v'} [_{VP} IO DO t_V]] t_V] V+v+T]$
 d. $[_{CP} [_{VP} t_{\text{Subj}} [_{v'} [_{VP} IO DO t_V] t_V]]] C [_{TP} \text{Subj } t_{VP} V+v+T] C]$
 $: \text{Spell-Out of CP} \rightarrow IO < DO < \text{Subj} < V$
 d'. $[_{CP} [_{VP} IO DO t_V]] C [_{TP} \text{Subj } [_{VP} t_{\text{Subj}} [_{v'} t_{VP} t_V]] V+v+T] C]$
 $\text{Spell-Out of CP} \rightarrow IO < DO < \text{Subj} < V$

In OV languages, Spell-Out of VP dictates that internal arguments precede the verb. As a consequence, an ordering statement at the VP-level and an ordering statement at the CP-level after headless vP/VP-fronting are consistent. Thus, OV languages are predicted to allow vP/VP-fronting, in principle.²

Cyclic Linearization thus predicts an asymmetry between VO and OV languages with respect to the possibility of headless vP/VP-movement. We explore this prediction below.

- (6) Prediction
 a. Headless vP/VP-movement is impossible in VO languages.
 b. Headless vP/VP-movement is, in principle, possible in OV languages.

²There are apparently constraints on remnant movement which are independent of our concerns. Compare e.g. German and English, German being extremely productive in this respect. We are concerned here with what is possible in principle - individual OV languages can still block headless vP/VP-movement (an instance of remnant movement) for independent reasons.

3 VO Languages

English is an SVO language with no verb movement to T (Emonds 1978, Pollock 1989). English should then not allow headless vP-movement for a trivial reason: Headless vP-movement is prohibited since headless vP cannot be formed due to the lack of V-to-T movement. Under the current analysis, headless VP-movement is also excluded in English, namely due to a linearization failure ((4d')). This prediction is correct: English allows headed vP-movement, but does not allow headless vP/VP-movement. On the vP movement option, (7b) is ruled out due to the impossibility of V-to-T in English and on the VP movement option, it is ruled out due to a linearization failure:

- (7) a. [Give the book to Mary], John did.
 b. *[The book to Mary], John gave.

Italian is another SVO language, but it has V-to-T movement. Headless vP can then be formed in this language. The present analysis predicts that headless vP/VP-movement in Italian is excluded as a violation of linearization. This prediction is correct. (8) shows that Italian does not allow the DO-IO-Subj-V order, which would be allowed if headless vP/VP-movement were possible³:

- (8)?*[Un libro a Maria], Gianni diede.
 a book to Maria Gianni gave
 'A book to Maria, Gianni gave.'

Consider next Irish and Scottish Gaelic. These languages are VSO languages, and have the same syntax in the relevant respects. It is widely assumed that the VSO word order of this type of language is derived from SVO order by verb movement (McCloskey 1991, Borsely and Roberts 1996). There are two types of analyses for this line of approach. The first analysis assumes that the external argument remains in its base position, and the verb moves to T. The second one assumes that the external argument undergoes movement, and the verb moves higher than the subject.

- (9) Two analyses for clause structure of VSO languages
 a. [TP V [_{VP} Subj t_v [_{VP} t_v O]]]
 (McCloskey 1991)
 b. [_{XP} V [_{YP} Subj t_Y [_{VP} t_{Subj} t_v [_{VP} t_v O]]]]
 (McCloskey 1996, Alexiadou and Anagnostopoulou 1998, Adger 2000, Thoms 2014a,b)

Under either analysis, the present approach to headless XP-movement predicts that headless vP/VP/YP-movement in these cases should be impossible since it leads to a linearization failure. (10a) and (11a) show that headed vP/VP-fronting in these languages is possible. (10b) and (11b) are examples of headless movement involving an external argument and internal arguments, and of headless movement involving internal arguments, respectively. As expected, these sentences are ill-formed:

³A headed counterpart of (8) is unacceptable:

- (i) *[Dato un libro a Maria], Gianni ha.
 given a book to Maria Gianni has
 'Given a book to Maria, Gianni has.'

This suggests that vP-movement in general is prohibited in Italian, and the headless vP-movement option in (8) may be excluded for that reason. Still, we need an account of why headless VP-movement is not allowed in (8).

- (10) Irish
- a. [Ag magadh orm]₁ a bheadh siad t₁.
 mock.PROG on-me C be.COND they
 ‘It’s mocking me that they’d be.’
 (McCloskey 2011:166)
- b. *[Eoghan t₁ an duais do Chiarán]₂ a bhéarfaidh₁ t₂.
 Eoghan the prize to Ciarán C give.FUT
 ‘It’s Eoghan the prize to Ciarán that will give.’
 (McCloskey 2011:166)
- (11) Scottish Gaelic
- a. ‘S ann [a’ faighinn leabharaichean bho Fheargais]₂ a bha Seònaig t₂.
 COP.PRES EXPL IMP get.VN books from Fergus.DAT C be.PST Seònaig
 ‘It is getting books from Fergus that Seònaig was doing.’
 (Thoms 2014a:2)
- b. *‘S ann [t₁ leabharaichean bho Fheargais]₂ a fhuair₁ Seònaig t₂.
 COP.PRES EXPL books from Fergus.DAT C get.PST.IND Seònaig
 ‘It is books from Fergus that Seònaig got.’
 (Thoms 2014a:2)

To summarize, this section has shown that SVO languages (English and Italian) and VSO languages (Irish and Scottish Gaelic) confirm the prediction that the headless vP/VP-movement is impossible in VO languages.

4 OV Languages

German is an OV language, and has verb raising. Under the present analysis, German is in principle a candidate for a language that allows headless vP/VP-fronting. Examples in (12) confirm that German does allow it:

- (12) a. [Dem Peter ein Buch gegeben]₁ hat die Claudia t₁.
 ART Peter.DAT a book given has ART Claudia.NOM
 ‘Claudia has given Peter a book.’
 (Müller 1998:4)
- b. [Kindern Bonbons t₁]₂ gibt₁ man besser nicht t₂.
 children.DAT sweets.ACC gives one.NOM better not
 ‘One shouldn’t give candy to children.’
 (adapted from Müller 1998:260)

Given that German is a V2 language, the bracketed phrases in (12) must form a single constituent, sitting in the first position of the clause. In (12a), the phrase in question is vP, and headed vP-fronting takes place. (12b) indicates that the constituent which consists of two internal arguments, but no verb can undergo movement. If German allows headless vP/VP-fronting, this is expected. Therefore, acceptability of (12b) supports the existence of headless vP/VP-movement in German.^{4,5}

Japanese is a rigid verb-final language. Also, based on Koizumi’s (2000) original proposal, Vermeulen (2008) and Funakoshi (2016) argue for the verb movement out of vP in Japanese from facts on coordination and verb-stranding VP-ellipsis, respectively. Japanese is then in principle a language that allows headless vP/VP-fronting. Arano (to appear) argues that Japanese has headless vP-fronting. Specifically, he argues that multiple scrambling in Japanese is analyzed as headless vP-fronting, as shown in (13b):

⁴See Müller 2004, Wurmbrand 2007, and Bildhauer and Cook 2010 for syntactic, phonological, and information-structural restrictions on this construction.

⁵The relationship between the OV order and the availability of headless vP/VP-movement is a one way correlation, that is, if a language allows headless vP/VP-movement, it is an OV language. Individual OV languages may not have headless vP/VP-movement for independent reasons. For example, Dutch does not allow the construction corresponding to (12b) (Takano 2000, Paula Fenger (p.c.)).

- (13) a. [_{VP} Mary-ni hon-o age-sae]₁ John-ga t₁ sita.
 Mary-DAT book-ACC give-even John-NOM did
 ‘Give Mary a book, John did.’
- b. [_{VP} Mary-ni hon-o t₂]₁ John-ga t₁ ageta₂.
 Mary-DAT book-ACC John-NOM gave
 ‘To Mary a book, John gave’

I repeat here one of the arguments for the headless vP-fronting analysis of multiple scrambling. Consider (14), where a subject and an indirect object are quantificational phrases. (14a) is a base-sentence. Since Japanese is a scope-rigid language, it is unambiguous, the subject scoping over the indirect object. (14b) shows that scrambling of the indirect object makes the example ambiguous. (14c) is an example involving multiple scrambling where scrambled phrases form a phonological unit. Importantly, as pointed out by Agbayani et al. (2015), this sentence is not ambiguous, i.e. multiple scrambling does not affect scope. If the derivation of multiple scrambling involved multiple separate application of scrambling, it would be mysterious why (14c) is not ambiguous. Under the headless vP-fronting analysis of multiple scrambling, on the other hand, this is expected: The indirect object never takes wide scope because it is embedded within vP and never c-commands the subject.

- (14) a. 3-tu-no ginkoo-ga Toyota-dake-ni monku-o itta.
 3-CL-GEN bank-NOM Toyota-only-DAT complaint-ACC said
 ‘Three banks made complaints only to Toyota.’
 three banks > only Toyota; *only Toyota > three banks
- b. Toyota-dake-ni₁ 3-tu-no ginkoo-ga t₁ monku-o itta.
 Toyota-only-DAT 3-CL-GEN bank-NOM complaint-ACC said
 ‘Only to Toyota₁, three banks made complaints t₁.’
 three banks > only Toyota; only Toyota > three banks
- c. Toyota-dake-ni₁ monku-o₂ 3-tu-no ginkoo-ga t₁ t₂ itta.
 Toyota-only-DAT complaint-ACC 3-CL-GEN bank-NOM said
 ‘Lit. Only to Toyota₁ complaints₂, three banks made t₂ t₁.’
 three banks > only Toyota; ??only Toyota > three banks
 (Agbayani et al. 2015:69)

To summarize, this section has shown that German and Japanese allow headless vP/VP-fronting, as expected by the present analysis.

5 (Apparent) Counterexamples

An apparent issue for the present analysis is raised by Hebrew, which is a head-initial language and has verb movement to T (Doron 1999). The present analysis predicts that Hebrew should not allow headless vP/VP-fronting since it is a VO language. However, Landau (2006) argues that it does allow headless vP-fronting, providing the following example:

- (15) [_{vP} likro et ha-sefer], hu kara.
 to-read ACC the-book he read
 ‘As for reading the book, he read.’
 (Landau 2006:50)

Landau argues that the derivation of (15) involves both head movement to T and headless vP-movement. Two copies of the verb (indicated by box) are phonologically realized for independent reasons.

- (16) [_{TopP} [_{vP} V+v DP] Top [_{TP} Subj V+v+T [_{vP} V+v DP]]]
-

I would like to suggest that Hebrew allows headless vP-movement despite its head-initiality because a linearization failure in this case can be avoided by pronouncing two copies of the verb. At the point of Spell-Out of VP, the verb precedes the internal argument. Under headless vP-fronting in Hebrew, this ordering statement can be preserved when Spell-Out of CP takes place since the copy of the verb within the fronted vP, which precedes the internal argument, is realized. Thus, verb-doubling serves as a repair strategy for a linearization failure.

This analysis predicts the obligatory pronunciation of a copy of the verb in the moved vP: If it were not pronounced, a linearization failure would arise. This prediction is correct:

- (17) a. *[še-hu he'eliv et Rina]_I, Gil hicta'er t₁.
 that-he insulted ACC Rina Gil regretted
 'That he had insulted Rina, Gil regretted.'
 (Landau 2006:54)
- b. [*(le'hicta'er) še-hu he'eliv et Rina]_I, Gil hicta'er t₁.
 *(to-regret) that-he insulted ACC Rina Gil regretted
 'As for regretting that he had insulted Rina, Gil regretted.'
 (Landau 2006:54)

(17a) shows that Hebrew does not allow topicalization of a CP-complement selected by *hicta'er* 'regretted.' Note that the same string would be derived if headless vP-movement without verb-doubling were allowed. Unacceptability of (17a) thus argues for the obligatory pronunciation of the copy in the moved vP.

The same line of analysis has been proposed for relevant constructions in different languages (see Abels 2001 for Russian, Vicente 2007 for Spanish, Bondaruk 2009 for Polish, and Bastos-Gee 2009 for Brazilian Portuguese). All of these languages are VO languages. The proposed account can then be extended to these case assuming that they involve true headless vP-/VP-movement (see Cable 2004 and Funakoshi 2014 for discussion)⁶:

- (18) Russian
 Dumat' o ženit'be (-to) on dumaet - no nikogda on ne ženitsja.
 think.INF about marriage (TO) he think.3SG but never he not marry-self
 'He does think about marriage, but he will never marry.'
 (Abels 2001:4)
- (19) Spanish
 a. Leer un libro, Juan lo ha leído.
 read.INF a book Juan CL has read
 'As for reading a book, Juan has read it.'
 (Vicente 2007:105)
- b. Leer un libro, Juan lo leyó.
 read.INF a book Juan CL read.PAST.3SG
 'As for reading a book, Juan read it.'
 (Vicente 2007:107)
- (20) Polish
 Kupić kwiaty (to) Marek kupi, ale nie kupi prezentu.
 buy.INF flowers PRT Mark will-buy but not will-buy present
 'As for buying flowers, Mary will buy them, but he won't buy a present.'
 (Bondaruk 2009:75)

⁶There is an issue of whether only VO languages have verb-doubling in the relevant constructions. If that is the case, verb-doubling can be taken as a last resort strategy. In OV languages, there would be no need to repair a linearization failure, hence no doubling. Afrikaans is relevant with regard to this point because it seems to be an OV language and have verb-doubling under predicate-cleft (Ian Roberts (p.c.)). I have to leave this issue for future research.

- (21) Brazilian Portuguese
 Temperar aquele peixe o cozinheiro temperou (mas ...)
 season.INF that fish the cook seasoned (but ...)
 ‘As for seasoning that fish, the cook seasoned it (but ...)’
 (Bastos-Gee 2009:162)

6 Conclusion

This paper has proposed the account of the cross-linguistic distribution of headless vP/VP-movement that is based on Cyclic Linearization. The prediction of the present analysis can be summarized as in (22):

- (22) a. In VO languages, headless vP/VP-movement is impossible unless a repair strategy like verb-doubling is available.^{7,8}

⁷Fox and Pesetsky (2005) suggest that Cyclic Linearization predicts that ordering contradiction can be avoided through ellipsis since ellipsis is a process of deleting ordering statements. This prediction is verified by the phenomena of ‘salvation by deletion’: since Ross’s (1969) seminal work, it is known that island effects disappear when ellipsis is involved.

The present analysis then expects that headless vP/VP-movement in VO languages becomes possible through ellipsis since it is constrained by Cyclic Linearization. McCloskey (2011) discusses *as*-parenthetical in Irish, assuming, following Potts (2002) that its derivation involves movement of phonologically null vP (see LaCara (2016) for arguments that this empty vP is derived via ellipsis). Specifically, he assumes its derivation involves the following configuration, where headless vP-movement takes place, and vP is phonologically empty:

- (i) [_{vP} ... t_v ...] ... V t_{vP}

Comparing this construction with (10b), where headless vP-movement with overt vP is involved, McCloskey (2011) argues that Irish allows headless vP-movement only when vP is null. This is exactly what the present analysis expects. I would like to leave discussion of other languages for future research.

⁸Wiland (2008) argues, based on the interpretation of *again*, that Polish allows headless VP-movement. Here I discuss the Polish paradigm using English words. (iia) shows that when *again* precedes the verb, we get the repetitive reading. (iib) shows that when *again* follows the verb, we get the restitutive reading. Wiland assumes that these two different readings arise because *again* modifies different projections in these cases (Stechow 1996, Beck and Johnson 2004): The repetitive reading obtains when *again* modifies vP, and the restitutive reading obtains when it modifies VP. (iic) and (iid) show that scrambling of one argument to the edge of vP does not affect interpretation of *again*. Importantly, the restitutive reading is available in (iie). Note that (iie) with this reading cannot be derived from (iia) via multiple scrambling to the edge of vP because that derivation will not lead to the restitutive reading. Therefore, it must be derived from (iib) via headless VP-movement as shown in (iii).

- (i) Jan znowu pisał Marii książkę.
 Jan.NOM again sent Mary.DAT book.ACC
- (ii) a. Jan again sent Mary the book (repetitive)
 b. Jan sent again Mary the book (restitutive)
 c. Jan again Mary sent the book (repetitive)
 d. Jan again the book sent Mary (repetitive)
 e. Jan again Mary the book sent (restitutive)
- (iii) a. [Jack [_{vP} again sent Mary the book]]
 b. [Jack sent [_{vP} again t_{sent} Mary the book]]
 c. [Jack [_{vP} again t_{sent} Mary the book] sent t_{vP}]

Polish is a head-initial language and there is no verb-doubling here. So this argument poses a problem to my analysis of headless vP/VP-movement. Here I would like to suggest that Polish allows headless VP-movement since it allows multiple scrambling within VP.

Marcin Dadan (p.c.) judges (iie) to allow a repetitive reading, which means that the word order in (iie) can be derived via multiple application of scrambling from (iia). If Polish allows multiple application of scrambling, then the following derivation should be possible for a restitutive reading.

- b. In OV languages, headless vP/VP-movement is in principle possible without any repair strategy.

This paper has provided evidence for this prediction based on a number of languages.

The present analysis also makes a prediction for phases other than VP. Suppose that DP is a phase (Bošković 2013a, 2014, 2015 among others). Since Spell-Out of DP requires a D-head to precede arguments selected by a noun, it is predicted that headless DP-movement is impossible if this movement makes the arguments precede the D-head. This prediction can be tested with languages like Galician, which allows D-incorporation (Uriagereka 1988, Bošković 2013b). I have to leave the investigation of this prediction for future research.

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- (iv) a. [_{VP} again V IO DO]
 b. [_{VP} again IO DO V t_{IO} t_{DO}]: Spell-Out of VP
 c. [_{VP} v+V [_{VP} again IO DO t_V t_{IO} t_{DO}]]
 d. [_{VP} [_{VP} again IO DO t_V t_{IO} t_{DO}] [_{VP} v+V t_{VP}]]

Importantly this derivation does not lead to a linearization failure. Thus, the availability of multiple scrambling within VP may be another factor that makes the headless VP-movement in VO languages possible.

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