# Circumstantial Evidence for Syntactic Head Movement[*]

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## 1. Introduction

Recently, a number of analyses have advanced a thesis that syntactic heads are immobile and that head movement does not exist in grammar (cf. Mahajan 2001, 2003; Müller 2004, a.o.) or is severely restricted (e.g. Koopman and Szabolcsi 2000, Nilsen 2003). Such approaches take dislocation of the head $X^0$ to be an instance of a remnant movement of the XP-constituent, preceded by vacating movements of other members of the XP. Detrimental to the claim that head movement does not exist is a scenario in which a dislocation of $X^0$ is *followed* by a remnant movement of the XP-constituent. Such a derivational scenario is outlined in (1).

(1) a. $[_{YP} Y^0 [_{\Sigma P} \Sigma^0 [_{XP} X^0 ZP]]]$

    b. $[_{YP} Y^0 [_{\Sigma P} X^0 + \Sigma^0 [_{XP} t_{X^0} ZP]]]$

    c. $[_{YP} [_{XP} t_{X^0} ZP][_{Y'} Y^0 [_{\Sigma P} X^0 + \Sigma^0 t_{XP} ]]]$

The only possibility of dislocating the head $X^0$ before remnant XP-fronting (in (1c)) is by $X^0$-movement (in (1b)).

In this paper, I argue that the derivational scenario in (1) is attested in Polish and it allows us to explain the interpretive contrast between (2a–d) and (2e).

(2) a. Jan    **znowu** posłał Marii    książkę.    (*repetitive*)
       Jan-NOM    again   sent   Mary-DAT book-ACC
    b. Jan    **znowu** Marii     posłał książkę.    (*repetitive*)
       Jan-NOM    again  Mary-DAT  sent   book-ACC
    c. Jan    **znowu** książkę     posłał Marii.    (*repetitive*)
       Jan-NOM    again   book-ACC   sent   Mary-DAT
    d. Jan    **znowu** posłał książkę     Marii.    (*repetitive*)
       Jan-NOM    again   sent   book-ACC  Mary-DAT
    e. Jan    **znowu** Marii     książkę    posłał.    (*restitutive*)
       Jan-NOM    again  Mary-DAT  book-ACC  sent
       "Jan (again) sent Mary the book (again)."

In (2a), the basic S-V-IO-DO word order is modified by a preverbal adverb *znowu* 'again', which receives a repetitive reading. When either the IO (in (2b)) or the DO (in (2c) and (2d)) is scrambled, the preverbal adverb *znowu* 'again' retains the repetitive reading. In contrast, when both objects are

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scrambled to a preverbal position and are preceded by *znowu* (in (2e)), the adverb receives a restitutive reading.

In what follows, I show that (2e) does not involve scrambling of individual objects, but a remnant VP-fronting preceded by the syntactic movement of the verb in $V^0$ to the little $v^0$. In this way, (2e) is an instantiation of the derivational scenario in (1).

## 2. Polish *v*P-internal scrambling

Polish is a consistent head-initial language. Witkoś (2003, 2007) on the basis of binding, reconstruction, and idioms argues that the basic word order in Polish is S-V-IO-DO (as in (2a)) and, on top of that, the *v*P-structure is as in (3) with the lexical verb in $V^0$ raising overtly to the little $v^0$.

(3)  …$[_{vP}$ $V^0 + v^0$ $[_{VP}$ $IO_{DAT}$ $[_V$, $t_{V^0}$ $DO_{ACC}$ ]]]

As shown in (2b) and (2c), either the IO *Mary* or the DO *book* can optionally scramble to a preverbal position. Additionally, as shown in (2d) the DO can undergo a very local scrambling across the IO, where it is fronted to a post-verbal position (see Wiland (in prep.) for discussion)[1].

Consider the derivations in (4). (4a) is an unmarked word order, which is an answer to the question "*What happened?*" Scrambled objects follow VP-adverbs like *szybko* 'quickly' or *wolno* 'slowly', which are located in Polish at the left edge of the *v*P.[2] I therefore take scrambling to a pre-verbal position to target Spec-*v*P, as in (4b,c).

(4)  a.  **Basic (unmarked) word order (cf. (2a)):**
         $[_{IP}$ Jan  $[_{vP}$ szybko $[_v$, posłał $[_{VP}$ Marii $[_V$, $t_{V^0}$ książkę ]]]]]
         Jan-NOM  quickly    sent      Mary-DAT   book-ACC

     b.  **IO scrambling across the verb (cf. (2b)):**
         $[_{IP}$ Jan  $[_{vP}$ szybko $[_{vP}$ Marii  $[_v$, posłał $[_{VP}$ $t_{DO}$ $[_V$, $t_{V^0}$ książkę ]]]]]]
         Jan-NOM  quickly    Mary-DAT sent                 book-ACC

     c.  **DO scrambling across the verb (cf. (2c)):**
         $[_{IP}$ Jan  $[_{vP}$ szybko $[_{vP}$ książkę  $[_v$, posłał $[_{VP}$ Marii $[_V$, $t_{V^0}$ $t_{IO}$ ]]]]]]
         Jan-NOM  quickly    book-ACC  sent       Mary-DAT

     d.  **Local DO scrambling across the IO (cf. (2d)):**
         $[_{IP}$ Jan  $[_{vP}$ szybko $[_v$, posłał $[_{VP}$ książkę $[_V$, Marii $[_V$, $t_{V^0}$ $t_{DO}$ ]]]]]]
         Jan-NOM  quickly    sent       book-ACC  Mary-DAT

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[1] On the basis of scope ambiguity, I show in Wiland (in prep.) that phase-internal scrambling in Polish results from movement, not base-generation. When both internal arguments are quantificational and the IO precedes the DO in the VP, only the surface scope reading is available. When the DO is scrambled across the IO like in (4d), both narrow and wide scope readings are available, which indicates that the IO c-commands a trace of the DO.

[2] There is some initial evidence that in Polish adverbs may scramble (also across other adverbs) leading to marked word orders. It remains unclear whether such constructions involve true adverb movement or movement of some other constituent whose only lexically realized subconstituent is the adverb. In (4) and throughout the paper, I discuss VP adverbs that occupy the preverbal position in which they receive a neutral reading.

e. **Scrambling of both objects across the verb (cf. (2e)):**

[$_{IP}$ Jan [$_{vP}$ szybko [$_{vP}$ Marii     książkę     posłał … $t_n$ … $t_{n+1}$ …]]]

       Jan-NOM quickly     Mary-DAT book-ACC    sent

Scrambling in Polish is optional and fronted constituents are marked as discourse-anaphoric (cf. Reinhart 1995, Neeleman et al. 2008). Within the *v*P, any constituent fronted by scrambling is interpreted as old information (or "given") and the sister to its landing site is interpreted as new information. For instance, in (4b) the fronted *Mary*-DAT is marked as old information and the material in the *v′*-constituent is marked as new information. In (4c) and (4d), the fronted *book*-ACC is marked as old information and the following constituent it is interpreted as new information.

## 3. The semantics of *again*

*Znowu* 'again' in Polish can receive a repetitive or restitutive reading, depending on the position it occupies in the clause. When *znowu* 'again' immediately precedes the verb (as in (2a) or (5a)), it receives a repetitive reading. When *znowu* occupies a position between the verb and the object (as in (5b)), it receives a restitutive reading. Crucially, *znowu* also receives a restitutive reading when it is placed between the verb and objects in a double object construction (cf. (6)):

(5) a.    Jan       **znowu**    otworzył  okno.              (*repretitive*)
           Jan-NOM  again       opened     window-ACC
    b.   Jan       otworzył  **znowu**   okno.              (*restitutive*)
           Jan-NOM  opened    again       window-ACC
(6)      Jan       posłał     **znowu** Marii      książkę.      (*restitutive*)
           Jan-NOM  sent        again      Mary-DAT  book-ACC

The repetitive ("outer") reading of (5a) presupposes that *Jan* himself had opened the window before. The restitutive ("inner") reading of (5b) presupposes that the window had been open before but was not necessarily opened by *Jan* or any other agent.

In what follows, I adopt a slightly modified version of von Stechow's (1996) and Beck and Johnson's (2004) analyses, which argue that the two readings of *again* depend on the projection it modifies.

Consider the representation in (7). Assuming that an adjunct modifies a projection to which it is a sister, when *again* is adjoined to the projection of the CAUSE-functor (attributed to the *v*P), it c-commands and takes scope over the Agent subject merged in Spec-*v*P and, hence, receives a repetitive reading. In contrast, when *again* is adjoined to the projection of the BECOME/STATE-functor (attributed to the VP), it does not c-command the Agent subject and, hence, receives a restitutive reading.

(7)
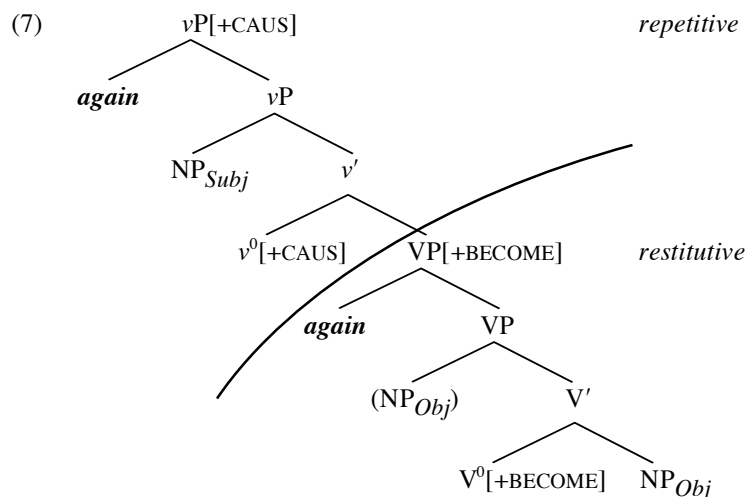
## 4. Scrambling of both objects as remnant VP-fronting

Assuming that a subject is base-generated in Spec-$v$P, the structural account in (7) explains the parallelism between the distribution of *znowu* 'again' and its different readings in (2a-d)/(5a) on the one hand, and (5b)/(6) on the other. However, *znowu* in (2e) receives a restitutive reading despite the fact that it is immediately followed by both objects scrambled to a preverbal position (identified as Spec-$v$P in (4)). This fact can be explained if (2e), repeated below, instantiates the scenario in (1).

(2)  e.  Jan       **znowu**  Marii     książkę    posłał.    (*restitutive*)
          Jan-NOM   again     Mary-DAT  book-ACC   sent

According to this scenario, the derivation of (2e) involves two independent movement steps, outlined below.

(8)  a.  $[_{vP}$ Jan$_{Subj}$ $[_{v'}$ $v^0$ $[_{VP}$ **znowu** $[_{VP}$ Marii $[_{V'}$ posłał   książkę $]]]$ $]]$
         Jan-NOM                        again            Mary-DAT  sent      book-ACC

     b.  $[_{vP}$ Jan$_{Subj}$ $[_{v'}$ posłał+$v^0$ $[_{VP}$ **znowu** $[_{VP}$ Marii $[_{V'}$ $t_{V^0}$  książkę $]]]$ $]]$
         Jan-NOM  sent                   again            Mary-DAT       book-ACC

     c.  $[_{vP}$ $[_{VP}$ **znowu** $[_{VP}$ Marii $[_{V'}$ $t_{V^0}$ książkę $]]]$ $[_{vP}$ Jan$_{Subj}$ $[_{v'}$ posłał+$v^0$ $t_{VP}$ $]]]$
         again            Mary-DAT       book-ACC           Jan-NOM         sent

The underlying representation of (2e) is as in (8a), with *znowu* adjoined to the projection of the BECOME/STATE-functor, the VP. The derivation proceeds as follows. First, in (8b), the verb in $V^0$ undergoes a syntactic $V^0$-to-$v^0$ movement, which derives the basic word order S-V-IO-DO. Second, in (8c), the remnant VP with the trace of the verb undergoes fronting to a preverbal position (presumably also to Spec-$v$P, on par with scrambled objects, as suggested for (4b,c)). The repetitive reading of *znowu* is unavailable in (2e)/(8c) since the adverb adjoined to the VP does not c-command the Agent subject in Spec-$v$P.[3]

## 4. Interim conclusion

The interpretive contrast like in (2) can be accounted for if the $V^0$-movement precedes the VP-fronting, but no other element than the $V^0$ itself vacates the VP. For this to be possible, a syntactic head must be mobile.

## 5. Some immediate issues

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[3] Note that despite the fact that I have assumed that the remnant VP is fronted to the edge of the $v$P just like scrambled objects are, the analysis of the semantic interpretation of (2e) does not rely on any specific assumption about the landing site of the fronted VP. If scope taking is determined by c-command, *znowu* 'again' adjoined to the VP is unable to scope outside the maximal projection of the VP. This, in turn, eliminates the subject from being scoped over if it is base-generated anywhere higher than the VP. Note also that if the structural analysis of *again* as pursued here is on the right track, then scrambling of both objects in Polish to a preverbal position is derived in a way opposite to what Sauerland and Elbourne (2002) conclude about double object scrambling in Japanese, which they take to be derived by independent movements of the objects. However, the landing sites of scrambling discussed in Sauerland and Elbourne (2002) and in the present work are different; for a detailed discussion see Wiland (in prep.).

In what follows, I consider three issues that relate to this conclusion: (i) the status of a headless VP movement, (ii) the trigger for the $V^0$-to-$v^0$ movement in Polish, and (iii) a scenario in which the restitutive reading of (2e) can potentially follow from the structure derived by phrasal movements only.

## 5.1. Is movement of a headless XP possible?

Similarly to the proposal that headless VPs in Polish can be fronted, movement of headless phrases has been argued to take place in other languages, including English, German, or Japanese. Some of the relevant examples on which such arguments have been advanced are given in (9)-(11).

(9)  English (Rochemont and Culicover 1990)
$[_{VP}\ t_{V^0}$ Into the room nude] walked John $t_{VP}$.

(10) German (Müller 1998)
(Ich glaube) $[_{VP}$ Kinder      Bonbons $t_{V^0}$ ] gibt    man besser nicht.
I believe      children-DAT candies-ACC  gives  one better not
"(I believe that) give candies to children, one had better not."

(11) Japanese (Koizumi 2000, Vermeulen 2008)
Mary-ga $[[_{VP}$ John-ni   ringo-o   2-tu $t_{V^0}$ ]-to $[_{VP}$ Bob-ni   banana-o   3-bon $t_{V^0}$ ]] ageta.
Mary-NOM  John-DAT  apple-ACC 2-CL     and     Bob-DAT banana-ACC 3-CL       gave
"Mary gave 2 apples to John and 3 bananas to Bob."

Despite some initial evidence for movement of headless phrases, the pertinent question is whether a headless phrase can ever undergo movement if the locus of the features of a phrase XP is the head $X^0$? It appears that the question reduces to what triggers movement in syntax. The two existing approaches say that (i) only (uninterpretable) features trigger movement (cf. Chomsky 1995, Collins 1997, a.o.), or (ii) that movement can be triggered by features but also by other requirements (cf. Williams 2003, a.o.). Since it is best to analyze Polish scrambling as derived by information-structural requirements rather than by checking an uninterpretable "old information feature", fronting of a constituent does not depend on agreement. If scrambling was triggered by feature checking in a specifier of a functional head, we would expect this head to be projected in a specific place in the universal functional hierarchy (cf. Cinque 1999). Meantime, as has been demonstrated, more than one position within the $v$P can serve as the landing site for a scrambled constituent.

It appears then that scrambling in Polish, including fronting of a headless VP, is licensed by a requirement which does not involve feature matching (perhaps this requirement can be further reduced to what Chomsky (2006) refers to as the Edge Feature, which is a property of lexical items to merge and remerge and is hence not specific to a single head in the functional hierarchy). All in all, if the VP-fronting is not about the features of the $V^0$, it seems that a headless VP can be licitly fronted.

## 5.2. Trigger for the $V^0$-to-$v^0$ movement

Another issue concerns the trigger of the $V^0$-raising to the little $v^0$, which takes place before remnant VP-fronting.[4] It appears that the obligatory verb movement satisfies the Stray Affix Filter. It is well-known that in Polish and other Slavic languages, verbs are formed by the merger of the root with a verbalizing suffix (known in phonology as a theme vowel). The list of Polish verbalizing suffixes is

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[4] I continue to assume that the upward movement of $V^0$ takes place before the remnant VP moves to a yet higher position. An alternative scenario would involve $V^0$-lowering from a fronted VP. There is no evidence for such a scenario, while there are good reasons to believe that the verb always moves upward to the little $v^0$ in Polish, which I discuss shortly. See also Witkoś (2007) who reaches a similar conclusion on independent grounds.

given in (12).[5] What I would like to suggest is that the theme vowel is a Spell-out of the little $v^0$ and the lexical $V^0$ raises to $v^0$ in the process of morphological word formation.[6]

(12)

| Verbalizing suffix | Infinitive (root+verbalizer+inf.) | Verbalizing suffix | Infinitive (root+verbalizer+inf.) |
|---|---|---|---|
| *-i-* | *pal-i-ć* 'burn' | *-aj-* | *zn-a-ć* 'know' |
| *-e-* | *widzi-e-ć* 'see' | *-ej-*[7] | *łysi-e-ć* 'lose hair' |
| *-Ø-* | *wzią-Ø-ć* 'take' | *-ova-* | *bud-owa-ć* 'build' |
| *-a-* | *pis-a-ć* 'write' | *-non-* | *kop-ną-ć* 'kick' |

In an approach to morphology like in Marantz (1997), the lexical $V^0$ roughly corresponds to a pre-categorial root, which forms a verbal stem by merging with the category assigning little $v^0$. Assuming that this is on the right track, we can explain why the verb (or rather, the root) always rises to the little $v^0$ in Polish (and, more generally, in Slavic). As shown in (13) on the example of the verbal stem *pal-i-* 'smoke', the root raises to the little $v^0$ to satisfy the Stray Affix Filter. While the little $v^0$ Spells-out as the theme vowel, the $[[\sqrt{}^0]\ v^0]$ complex Spells-out altogether as the verbal stem.

(13) **Formation of verbal stems on the example of *pal-i-* 'smoke'**
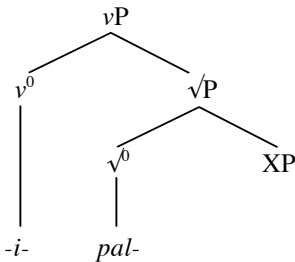
    a.   Underlying representation         b.    $\sqrt{}^0$-to-$v^0$ movement
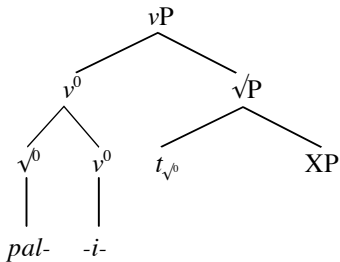


In (13a), the root and the verbalizing suffix are separate heads. In (13b), the root undergoes an upward head movement and merges with the verbalizing suffix in $v^0$. In concert with the Mirror Principle, the root surfaces to the left of the verbalizing suffix.

*5.3. Many phrasal movements in lieu of head movement?*

The argument for head movement developed in this paper holds only if the effect it is argued to derive cannot be derived by exlusive application of phrasal movements. However, if one is given the liberty to introduce some more (empty) escape projections into the clause structure then the surface word order of (2e) can be derived by phrasal movements. Despite this fact, the "phrasal" alternative remains considerably problematic. Consider a sample derivation in (14), where at least four phrasal movements must be postulated to derive the word order of (2e).

    In Step 1 of the derivation, the IO *Marii*-DAT is moved out of the VP and targets the XP, which is

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[5] For a discussion of the morphophonemic structure of Polish verbs see Laskowski (1975) and Czaykowska-Higgins (1988, 1998).

[6] Theme vowels determine some semantic and syntactic properties of verbal stems in Polish and Slavic. It is therefore plausible to assume that the theme vowel Spells-out the little $v^0$, which is taken to determine many of the properties of the argument structure in a phase-based framework (see also Marantz 2007). Nevertheless, there exist alternative views about the projections that theme vowels lexicalize, as for instance Jabłońska (2005) or Caha and Scheer (2008).

[7] Morpheme final glides in theme vowels *-aj-* and *-ej-* do not surface before the infinitival suffix *-ć-* [tɕ] due to the cyclic phonological rule of Glide Truncation, which deletes a glide before a consonant (Jakobson 1948). The underlying representations of these theme vowels surface in finite forms, as for instance in *łysi-ej-esz* (2Sg.Pres).

modified by *znowu* 'again'. In Step 2, the DO *książkę* 'book'-ACC is moved out the VP in such a way that it lands below the evacuated IO. This can be achieved either by postulating another escape projection, the YP (as indicated in the diagram), or alternatively, by "tucking-in" the DO below the IO in the XP. The choice between these two options seems to be immaterial to the derivation of the surface representation of (2e).

(14) a.
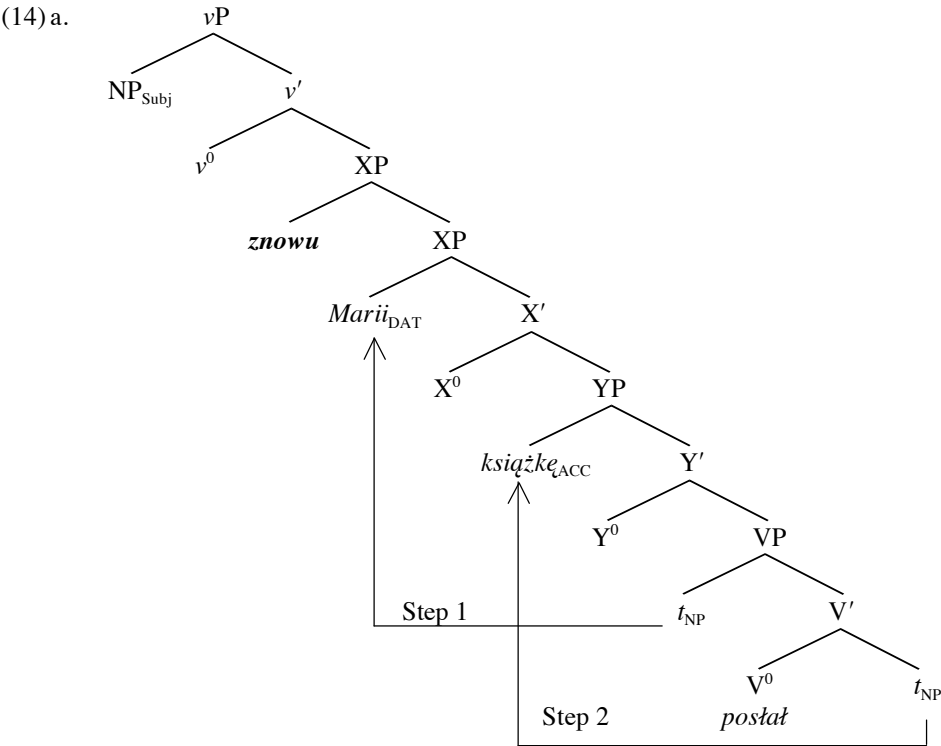


In Step 3, the remnant VP undergoes fronting to the edge of the *v*P. Finally, in Step 4, the entire remnant XP is fronted to a yet higher position (i.e. either to the edge of the *v*P as shown in the diagram, or alternatively, to a projection dominating the *v*P).

b.
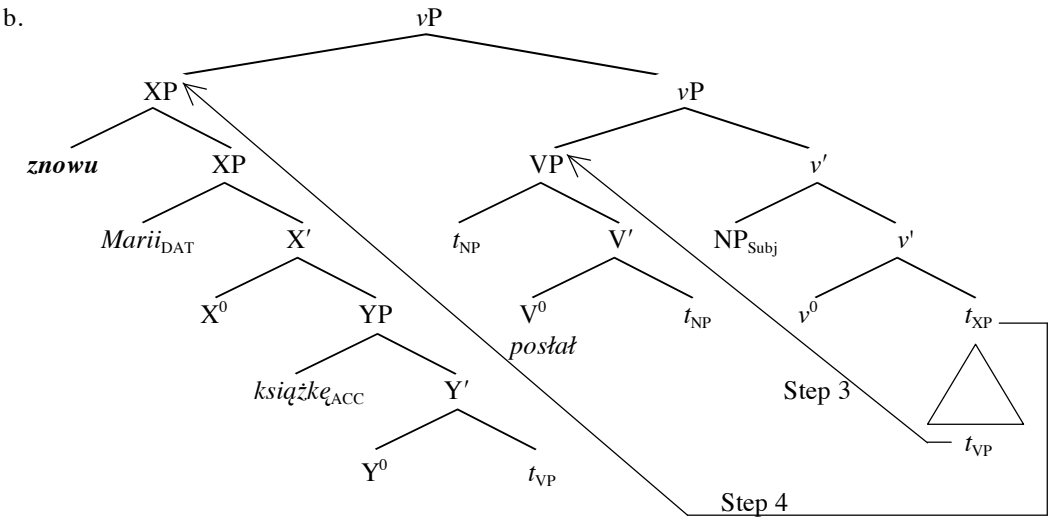
Such a derivational scenario faces at least two major challenges.[8] The first one is the existence of global look-ahead in syntax, which such a scenario must assume, since movements 1, 2, and 3 take place in order to facilitate the remnant XP-fronting in Step 4 of the derivation.[9] The second challenge concerns the morphological formation of the verbal stem. Since the merger of the root (or $V^0$) with the verbalizing suffix in $v^0$ is unavailable in this scenario, a different option must be sought. It seems that an immediate alternative to head raising would be to assume the verbal stem to be the Spell-out of a nonterminal node: the $v$P with the remnant VP in its specifier. The lexicalization of nonterminal nodes has been advanced on independent grounds (e.g. McCawley 1968; Weerman and Evers-Vermeul 2002; Neeleman and Szendroi 2007) and offers an alternative to approaches in which lexical insertion is allowed to target only terminal nodes (e.g. Embick and Marantz 2008). But the problem for taking the verbal stem to be the lexical realization of the $v$P together with the remnant VP in its specifier is that the formulation of a Spell-out rule for such a configuration must rely on the presence of NP-traces in the VP. This is especially problematic if traces are not syntactic primitives but copies and the decision about which copy to pronounce is made only at the Spell-out of a movement chain (cf. Groat and O'Neil 1996, Fox and Nissenbaum 1999, Bobaljik 2002). I leave these as challenges to practitioners of reanalyzing head raising as phrasal (remnant) movement.

## 8. Conclusion (maintained)

There are good reasons to believe that the restitutive reading of *again* in a construction like (2e) follows from a derivational scenario in (1). According to this scenario, $V^0$-movement precedes the fronting of the VP. In such a derivation, both movements have independent triggers and the displacement of the headless VP reveals an earlier application of $V^0$-raising.

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[8] The fact that in (14) the adverb *znowu* 'again' must be assumed to modify the higher escape projection (the XP) does not pose a challenge if one assumes an approach to adverbs like in Cinque (1999).

[9] Suffice it to say, if it can be successfully demonstrated that movements 1, 2, and 3 always apply independently and each for a different reason, then the global look-ahead problem does not exist.

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