

# THE TIMING OF HEAD MOVEMENT: EVIDENCE FROM PREDICATE CLEFTS

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## 1. Introduction

In this paper, I argue verb doubling in BARE VERB PREDICATE CLEFTS provides evidence supporting the hypothesis that head movement (or, more neutrally, HEAD DISPLACEMENT) is the result of a different operation from the one responsible for phrasal movement. Though some authors argue head displacement is a PF-branch phenomenon (see, *e.g.*, Chomsky, 2001; Harizanov and Gribanova, 2018), I argue this operation occurs before Spell-Out, at least if phrasal-movement is modeled under the Copy Theory of Movement (Chomsky, 1995). The primary evidence comes from the observation that predicate clefts require head displacement to derivationally feed overt  $\bar{A}$ -movement. Since overt  $\bar{A}$ -movement occurs before Spell-Out, head displacement also must. This challenges post-syntactic approaches to head displacement phenomena, but only if narrow-syntactic movement is modeled under the Copy Theory of Movement; multidominance requires post-syntactic head displacement.

### 1.1 Roadmap

In Section 2, I review the facts about predicate clefting and the relevant aspects of previous analyses that will be central to my discussion. I adopt the view proposed by Landau (2006) and Vicente (2007) that predicate clefting requires  $\bar{A}$ -movement of a bare verbal head to the left periphery. In Section 3, I discuss how this interacts with V-to-I movement under common view that head displacement is modeled as head-to-head movement before Spell-Out (Nunes, 2004; Vicente, 2007; Landau, 2006). Several syntactic copies of the verb are produced in a predicate cleft, and this raises many issues about which copies should be pronounced. I argue that under the Chain Reduction approach of Nunes (2004) there is no way to predict which copies in a will be pronounced. In Section 4, I propose this problem can be avoided if the number of copies of the verb can be reduced by some principled means, and I show the right results can be attained if head movement is an operation distinct from the copying that derives phrasal movement. Nonetheless, this operation must occur before Spell-Out and not on the PF branch. If phrasal movement is multidominant, however, head movement may occur after Spell-Out. I conclude in Section 5.

## 2. Predicate clefting

Predicate clefts come in two types. Some predicate clefts display a fronted verb phrase, which I refer to as VP CLEFTS, while others display only a fronted verb, which I call BARE

VERB CLEFTS. Examples from Spanish are given in (1) and (2). While Spanish exhibits both types, many languages have only one or the other or lack predicate clefts entirely.

- (1) *Spanish VP cleft* (Vicente, 2007, 63h):

[**Sal**-ir con María] Juan ha sal-ido.  
 go.out-INF with María, Juan has go.out-PTCP  
 ‘As for dating María, Juan has dated (her).’

- (2) *Spanish bare verb cleft* (Vicente, 2007, 62):

**Le**-er, Juan ha le-ido el libro.  
 read-INF Juan has read-PTCP the book  
 ‘As for reading, Juan has read the book.’

As can be seen, both kinds of predicate cleft involve duplication of some part of the verb (in this case, the verb root); in fact, this is a defining characteristic of the phenomenon. The focus of this paper is on bare verb clefts, as in (2).<sup>1</sup>

## 2.1 Bare verb predicate clefts cross-linguistically

Languages from many families exhibit bare predicate clefts. Examples (3)–(7) are a non-exhaustive sample of languages that display the phenomenon.

- (3) *Gungbe; Niger-Congo* (Aboh and Dyakonova, 2009):

**ɖù** wè sɛná ɖù blédì ló  
 eat FOC Sena eat bread DET  
 ‘Sena ATE the bread.’

- (4) *Hebrew (Modern); Semitic* (Landau, 2006):

**lirkod**, Gil lo yirkod ba-xayim.  
 dance.INF Gil not will.dance in-the.life  
 ‘As for dancing, Gil will never dance.’

- (5) *Hugarian; Ugric* (Vicente, 2007):

**Elolv**asni, nem olvasta el a könyvet.  
 PV.read.INF not read.3SG PV the book.ACC  
 ‘As for reading, he didn’t read the book.’

- (6) *Mandarin; Sinitic* (Cheng and Vicente, 2013):

**mǎi**, tā shì mǎi-le nà-běn shū.  
 buy he COP buy-PERF that-CL book  
 ‘As for buying, he bought that book.’

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<sup>1</sup>See LaCara 2016 for discussion of VP clefts and their relation to head movement.

(7) *Portuguese (Brazilian); Indo-European* (Bastos, 2001):

**Vend**-er, o João só vend-e livros usados.  
 sell-INF the João only sell-PRES books used  
 ‘As for selling, João only sells used books.’

Looking across languages, a general pattern emerges: There are two surface instances of the main verb. One of these appears in a lower, typically inflectional position, while the other is in some left-peripheral position.<sup>2</sup> This is schematized in (8).

(8) [CP **VERB** ... [IP SUBJ ... VERB+INFL [VP OBJ ... ]]]

I refer to the verb in the left periphery as the **CLEFTED VERB** (which is **bolded**) and the verb in the inflectional position as the **BASE VERB** (which is underlined).

## 2.2 Fronting the verb

For the purposes of discussion here, I assume the copy of the verb in the left periphery is generated by  $\bar{A}$ -movement of a syntactic head (an  $X^{min}$ -level element or syntactic terminal) to SpecCP, as proposed by Landau (2006) and Vicente (2007), at least for the languages under discussion.<sup>3</sup> The languages cited here lack operations that could generate remnant verb phrases that could undergo VP-topicalization (*e.g.*, Hebrew, Portuguese) or otherwise lack VP-topicalization operations altogether (*e.g.*, Gungbe, Hungarian, Mandarin). If heads can be moved to specifier positions – and there is no obvious reason why they cannot be (Matushansky, 2006) – then the pattern in (8) can be generated by moving a verbal head directly to SpecCP.<sup>4</sup>

The question is which verbal head moves to SpecCP. This seems to vary by language. Vicente (2007), for instance, proposes that  $T^0$  is targeted in Hungarian, while Harbour (1999) claims that  $V^0$  is the target in Classical Hebrew. Many languages, however, appear to target  $v^0$ , including Hebrew, Mandarin, Portuguese, and Spanish.

In general, I will abstract away from the precise head that undergoes movement to the left periphery, focusing largely on cases where  $v^0$  is the target. The important fact for the discussion below is that the clefted verb often bears inflectional morphology that is not associated with the verb root/ $V^0$ , as this serves as evidence that a head above  $V^0$  is moved to SpecCP (Landau, 2006; Vicente, 2007). As an example, take Spanish. Vicente (2007, 2009a) shows that in active clauses, the clefted verb is always an infinitive, regardless of the morphology of the base verb:

<sup>2</sup>This can be a topic or focus position depending on the language. The difference is inconsequential for the discussion here, so I will set it aside.

<sup>3</sup>Some languages, such as Polish (Bondaruk, 2009) and Russian (Aboh and Dyakonova, 2009) plausibly generate apparent bare verb predicate clefts with remnant VP movement, so I set them aside here.

<sup>4</sup>Some authors have proposed that verbs can move directly to  $C^0$ , either by skipping over intervening inflectional heads (Aboh and Dyakonova, 2009) or by excorporative movement out of inflectional heads (Nunes, 2004). The former requires violating the Head Movement Constraint (Travis, 1984); the latter violates the ban on excorporation (Baker, 1988). I adopt the Landau–Vicente proposal as it does not require such violations.

(9) *Clefted verbs must be infinitives in active voice clauses* (Vicente, 2007, 62):

- a. **Leer** / \***Leído**, Juan ha leído el libro.  
 read.INF / read.PTCP Juan has read.PTCP the book  
 ‘As for reading, Juan has read the book.’ (Aspectual morphology)
- b. **Leer** / \***Leyó**, Juan leyó el libro.  
 read.INF / read.PST Juan has read.PST the book  
 ‘As for reading, Juan read the book.’ (Tense Morphology)

However, if the clause is passive, the clefted verb must bearb passive morphology as well:

(10) *Bare verb cleft* (Vicente, 2007, 71):

- Reparada** / \***Reparar**, la puerta ha sido reparada.  
 repaired.PASS.FEM / repair.INF the door.FEM has been repaired.FEM  
 ‘As for being fixed, the door has been fixed.’

Assuming that  $v^0$  is the locus of voice features and morphology, Vicente reasons that the element moved to SpecCP must contain  $v^0$  in order to explain how voice morphology appears on the clefted verb (see Landau 2006 for a similar argument from Modern Hebrew). Tense and aspectual morphology do not appear on the clefted verb as in (9) presumably because clefting does not target  $T^0$  or  $Asp^0$ , which are presumably higher in the structure:

- (11) [CP **le-er** [TP Juan le-(er)-yó [VP **le-er** [VP le- libro ]]]] = (9b)
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As for the infinitival morphology on the clefted verb in active contexts, Vicente (2007, 71, 106, 110) assumes that this is just the default exponence of an active verb in contexts where tense has not been suffixed to the verb; Bastos (2001, 123–126) makes a similar claim for Portuguese, which shows the same behaviour (7). Following Vicente’s discussion, I assume more specifically that the infinitive is actually a realization of active  $v^0$ .

Thus, on the view where semantic and inflectional pieces of the verb are distributed across several heads in the clause structure (Baker, 1988; Halle and Marantz, 1993; Gribanova, 2017; McCloskey, 2017, *inter alia*), it follows that the clefted verb cannot be just  $V^0$  (or the verb root). The element that moves must contain the verb root *and* information about voice/argument structure; furthermore, it must exclude tense and aspect features. This suggests that  $v^0$  is the target and no higher or lower head.

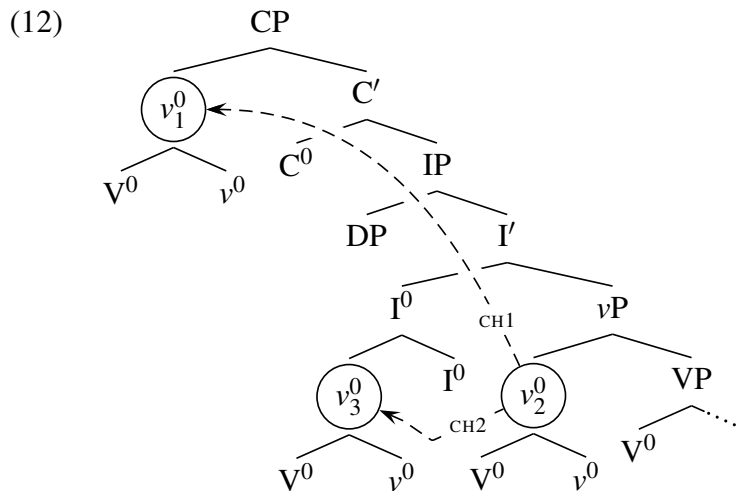
In the following two sections, I focus on the nature of the base copy of the verb and how it comes to be pronounced in an inflectional position. This is critical to understanding how the verb is pronounced twice.

### 3. The failure of narrow-syntactic head movement and chain reduction

In this section, I discuss how predicate clefting is analyzed under the assumption that head displacement is modeled under the Copy Theory of Movement. I argue that under Nunes’s (2004) Chain Reduction it is not possible to determine which copies of a verb will be pronounced in a predicate cleft without stipulation (see also LaCara, 2016).

### 3.1 Predicate clefts with head movement

The typical assumption in the literature has been that the base copy of the verb is generated by head-to-head movement in the narrow syntax. The main verb moves from its base position to some inflectional position, which could be, *e.g.*, a tense, agreement, or aspectual position; here I simply label this position  $I^0$ . Assuming this head displacement is narrow-syntactic movement under the Copy Theory of Movement, V-to-I movement generates at least one additional copy of  $v^0$ . Thus, along with the topicalization of  $v^0$  discussed above, at least three syntactic copies of  $v^0$  exist in any predicate cleft.<sup>5</sup> Furthermore, these copies exist in two separate movement chains exist, labeled CH1 and CH2 in (12).



We know that  $v_1^0$  and  $v_3^0$  will ultimately be pronounced, so the question is (i) why the grammar permits two copies to be pronounced, and (ii) why these are the two copies.

One of the best worked-out approaches to understanding which copies of an element will be pronounced is Nunes's (2004) CHAIN REDUCTION, which some built-in mechanisms allowing more than one copy of an element to be pronounced. The problem, I argue, is that the pronunciation of multiple syntactic copies of a verb in a predicate cleft reduces to little more than a stipulation that Chain Reduction ignore certain copies of the verb; without this stipulation, predicate clefting would be impossible. First, however, I must introduce how Chain Reduction works.

### 3.2 Chain Reduction

The Copy Theory of Movement derives movement by creating and deleting copies of syntactic material. This means that there must be an operation that deletes extraneous copies.

<sup>5</sup>I set aside discussion of the copies of  $V^0$ ; as can be seen in (12), four copies of  $V^0$  exist in a simple predicate cleft, but elimination of the additional copies is straightforward under any approach to head movement and does not immediately bear on the discussion below.

Nunes (2004) proposes that this operation is CHAIN REDUCTION. Under normal circumstances, this operation leaves all but one copy of an element behind at PF, but under some circumstances the process may leave behind multiple copies of the same element, giving rise to multiple pronounced instances of that element.

One of the key goals of Chain Reduction is to explain why typically only a single copy of an element may be pronounced at PF and, indeed, why any copies should be deleted at all. Nunes proposes that this comes about due to constraints on linearization (following Kayne's (1994) LINEAR CORRESPONDENCE ALGORITHM, or LCA). By hypothesis, individual links in a movement chain count as non-distinct for the purposes of linearization. Nunes proposes that non-distinct elements cannot be linearized relative to one another as doing so would violate IRREFLEXIVITY (13), the requirement that no element precede itself. Consequently, it is not usually possible to linearize two copies of the same element, so in order to linearize a structure containing copies of some element  $\alpha$ , all but one copy of  $\alpha$  must be deleted. CHAIN REDUCTION, given in (14), is responsible for this deletion.

(13) IRREFLEXIVITY (Nunes, 2004, 24):

If  $\alpha$  precedes  $\beta$ , then  $\alpha \neq \beta$ .

(14) CHAIN REDUCTION (Nunes, 2004, 27, (44)):

Delete the minimal number of constituents of a nontrivial chain CH that suffices for CH to be mapped into a linear order in accordance with the LCA.

A simple case of Chain Reduction can be demonstrated with subject movement in a passive (15).<sup>6</sup> The subject *John* originates as the complement of the verb *elect*. Movement of the subject from its base position to subject position generates a second copy, here *John*<sub>2</sub>. The two copies of *John* are treated as non-distinct. It is therefore not possible to pronounce both because *John* would have to both precede and follow itself. Chain Reduction will therefore delete *John*<sub>1</sub> in order to avoid the violation of irreflexivity. *John*<sub>2</sub> is preserved on the assumption that it checks more features than *John*<sub>1</sub> (e.g., Case or the EPP). As a result, only one copy of the subject is pronounced.

(15) [ *John*<sub>2</sub> [ was [ elected ~~*John*<sub>1</sub>~~ ] ] ]

### 3.3 Multiple chains and multiple copies

Unfortunately, Chain Reduction does not immediately give us an obvious handle on why two copies of the verb are pronounced in predicate clefts, though it does give us a partial explanation of which verbs will be pronounced. Indeed, Chain Reduction correctly predicts that  $v_2^0$  will be deleted, since it is the tail of both chains CH1 and CH2 in (12). Furthermore, under the assumptions of the Landau–Vicente analysis adopted in Section 2.2, copies  $v_1^0$  and  $v_3^0$  are in different movement chains, so as defined in (14), Chain Reduction can only

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<sup>6</sup>Here and throughout, I label copies with a subscripted number as a means of referring to specific copies; this is for convenience and is not represented theoretically; Copy Reduction cannot see these.

target copies of an element that form a chain. In some sense, this is what we want:  $v_1^0$  and  $v_3^0$  are not targeted for deletion by Chain Reduction.

The problem is that pronouncing both  $v_1^0$  and  $v_3^0$  should violate Irreflexivity (13) – the two copies of the verb are non-distinct and as such should not be linearizable. Since Chain Reduction cannot target either remaining copy of  $v^0$ , it predicts, without any other assumptions, that Predicate Clefting should be ungrammatical.

Nunes proposes that this problem can be avoided on the assumption that complex heads, like those formed by verb movement, can be MORPHOLOGICALLY REANALYZED into morpho-syntactically atomic units. This makes their internal structure invisible to the LCA and, therefore, Irreflexivity and Chain Reduction. Since the internal structure of the re-analyzed complex head is eliminated by this process, any copies that made up that complex head are also eliminated and, therefore, become invisible to the LCA.

Nunes (2004) proposes that the clefted verb ( $v_1^0$ ) is Morphologically Reanalyzed in a predicate cleft. This eliminates the internal structure of  $v_3^0$ , making it distinct from  $v_1^0$  in the complex  $T^0$  head and allowing both to be pronounced. The problem is that there is no independent evidence this occurs. There is no proposed (morpho-)phonological reflex of this reanalysis other than the verb being pronounced twice. It seems Morphological Reanalysis is invoked here only because under this system the only way more than one copy of an element can be pronounced is if one of the copies is Morphologically Reanalyzed: If two copies are pronounced, then one must have been Morphologically Reanalyzed. But this logic is circular: An element is pronounced twice when Morphological Reanalysis occurs, and we know that Morphological Reanalysis occurs when an element is pronounced twice.

Some authors have argued that Morphological Reanalysis is linked morpho-phonological effects. Bastos (2001, 126) argues that Morphological Reanalysis occurs when copies are morpho-phonologically distinct. She points to the fact that the clefted verb in Portuguese bears infinitival morphology that is not present in the base copy, as in (7), suggesting the appearance of this distinct morphology results in the verb being reanalyzed. This cannot be a general, cross-linguistic property of Morphological Reanalysis, though. In some languages, such as Mandarin (6), clefted verbs lack any infinitival morphology distinguishing them from base verbs, and as in Gungbe (3) and Spanish passives (10), the base verb and clefted verb may be morpho-phonologically identical. If morpho-phonological distinctness were required for (or the result of) Morphological Reanalysis, the expectation is that clefted verbs in these languages would have to be distinct, which is not borne out.

What we need here is a general explanation of why verbs can be pronounced twice in predicate clefts without stipulating that one of them undergoes an operation rendering it invisible to the linearization algorithm. As I argue in the following section, this can be done if we assume that the displacement of heads does not generate new copies of that head.

#### **4. Non-movement approaches to head displacement**

Many of the issues above would be solved if the number of verb copies produced by predicate clefting could be limited in some principled manner. In this section, I argue that this is

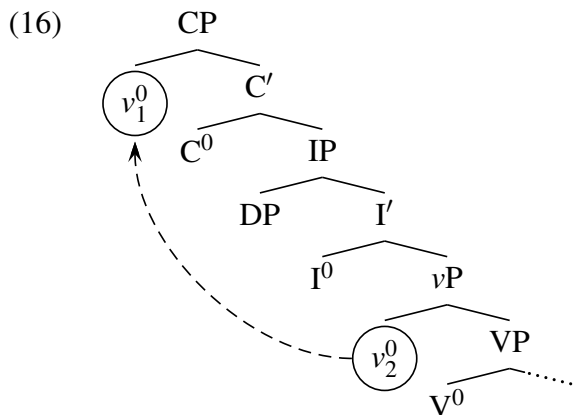
what we get from approaches to head-to-head displacement that propose it is the result of an operation distinct from the one responsible for phrasal movement.

The exact nature of head-to-head displacement has been subject to significant controversy. Noting several issues that head movement raises, Chomsky (2001, 37) suggests that ‘a substantial core of head raising processes [...] may fall within the phonological component’. Subsequent proposals have posited that there is no true head-to-head *movement* in the narrow syntax and that the effects commonly attributed to head movement are the result of some other operation (Harley, 2004; Platzack, 2013; Arregi and Pietraszko, 2019) or else occur post-syntactically (Harizanov and Gribanova, 2018). Important here is that if head-to-head displacement is the result of an operation distinct from the one responsible for phrasal movement, then phenomena like V-to-I movement will not generate copies of the verb. If so, Chain Reduction will have fewer copies of the verb to contend with at PF, and as I show, we predict which copies of the verb are pronounced in a predicate cleft.

To be clear, I will continue to assume that heads can still undergo  $\bar{A}$ -movement, as discussed in Section 2.2, though I will still compare head displacement to phrasal movement out of terminological convenience. My main claim here is that head-to-head movement from one head position to the next along with concomitant head adjunction does not happen. As I argue, this allows us to understand why the topicalized verb is pronounced twice without stipulating that some copy of  $v^0$  is Morphologically Reanalyzed.

#### 4.1 Predicate clefts without head movement

Let us start from the assumption that head displacement of the sort responsible for V-to-I movement, however it is to be implemented, does not generate additional syntactic copies of the verb. If we maintain the assumption that individual heads can undergo  $\bar{A}$ -movement to the left periphery (see Section 2.2), then at Spell-Out the structure of a bare verb predicate cleft will be as in (16). Here, there are only two copies of  $v^0$  as opposed to the three in (12).



Like any other structure containing movement, this tree will be subject to Chain Reduction. Unlike in (12), where narrow-syntactic head movement was assumed, there is only



one movement chain in this structure.  $v_2^0$  will be targeted for deletion, leaving  $v_1^0$  to be pronounced. Since these are the only two copies of the verb and there are no other chains containing copies of  $v^0$ , deleting  $v_2^0$  will avoid any potential violation of Irreflexivity (13) in this structure. By assuming that head displacement does not generate copies (*i.e.*, by assuming that it is the result of an operation distinct from the one responsible for phrasal movement), we avoid creating extra copies that would violate irreflexivity.

However, without a suitable theory of head displacement to replace head-to-head movement, we would be left without an explanation of how it is possible for a verb root originating in  $V^0$  to be pronounced in  $I^0$ .

## 4.2 Conflation as head displacement

Several theoretical alternatives to head-to-head movement have appeared in the recent literature on head displacement. While there are many differences between individual proposals, they can be grouped depending on when head displacement is proposed to occur. Several proposals argue head displacement occurs before Spell-Out as the result of a narrow-syntactic operation (just not Move or Merge). Others argue that it occurs either at or after Spell-Out.

- a. Narrow-syntactic: Agree/C-select (Platzack, 2013), Conflation (Harley, 2004), Generalized Head Movement (Arregi and Pietraszko, 2019),
- b. At/after Spell-Out: Spanning (Svenonius, 2012), Amalgamation (Harizanov and Gribanova, 2018)

The evidence from predicate clefts is consistent with head displacement occurring before Spell-Out if phrasal movement is the result of copying (as opposed to multidominance; see Section 4.4). The reason is that head displacement must feed  $\bar{A}$ -movement in order to explain the morphological form of the clefted verb in bare verb predicate clefts.

Consider the example of voice morphology in Spanish introduced in Section 2.2; the relevant examples are repeated here in (17) and (18). Recall that, as shown in (18), the clefted verb must bear passive morphology if the base verb also does. Given that voice morphology originates on a head distinct from the verb root, the passive morpheme and the verb root do not merge as part of a single head. A similar argument can be made about the active case in (17): If the theme vowel (the *a* before the *r* in the infinitive) originates as part of  $v^0$  (Oltra-Massuet and Arregi, 2005), then the theme vowel is not part of  $V^0$  and, therefore, the infinitive must be derived from more than one head.

(17) *Active:*

**Le-er** / \***Le-yó**, Juan leyó el libro.  
 read-INF / read-PST Juan has read.PST the book  
 ‘As for reading, Juan read the book.’ (Tense Morphology)

(18) *Passive:*

**Repar-ada** / \***Repar-ar**, la puerta ha sido reparada.  
 repaired-PASS.FEM / repair-INF the door.FEM has been repaired.FEM  
 ‘As for being fixed, the door has been fixed.’

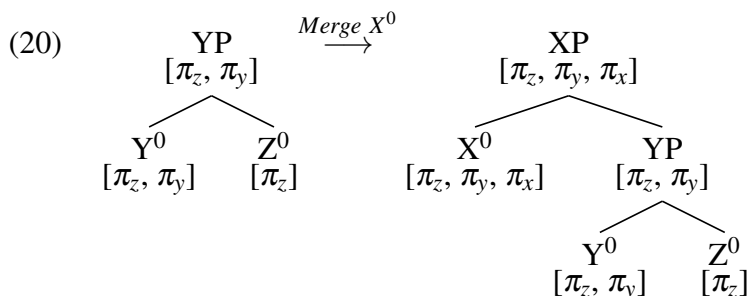
As long as head displacement occurs in the narrow syntax and assuming that phrasal movement is the result of narrow-syntactic copying, these morphological effects are explained. For the sake of discussion, we will consider what happens under CONFLATION (Harley, 2004; LaCara, 2016; Hale and Keyser, 2002).<sup>7</sup> Conflation proposes that individual heads come with morpho-phonological features (which I refer to as  $\pi$  here) which can be shared between structurally adjacent heads. The technical details are given in (19), though I will propose a small modification (19c).

(19) *Key assumptions for Conflation* (based on Harley, 2004):

- The label of any constituent has *all* the features of the head, including some representation of a morpho-phonological features  $\pi$ .
- Conflation occurs when a constituent  $\alpha$  is merged with a sister head  $\beta$  whose set of features is ‘defective’. The features  $\pi_\alpha$  are merged into  $\pi_\beta$ .
- For Economy reasons, the conflated set of features is only pronounced once, in its uppermost position.

Conflation is a concomitant of Merge, so it occurs in the narrow syntax. As such, the  $\pi$ -features are passed up the tree from one head to the next as syntactic structure is built.

The way this works is illustrated in (20). The features associated with  $Z^0$ ,  $\pi_z$ , are shared with  $Y^0$  when  $Y^0$  merges with  $Z^0$ , and the features of  $Y^0$ ,  $[\pi_z, \pi_y]$ , are shared with  $X^0$  when  $X^0$  merges with  $YP$ , resulting in  $X^0$  bearing the feature  $[\pi_z, \pi_y, \pi_x]$ . The result is that the  $\pi$  features of each head wind up on a single head:  $X^0$ .



Assumption (19c), as currently stated, ensures that the features on  $X^0$  are pronounced to the exclusion of those on both  $Y^0$  and  $Z^0$ , assuming  $X^0$  is the ‘uppermost’ position by virtue

<sup>7</sup>As they discuss, bare verb predicate clefts can also be analyzed under Arregi and Pietraszko’s (2019) GenHM proposal, but the details are a bit more complicated; see their paper for details. What matters, though, is that head displacement occurs in the narrow syntax, before Spell-Out, which is true of both GenHM and Conflation.

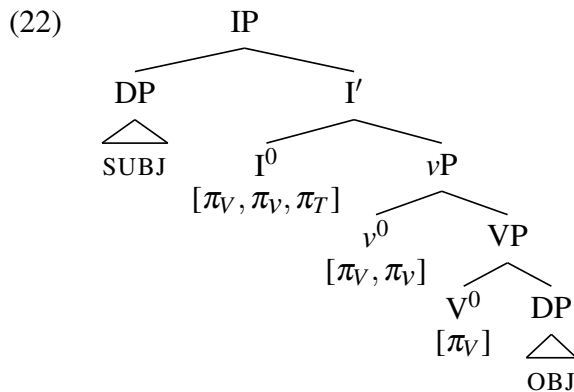
of c-commanding both  $Y^0$  and  $Z^0$ . However, I would like to propose a more stringent and precise condition on pronunciation of  $\pi$ -features to replace (19c):

- (21) If a head  $\alpha$  contains a subset of the  $\pi$ -features of a c-commanding head  $\beta$ , then  $\alpha$  is not pronounced. *Replaces (19c)*

Condition (21) accomplishes the same thing as (19c), but is more specific: Since  $Z^0$  has a subset of  $\pi$ -features of  $Y^0$ , it will not be pronounced, and since the  $\pi$ -features of  $Y^0$  are a part of  $\pi$ -features of  $Z^0$ , it too will be left unpronounced. These conditions behave differently in conditions where some other mechanism creates a copy of a head with conflated  $\pi$ -features, as when heads undergo  $\bar{A}$ -movement in predicate clefts.

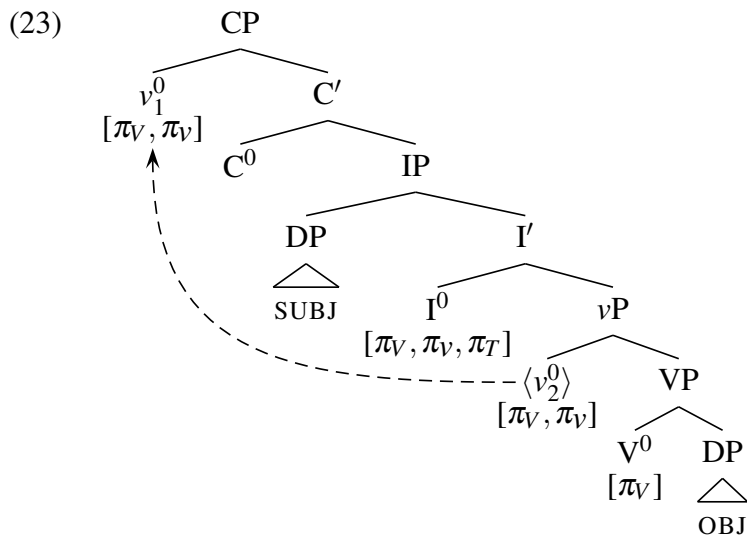
### 4.3 Clefting with conflation

With the main details about Conflation laid out, let us now consider how the derivation of a predicate cleft would work. Before topicalization occurs, the IP will look as in (22).



The  $\pi$ -features of  $V^0$  are already conflated onto  $v^0$ , and the  $\pi$ -features of  $v^0$  are already conflated onto  $I^0$  since Conflation happens in the narrow syntax as part of Merge. Critically, it is this structure that serves as the basis for verb topicalization. Topicalizing only  $v^0$ , as discussed in Section 2.2, we will move a  $v^0$  into which the  $\pi$ -features of  $V^0$  have already been conflated, as in (23). This gives us, essentially, what we want, since Conflation does not generate any new syntactic copies of the verb. Only topicalization of the verb to SpecCP creates another copy. Since  $v_1^0$  is the head of the movement chain, it will be pronounced, but because there are no other movement chains, there will be no Irreflexivity violations.

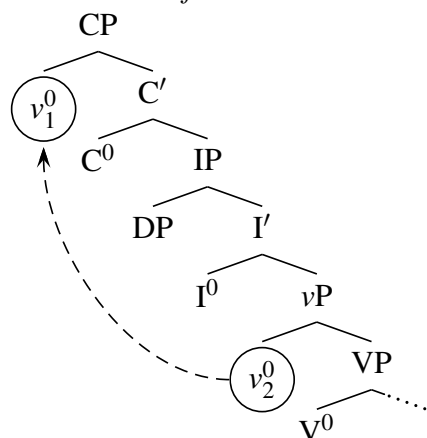
Furthermore the fact that Conflation precedes topicalization explains why the verb root is pronounced as part of the topicalized material. Since the  $\pi$ -features of  $V^0$  are conflated onto  $v^0$  before  $v^0$  is topicalized, the  $\pi$  feature of  $V^0$  will be part of the clefted verb along with the appropriate voice morphology associated with  $v^0$ . Since the  $\pi$ -features of the clefted verb exclude the  $\pi$ -features of  $I^0$ , and consequently any tense or agreement morphology associated with  $I^0$  will not appear on clefted verb.



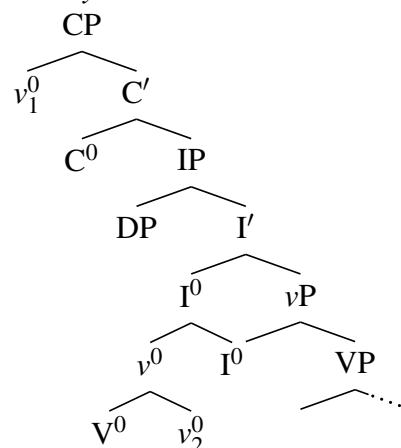
Note that the condition on pronunciation proposed in (21) matters here.  $v_1^0$  c-commands  $I^0$ , and both contain conflated features  $\pi$ -features from  $v^0$  and  $V^0$ .  $v_1^0$  is technically in the ‘uppermost’ position under the condition given in (19c) from Harley 2004, but both  $v_1^0$  and  $I^0$  are pronounced. The revision I give in (21) predicts that this should be the case since although  $v_1^0$  c-commands  $I^0$ , the  $\pi$ -features of  $I^0$  are not a subset of the  $\pi$ -features of  $v_1^0$ , so  $I^0$  is pronounced. Furthermore, since  $v_1^0$  is not c-commanded by a head containing a superset of its  $\pi$ -features, it is also pronounced. As to why this should be the case, I suspect it is related to the what is often referred to as the STRANDED or STRAY AFFIX FILTER. Since  $I^0$  contains  $\pi$ -features (*i.e.*, an affix) that are not realized on another head, this condition ensures that those  $\pi$ -features will be realized even if movement somehow complicates Conflation’s usual relations.

#### 4.4 The timing of head displacement depends on the theory of phrasal movement

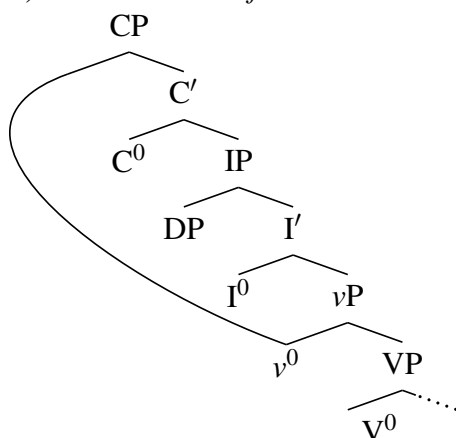
Consider now what happens if head displacement, however conceived, occurs at or after Spell-Out in the PF component as is sometimes proposed. Harizanov and Gribanova (2018) propose that head displacement movement is true head-to-head movement occurring after Spell Out on the PF-component. This means that all instances of overt  $\bar{A}$ -movement precede all instances of head movement. On the assumptions about predicate clefting given in Section 2.2, this means that V-to-I displacement would have to occur after topicalization of  $v^0$ . This incorrectly predicts that the verb root could never appear in the clefted verb if  $v^0$  is targeted for topicalization, as shown in (24b). Thus, if narrow syntactic movement is copying, predicate clefts show us that head-to-head displacement must occur before Spell-Out.

(24) a.  $\bar{A}$ -movement of verb:

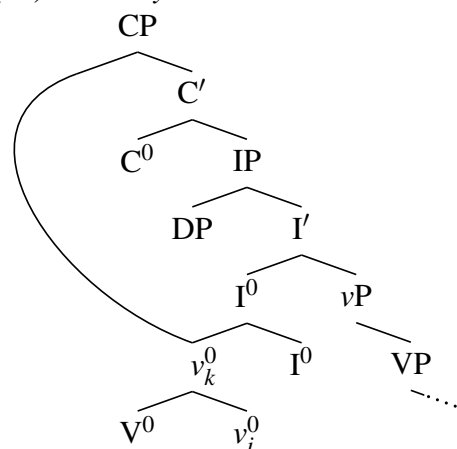
b. Post-syntactic head movement:



This is not an argument against Harizanov and Gribanova's (2018) proposal, *per se*. They, in fact, use multidominance to represent syntactic movement in their article, claiming (n.39) that the use of multidominance in is 'an expository choice that emphasizes the fact that we are dealing with a single syntactic object occupying distinct structural positions, but other implementations are possible as well.' I would argue that this is not so benign a choice as they imply: Indeed, multidominant structures allow  $V^0$  to undergo head-movement onto  $v^0$  after  $v^0$  has merged in SpecCP:

(25)  $\bar{A}$ -movement of the verb:

(26) Post-syntactic head movement:



Since  $V^0$  adjoins to  $v^0$  after  $v^0$  has remerged in SpecCP,  $V^0$  is pronounced in the specifier of CP since  $v^0$  is pronounced there.<sup>8</sup> Harizanov and Gribanova (2018) suggest that the verb is also pronounced in  $I^0$  as a result of the Stray Affix Filter.

<sup>8</sup>One potential issue is how post-syntactic adjunction of  $V^0$  to  $v^0$  affects multidominant structure. Adjoining  $V^0$  to  $v^0$  results in  $v^0$  having two segments. Harizanov and Gribanova (2018) assume, as I have shown here, that the higher segment (which I have labeled  $v_k^0$ ), which contains  $V^0$ , is merged in SpecCP. However, it is not obvious that the terminal  $v_i^0$  should not be merged, excluding  $V^0$  from SpecCP. Thanks to Kyle Johnson (p.c. 9 Nov 2018) for discussion of this point.

The point I'd like to make here, which I don't believe has been made elsewhere, is that assumptions about how phrasal movement works lead to different predictions regarding which alternative approaches to head displacement are viable. If phrasal movement is modeled using the copy theory of movement, as I have assumed, evidence from predicate clefts requires head displacement to occur in the narrow syntax, but if phrasal movement is modeled as multidominance, then head displacement may occur on the PF-branch. I cannot, in the space remaining, discuss the comparative virtues of the Copy Theory of Movement and multidominant approaches, though researchers have in general been hard-pressed to find differences between them (see, *e.g.*, Larson, 2016 and Vicente, 2009b). Resolving the true nature of head movement, therefore, may play an integral role in our understanding of the nature of syntactic Merge. Larson (2016) argues that the Copy Theory is, in fact, theoretically superior to multidominance, and if this is correct, it is consistent with the view of head movement I describe above.

## 5. Conclusion

I have argued that head-to-head displacement should be modeled as a narrow syntactic operation that does not generate copies, distinguishing it from narrow-syntactic movement. Assuming that narrow-syntactic movement is modeled under the Copy Theory of Movement, this predicts which syntactic copies of a verb will be pronounced in a bare verb predicate cleft following the assumption from Landau (2006) and Vicente (2007) that these verb clefts require  $\bar{A}$ -movement of a verbal head to the left periphery.

## References

- Aboh, Enoch O. and Marina Dyakonova. 2009. Predicate doubling and parallel chains. *Lingua* 119(7): 1035–1065. doi:10.1016/j.lingua.2008.11.004. URL <http://www.sciencedirect.com/science/article/pii/S0024384108002064>.
- Arregi, Karlos and Asia Pietraszko. 2019. The ups and downs of head displacement. Manuscript, University of Chicago & University of Connecticut.
- Baker, Mark C. 1988. *Incorporation: A Theory of Grammatical Function Changing*. Chicago: University of Chicago Press.
- Bastos, Ana Cláudia Pinto. 2001. *Fazer, eu faço! Topicalização de constituintes verbais em português brasileiro*. Master's thesis, Universidade Estadual de Campinas.
- Bondaruk, Anna. 2009. Constraints on predicate clefting in Polish. In *Studies in formal Slavic phonology, morphology, syntax, semantics and information structure: proceedings of FDSL 7 Leipzig 2007*, ed. Gerhild Zybatow, Uwe Junghanns, Denisa Lenertova, and Petr Biskup. Frankfurt am Main: Peter Lang, 65–79.
- Cheng, Lisa Lai-Shen and Luis Vicente. 2013. Verb doubling in Mandarin Chinese. *Journal of East Asian Linguistics* 22: 1–37.
- Chomsky, Noam. 1995. *The minimalist program*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz. Cambridge, Mass: MIT Press, 1–52.

- Gribanova, Vera. 2017. Head movement and ellipsis in the expression of russian polarity focus. *Natural Language & Linguistic Theory* 35: 1079–1121.
- Hale, Kenneth and Samuel Jay Keyser. 2002. *Prolegomenon to a theory of argument structure*. Cambridge, Mass.: MIT Press.
- Halle, Morris and Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In *The view from building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. Samuel Jay Keyser and Kenneth Hale. Cambridge, Mass.: MIT Press, 111–176.
- Harbour, Daniel. 1999. The two types of predicate clefts: Classical Hebrew and beyond. vol. 34. Cambridge, Mass.: MiTWPL, 159–176.
- Harizanov, Boris and Vera Gribanova. 2018. Whither head movement? *Natural Language & Linguistic Theory* doi:10.1007/s11049-018-9420-5.
- Harley, Heidi. 2004. Merge, conflation and head movement: The first sister principle revisited. In *Proceedings of the north east linguistic society 34*, ed. Keir Moulton and Matthew Wolf. Amherst, Mass.: GLSA Publications.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. MIT Press.
- LaCara, Nicholas. 2016. Verb phrase movement as a window into head movement. *Proceedings of the Linguistic Society of America* 1: 17:1–14.
- Landau, Idan. 2006. Chain resolution in Hebrew V(P)-fronting. *Syntax* 9(1): 32–66. URL <https://dx.doi.org/10.1111/j.1467-9612.2006.00084.x>.
- Larson, Brooke. 2016. The representation of syntactic action at a distance: Multidominance versus the copy theory. *Glossa: A journal of general linguistics* 1(39): 1–18.
- Matushansky, Ora. 2006. Head movement in linguistic theory. *Linguistic Inquiry* 37(1): 69–109.
- McCloskey, Jim. 2017. Ellipsis, polarity, and the cartography of verb-initial orders in irish. In *Elements of comparative syntax: Theory and description*, ed. Enoch Aboh, Eric Haeberli, Genoveva Puskás, and Manuela Schönenberger. Berlin: De Gruyter, 99–152.
- Nunes, Jairo. 2004. *Linearization of chains and sideward movement*. No. 43 in Linguistic Inquiry Monographs. Cambridge, Mass: MIT Press.
- Oltra-Massuet, Isabel and Karlos Arregi. 2005. Stress-by-structure in Spanish. *Linguistic Inquiry* 36(1): 43–84.
- Platzack, Christer. 2013. Head movement as a phonological operation. In *Diagnosing syntax*, ed. Lisa Lai-Shen Cheng and Norbert Corver. Oxford: Oxford University Press, 21–43.
- Svenonius, Peter. 2012. Spanning. Manuscript, University of Tromsø.
- Travis, Lisa DeMena. 1984. *Parameters and effects of word order variation*. Ph.D. thesis, Massachusetts Institute of Technology, Cambridge, MA.
- Vicente, Luis. 2007. *The syntax of heads and phrases: A study of verb (phrase) fronting*. Ph.D. thesis, Universiteit Leiden.
- Vicente, Luis. 2009a. An alternative to remnant movement for partial predicate fronting. *Syntax* 12(2): 158–191. URL <https://dx.doi.org/10.1111/j.1467-9612.2009.00126.x>.
- Vicente, Luis. 2009b. A note on the copy vs. multidominance theories of movement. *Catalan Journal of Linguistics* 8: 75–97.