The headless XP-movement restriction:
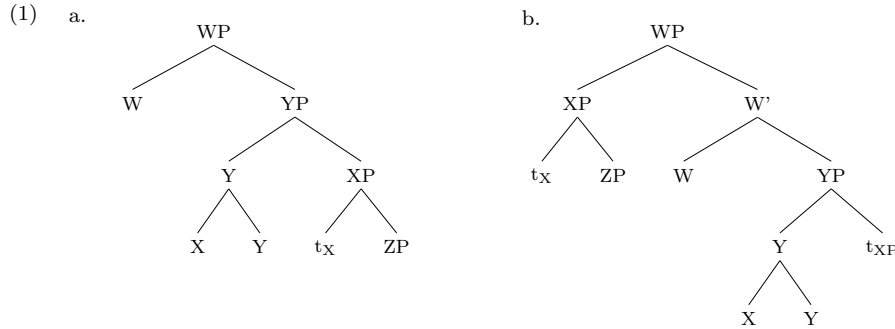# A prosodic account

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1 Introduction

The derivational step in (1) illustrates a case of **Headless XP-movement**.

(1)   a.   b.

In most cases, Headless XP-movement leads to an unacceptable outcome.

(2)   * It's [$_{VP}$ a book t^i to Mary]^j that John gave^i t^j.

English (Takano 2000:145)

(3)   * [$_{VP}$ Ihr ein Buch t^i]^j gab^i Hans t^j.
         her a   book   gave Hans
      'Hans gave her a book.'

German (Haider 1990, as cited in Takano 2000:145)

(4)   * [$_{VP}$ Het boek aan Marie t^i]^j gaf^i Jan (waarschijnlijk) t^j.
         the book to   Marie   gave Jan probably
      'Jan (probably) gave the book to Marie.'

Dutch (Takano 2000:145)

Both Takano (2000) and Funakoshi (2012) have proposed that narrow syntax cannot generate structures like (1b).

Takano (2000): *Attract/Move F* always targets the formal features of a head. At the point of the derivation where remnant movement applies to VP (i.e., (1a)), V has already moved out of VP.

As Funakoshi (2012) points out, it is not obvious how this explanation holds once *Copy Theory* (Chomsky 1993, 1995) is adopted.

Funakoshi (2012): it's a matter of locality and economy. Once a head X is adjoined to a higher head Y, both X and Y are equally accessible for an attracting Probe W. Economy considerations dictate that only the head X can move.

In this presentation:

- There is no narrow syntactic restriction on Headless XP-movement.
- Headless XP-movement produces a mismatch in the syntax-prosody mapping.
- PF may apply a repair operation to solve this mismatch.

The empirical domain from which these conclusions are drawn is *emphatic doubling* in Rioplatense Spanish.

2 Emphatic doubling in Rioplatense Spanish

This is a verb doubling construction that typically exhibits a V-XP-V pattern. At a pragmatic level, it introduces a mirative interpretation, i.e., the clause expresses the speaker's surprise or excitement.[1]
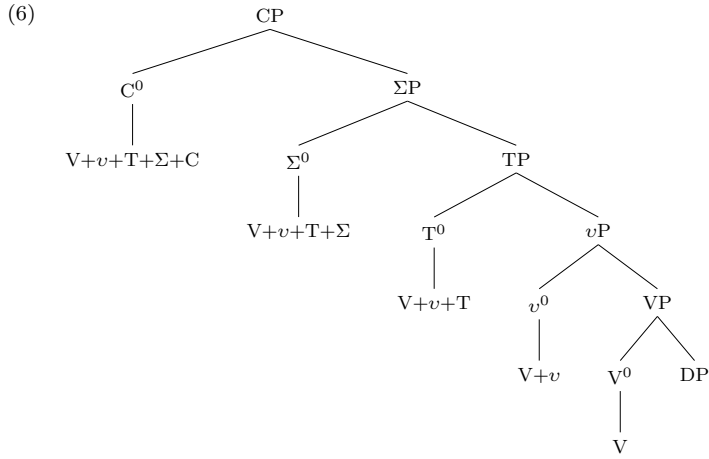
(5)   Emphatic doubling

      a.   Los bifes **parecían** aplausos, **parecían**.
           the slaps seemed   claps   seemed
           'The slaps sounded like claps!'

Celedonio Flores, *Biaba.*

      b.   **Son**   ocho no más, **son**.
           are.3PL eight no more are.3PL
           'They are eight and nothing more!'

Ricardo Güiraldes, *Don Segundo Sombra.*

      c.   **Lo   atamos** con alambre, **lo   atamos**.
           it.CL tie.1PL   with wire   it.CL tie.1PL
           'We tie it with wire!'

Ignacio Copani, *Lo atamo' con alambre.*

      d.   **Compré** el   auto gris, **compré**.
           bought.1SG the car grey bought.1SG
           'I bought the grey car!'

Saab (2008, 2011) advances an analysis of this construction in terms of a derivation just like the one sketched in (1). If Saab's account is on the right track, we have an argument against positing a narrow syntactic constraint on Headless XP-movement.

Verb movement
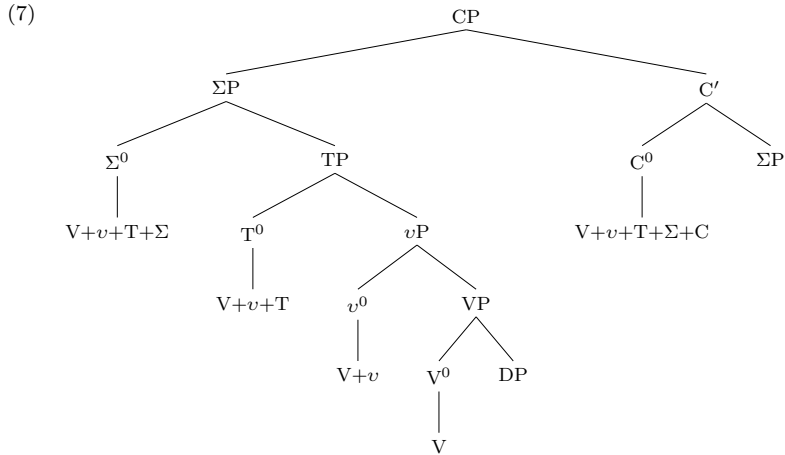The lexical verb moves to C^0 passing trough Σ^0 (Laka 1990), T^0 and v^0, i.e., V-v-T-Σ-C movement. For the moment, I ignore matters of chain pronunciation.

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[1] See Jokilehto (2016) for discussion of similar data in Roman Italian.

(6)

```
                          CP
             ┌─────────────┴──────────────┐
            C⁰                            ΣP
             │              ┌──────────────┴──────────┐
        V+v+T+Σ+C          Σ⁰                         TP
                            │          ┌───────────────┴──────┐
                        V+v+T+Σ        T⁰                     vP
                                       │            ┌──────────┴───────┐
                                     V+v+T          v⁰                 VP
                                                     │            ┌─────┴────┐
                                                   V+v           V⁰         DP
                                                                  │
                                                                  V
```
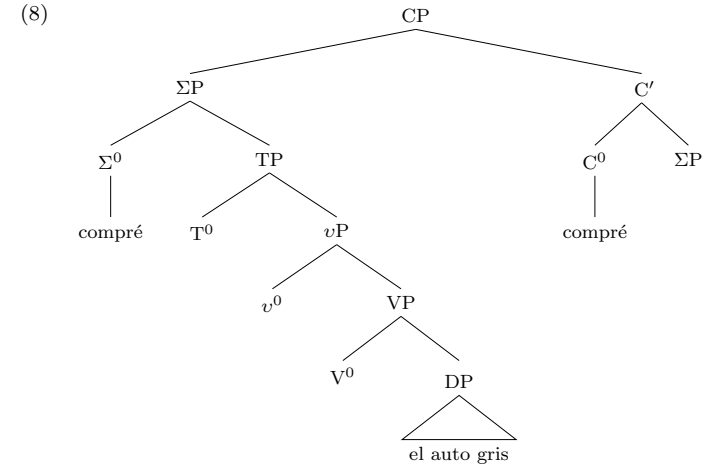
Movement of ΣP

A copy of ΣP is merged in Spec,C. Notice that since the complex head Σ moved to C, this would be a case of Headless XP-movement in Funakoshi's terms.

(7)

```
                          CP
             ┌─────────────┴──────────────┐
            ΣP                            C′
      ┌──────┴──────────┐         ┌────────┴────────┐
     Σ⁰                 TP       C⁰                 ΣP
      │          ┌───────┴────┐   │
  V+v+T+Σ        T⁰           vP  V+v+T+Σ+C
                 │       ┌─────┴─────┐
             V+v+T       v⁰          VP
                         │      ┌─────┴────┐
                        V+v    V⁰         DP
                                │
                                V
```

Pronouncing both the heads of CP and ΣP

Under standard circumstances, only C⁰ should be spelled-out. Pronouncing the complex head Σ⁰ inside Spec,C allows deriving the doubling patterns exemplified in (5). I will come back to the reasons for multiple copy pronunciation in the next section. The representation in (8) corresponds to the example in (5d).

(8)

```
                          CP
             ┌─────────────┴──────────────┐
            ΣP                            C′
      ┌──────┴──────────┐         ┌────────┴────────┐
     Σ⁰                 TP       C⁰                 ΣP
      │          ┌───────┴────┐   │
   compré       T⁰           vP  compré
                         ┌─────┴─────┐
                        v⁰           VP
                                ┌─────┴────┐
                               V⁰         DP
                                       ┌───┴───┐
                                      el auto gris
```

While Takano (2000) and Funakoshi (2012) argue that the representation in (8) is ungrammatical, there are reasons to think that emphatic doubling is derived according to these lines.

2.1 The verbs are copies

First of all, both verbs seem to be transformationally related copies, as **they must be morphologically identical**.

(9) a. Compré   el   auto, compré.
         bought.1SG the car   bought1SG

         'I bought the car!'

     b. * Compré   el   auto, comprar.
         bought.1SG the car   to.buy

         'I bought the car!'

     c. * ¡Comprá   el   auto, comprás!
         buy.2SG.IMP the car   buy.2SG.DECL

         'Buy the car!'

This identity condition also extends to clitics; if a clitic-like element is associated to the first verb, it must also appear in the second one, and vice versa. This follows straightforwardly from Saab's derivation under the assumption that clitics are incorporated to verbs (e.g., Roberts 2010).

(10) a. **Se**   **lo**   compré   a Juan, **se**   **lo**   compré.
         CL.3SG.DAT CL.3SG.ACC bought.1SG to Juan CL.3SG.DAT CL.3SG.ACC bought.1SG

         'I bought it for Juan!'

     b. * Compré   **el auto**, **lo**   compré.
         bought.1SG the car   CL.3SG.ACC bought.1SG

         'I bought the car!'

     c. * **Se**   lo   compré   a Juan, lo   compré.
         CL.3SG.DAT CL.3SG.ACC bought.1SG to Juan CL.3SG.ACC bought.1SG

         'I bought it for Juan!'

Notice that **these identity conditions are much stricter than in other replicative processes that have been analyzed in terms of the Copy Theory**, e.g., *predicate doubling* (cf. Vicente 2007, 2009).

(11) Predicate doubling

    a. Comprar, compré   el auto
       to.buy   bought.1SG the car

       'As for buying, I bought the car'.

    b. Comprar el auto, lo   compré
       to.buy   the car CL.3SG.ACC bought.1SG

       'As for buying the car, I bought it'.

Coming back to emphatic doubling, since both verbs occupy positions as high as Σ^0, it is predicted that **negation must appear in both verbal forms**, as shown in (12).

(12) a. ¡No vas   a la fiesta, no vas!
        not go.2SG to the party not go2SG

        'You are not going to the party!'

    b. No tengo   ganas, no tengo.
       not have.1SG desire not have.1SG

       'I'm not in the mood!'

    c. * No vino   Ernesto, vino.
         not came.3SG Ernesto came.3SG

       'Ernesto didn't come!'

2.2 No XPs around the rightmost verb

The rightmost verb cannot be accompanied by non-clitic arguments nor adjuncts.

(13) a. Compré   el auto, compré.
        bought.1SG the car   bought1SG

       'I bought the car!'

    b. * Compré   el auto, compré **el auto**.
         bought.1SG the car   bought1SG the car

       'I bought the car!'

    c. * Compré   el auto, compré **ayer**.
         bought.1SG the car   bought1SG yesterday

       'I bought the car yesterday!'

These facts follow straightforwardly if the rightmost verb is a stranded head left behind after remnant movement of ΣP.

2.3 Constituent order around the leftmost verb

All non-clitic constituents must appear around the leftmost verb. There is an asymmetry, however, depending on whether these elements are in preverbal or postverbal positions. **Postverbaly, constituents must be in their basic unmarked order**, e.g., the direct object must precede the indirect object.

(14) a. Le   compré   el auto a María, le   compré.
        CL.3SG.DAT bought.1SG the car to María CL.3SG.DAT bought.1SG

       'I bought the car for Mary!'

    b. ?? Le   compré   a María el auto, le   compré.
         CL.3SG.DAT bought.1SG to María the car   CL.3SG.DAT bought.1SG

       'I bought the car!'

Postverbal subjects are acceptable only with intransitive verbs, or in case other constituents in the VP moved to the left periphery.

(15) a. Vino   Ernesto, vino.
       came.3SG Ernesto came.1SG

       'Ernesto came!'

    b. ?? Compró   Juan el auto, compró.
         bought.3SG Juan the car   bought.3SG

       'Juan bought the car!'

    c. El auto lo   compró   Juan, lo   compró.
       the car CL.3SG.ACC bought.3SG Juan CL.3SG.ACC bought.3SG

       'Juan bought the car!'

The order of preverbal constituents is much more flexible. For instance, the subject may precede the indirect object, and the indirect object may precede the subject.

(16) a. María, a Juan le   compró   el auto, le   compró.
       María to Juan CL.3SG.DAT bought.3SG the car   CL.3SG.DAT bought.3SG

       'María bought the car for Juan!'

    b. A Juan, María le   compró   el auto, le   compró.
       to Juan María CL.3SG.DAT bought.3SG the car   CL.3SG.DAT bought.3SG

       'María bought the car for Juan!'

Subject and direct object may both precede the other.

(17) a. María, el auto se   lo   compró   a Juan, se
       María the car CL.3SG.DAT CL.3SG.ACC bought.3SG to Juan CL.3SG.DAT
       lo   compró.
       CL.3SG.ACC bought.3SG

       'María bought the car for Juan!'

    b. El auto, María se   lo   compró   a Juan, se
       the car María CL.3SG.DAT CL.3SG.ACC bought.3SG to Juan CL.3SG.DAT
       lo   compró.
       CL.3SG.ACC bought.3SG

       'María bought the car for Juan!'

The same applies for direct and indirect objects.

(18) a. El auto, a Juan se   lo   compró   María, se
       the car   to Juan CL.3SG.DAT CL.3SG.ACC bought.3SG María CL.3SG.DAT
       lo   compró.
       CL.3SG.ACC bought.3SG

       'María bought the car for Juan!'

    b. A Juan, el auto se   lo   compró   María, se
       to Juan the car CL.3SG.DAT CL.3SG.ACC bought.3SG Marí   CL.3SG.DAT
       lo   compró.
       CL.3SG.ACC bought.3SG

       'María bought the car for Juan!'

I take that the asymmetry between the preverbal and postverbal fields regarding order flexibility follows from preverbal constituents being dislocated in the left periphery of the sentence, in positions higher than ΣP.

(19)
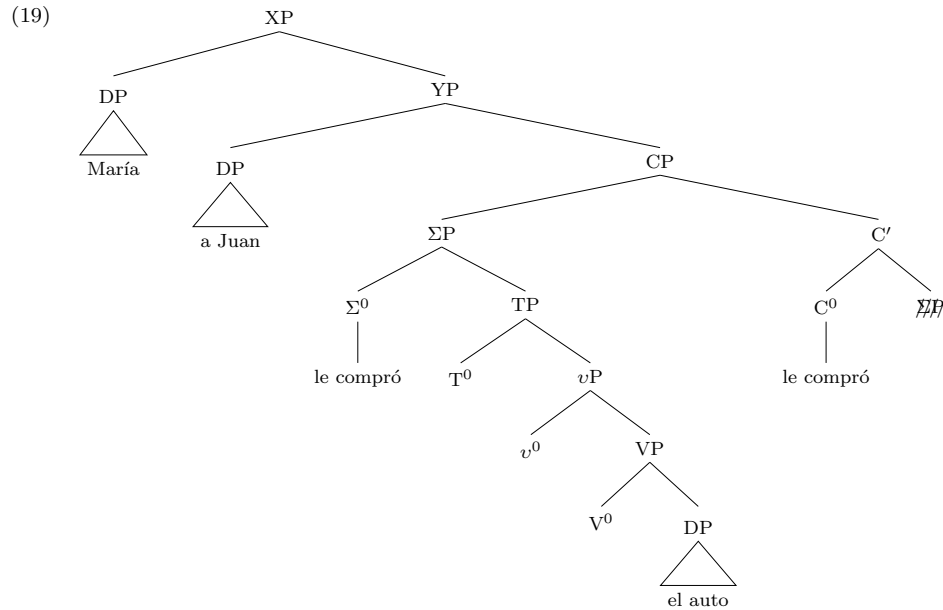
## 3   Match Theory and Headless XP-movement

To explain the doubling pattern in the emphatic doubling construction, I assume that syntactic structure is mirrored in the phonological representation as proposed within *Match Theory*.

(20)   Match Theory (Selkirk 2011)
   a. MATCH CLAUSE
      A clause in syntactic constituent structure must be matched by a corresponding prosodic constituent, call it ι, in phonological representation.
   b. MATCH PHRASE
      A phrase in syntactic constituent structure must be matched by a corresponding prosodic constituent, call it φ, in phonological representation.
   c. MATCH WORD
      A word in syntactic constituent structure must be matched by a corresponding prosodic constituent, call it ω, in phonological representation.

The definition in (20a) basically states that **the edges of a syntactic clause must coincide with the edges of an intonational phrase at PF**. Following Hamlaoui and Szendrői (2015, 2017), I take that what counts as a clause for the Match Clause constraint is the highest position in the extended projection of a verb V to which V moves.

(21)   Clause
      A clause is the projection of the highest head α to which verbal material (i.e., the verb itself, the inflection, an auxiliary) has been moved or inserted.

Take a derivation in which a verb V moves to α passing through the heads β and γ. Struck-out elements represent material that is not supposed to be pronounced at PF.

(22)
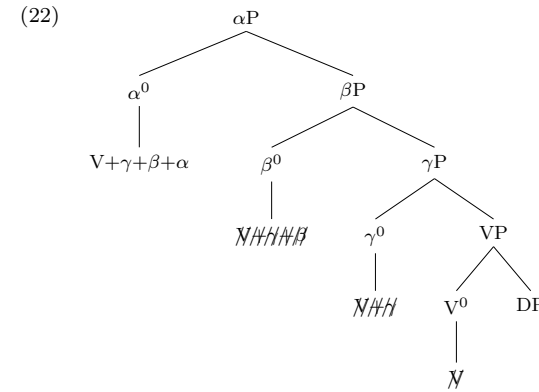
Now suppose that the remnant βP moves over α, as sketched in (23)

(23)
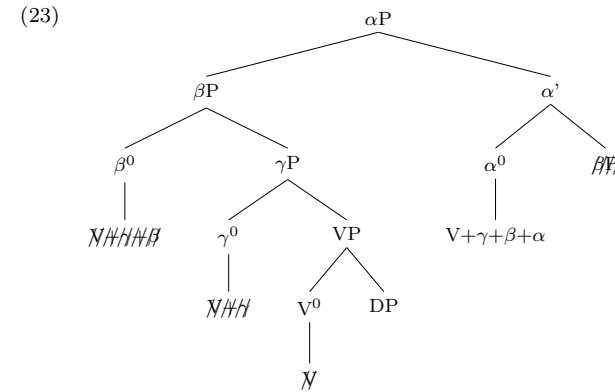
In this representation, α^0 is the highest head to which the verb has moved **in the main command unit**.[2] However, β^0 **is the highest head to which V moved in the domain of the specifier**. Therefore, βP is supposed to count as a clause, and should match an intonational phrase ι at PF.

Notice that all the heads to which V attached in the domain of βP are supposed to remain silent because of the *Uniqueness* condition on chain pronunciation.

(24)   UNIQUENESS
      Given a chain $C = \{\alpha^1, ..., \alpha^n\}$, pronounce only one copy of α.

Since the DP is the only overt element in βP, the edges of this clausal domain will end up matching those of the phonological phrase φ corresponding to the DP.

(25)   Match Clause violation
      $[_{\beta P}\ \cancel{\beta^0}\ ...\ [_{DP}\ D\ NP\ ]] \longrightarrow\ _\varphi(D\ NP)_\varphi$

In other words, these assumptions predict that **certain headless XP-movements produce mismatches between syntactic and prosodic representations**.

There are, in principle, three ways in which PF may deal with these mismatches.

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[2]Following Uriagereka (1999), a command unit emerges in a derivation through the continuous application of Merge to the same object.

- **Possibility A:** PF rejects the phrase marker as non-convergent, deriving this way the unacceptability of cases of Headless XP-movement in many languages, e.g., examples (2), (3) and (4).

- **Possibility B:** PF tolerates the mismatch, and spells-out βP as if it were a phonological phrase φ.

- **Possibility C:** PF pronounces the head β^0, which satisfies MATCH CLAUSE at the expense of violating the UNIQUENESS condition on chain pronunciation (cf. 24).

I take that Rioplatense Spanish exploits the third alternative in order to generate emphatic doubling constructions. That is, (i) ΣP undergoes headless movement over C$_0$ (cf. 7), and (ii) ΣP is identified as a clausal domain.

(26)
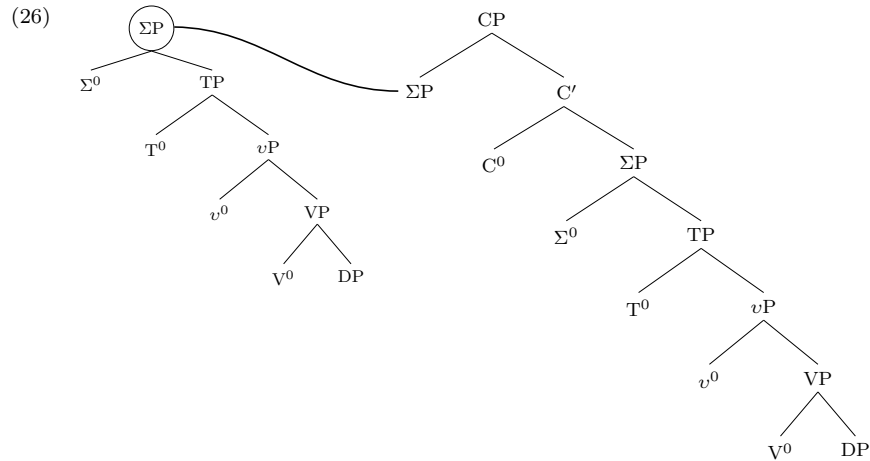
Assume this derivation corresponds to the sentence in (5d). Since there are no overt elements in the domain of ΣP other than the object DP, a syntax-prosody mismatch arises.

(27)   Match Clause violation
$[\Sigma_P \, \cancel{\Sigma^0} \, ... \, [_{DP} \text{ el auto gris }]] \longrightarrow \, _\varphi(\text{el auto gris})_\varphi$

However, Rioplatense Spanish applies a repair strategy to rescue the derivation. It consists in violating the Uniqueness condition in order to comply with Match Clause.

$[\Sigma_P \, \Sigma^0 \, [\, ... \, DP \,]]$	*MATCH(ΣP,ι)	UNIQUENESS
a. $_\varphi(\text{el auto gris})_\varphi$	*!	
☞ b. $_\iota(\text{ compré } _\varphi(\text{el auto gris})_\varphi)_\iota$		*

There are two main properties of emphatic doubling that seem to show that this explanation is on the right track. First, **emphatic doubling is only possible when at least one overt XP appears to the right of the first verb, i.e. when there is a constituent in the domain of ΣP causing a syntax-prosody mismatch.**

(28)   a.   Llovió *(una barbaridad), llovió.
            rained   a   barbarity   rained
            'It rained a lot!'

       b.   Compré   *(el   auto), compré.
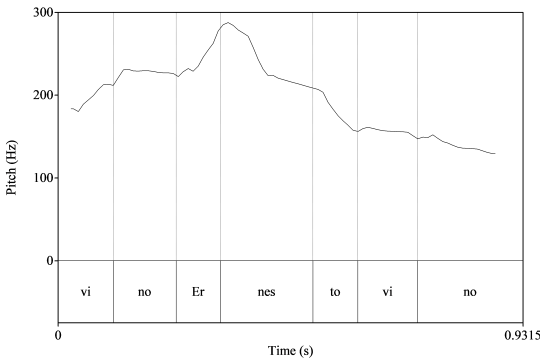   bought.1SG   the car   bought1SG
            'I bought (the car)!'

c.   Vino   *(Ernesto), vino.
     came.3SG   Ernesto   came.3SG
     '(Ernesto) came!'

In case there are no constituents in the domain of ΣP, violating the Uniqueness condition becomes unnecessary and, therefore, there is no doubling pattern.

$[\Sigma_P \, \Sigma^0 \, [\, ... \,]]$	*MATCH(ΣP,ι)	UNIQUENESS
☞ a. $\varnothing$		
b. $_\iota(\text{ llovió })_\iota$		*!

As a second important property, emphatic doubling displays a characteristic prosodic contour. The last accented syllable in the domain of what has been called ΣP exhibits an abrupt pitch fall (H+L*) that ends up when the second verb starts. I take this pitch lowering to signal a low boundary tone (L%) in the right edge of an intonational phrase ι, as predicted by the analysis.
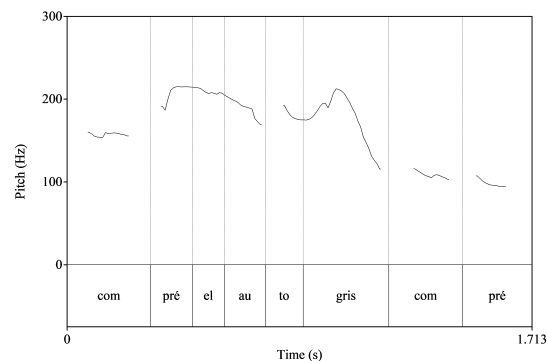
(29) $[\Sigma_P$ Vino   Ernesto], $[_{C'}$ vino   ]
            came.3SG Ernesto   **L%**   came.3SG

(30) $[\Sigma_P$ Le   di   un regalo a María], $[_{C'}$ le   di   ]
            CL.3SG.DAT gave.1SG a   gift   to María **L%**   CL.3SG.DAT gave.1SG
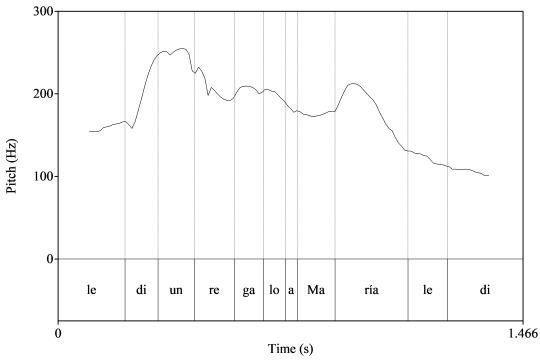
(31) [$_{\Sigma P}$ Compré   el   auto gris],   [$_{C'}$ compré   ]
       bought.1SG the car   grey **L%**   bought.1SG

Therefore, the claim that ΣP constitutes an intonational phrase ι seems to be correct.

4   Some speculations on German headless VP-fronting

While headless VP-remnants like the one exemplified in (3) are ill-formed in German, there are certain well attested cases in which this configuration seems to be acceptable. Notice that if not treated as VP-fronting, these examples would violate V2.

(32) a. [$_{VP}$ Die Kinder   nach Stuttgart t^i]^k sollst   du   t^k bringen^i.
           the children to   Stuttgart   should you   bring

           'You should bring the children to Stuttgart.'

  b. [$_{VP}$ Die Zeitung   am Freutag t^i]^k hast du   nicht t^k gelesen^i.
           the newspaper on Friday   have you not   read

           'You have not read the newspaper on Saturday.'

  c. [$_{VP}$ Kindern Bonbons t^i]^k sollte   man nicht t^k geben^i.
           children sweets   should one not   give

           'One should not give children sweets.'

Just like ΣP in emphatic doubling, headless VPs in German must have an unmarked word order and are subject to prosodic constraints (Gereon Mller p.c., as referred in Landau 2006).

A potential analysis of these sentences would involve assuming that headless VP-fronting in German also creates a syntax-prosody mismatch. In this case, however, the grammar of German would prefer Alternative B as a solution to the mismatch: PF tolerates the mismatch and spells-out the remnant as a phonological phrase φ.

Notice, however, that this would imply that both arguments these examples should be phonologically reanalyzed as a single phonological phrase φ, as suggested under distinct assumptions by Wurmbrand (2004).

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