Phonological phrasing in Spanish

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This article investigates the role of syntactic and prosodic markedness constraints on the construction of _phonological phrases_ (φ- or p-phrases) in Peninsular Spanish. The data come from a reading task of a corpus composed of 85 utterances with a wide variety of structures and constituent lengths. Four speakers read each sentence at three different speech rates (normal, slow, and fast). It is shown that the construction of prosodic structure in this language cannot rely solely on syntactic information but has to refer to prosodic markedness constraints which regulate the size and balance of phrase constituents. The proposal will be cast in a constraint-based OT approach (McCarthy & Prince 1993a), where the notion of edge alignment from Selkirk (1984) and constituent wrapping from Truckenbrodt (1995, 1999) are considered to be ranked and violable constraints. Specifically, phonological phrasing in Spanish is determined by the interaction of right-alignment of syntactic and phonological phrases (ALIGN-XP,R) with a maximal requirement on the length of p-phrases (MAX-BIN) and a minimality constraint on the prosodic parsing of utterances (MIN-BIN). Other Romance languages (and English and recently Egyptian Arabic) have also provided critical evidence in favor of the importance of prosodic restrictions on phrasing prediction (see Ghini 1993a, 1993b for Italian, Prieto 2005 for Catalan, Sandalo & Truckenbrodt 2002 for Brazilian Portuguese, Selkirk 2000, 2005 for English, and Hellmuth forthcoming for Egyptian Arabic; see also Elordieta, Frota, Prieto & Vigário 2003, D'Imperio, Elordieta, Frota, Prieto & Vigário 2005).

Keywords: <to be supplied by the author>

0. Introduction

Work on syntax-prosody mapping and the prediction of phonological phrases (φ- or p-phrases) has highlighted the role of syntactic boundaries in predicting prosodic structure. Restrictions on alignment to syntactic constituents or heads (Selkirk 1986, 1995, 2000, 2005, Nespor & Vogel 1986) and cohesional demands on maximal projections are generally taken to be the active syntactic constraints in prosodic phrase construction.

First, the notion of alignment to prosodic and morphological edges has been very in-fluential in phonology and morphology and has been recast in the Generalized Align-ment family of well-formedness constraints within Optimality Theory (McCarthy & Prince 1993a:80). Within the syntax/phonology interface work, alignment constraints demand alignment of left or right edges of XPs (maximal projections) with edges of φ or p-phrases (see Selkirk 2000, and Truckenbrodt 1995, 1999, among others):

(1)   a.   ALIGN-XP,R: ALIGN (XP, R; φ, R)
           Align right edge of XP to right edge of φ.
      b.   ALIGN-XP,L: ALIGN (XP, L; φ, L)
           Align left edge of XP to left edge of φ.

Recently, Truckenbrodt's work has convincingly shown that ALIGN-XP can be at times suppressed by another syntax-mapping constraint on maximal projection's unity, WRAP-XP, and that the interaction between the two constraints is able to explain the language-particular differences observed in different Bantu languages (Truckenbrodt 1995, 1999). As stated in (2), WRAP-XP demands that each maximal projection (XP) should be contained in a phonological phrase, with no prosodic phrases breaking it. An XP is thus 'wrapped' when there is a p-phrase (the same or a larger size) that contains the XP. It is not 'wrapped' when the XP is split up across more than one p-phrase.

(2)   WRAP-XP (Truckenbrodt 1995, 1999:228)
      Each XP is contained in a phonological phrase.

Nowadays, the most widely accepted theory of syntax-phonology interface is based on Selkirk's proposal that p-boundaries make reference to syntactic edges and heads together with Truckenbrodt's cohesional constraint WRAP-XP (which makes reference to the unity of maximal projection constituents). In parallel to that, recent work has argued that prosodic conditions have to be taken into account in the construction of phrasing domains. For example, Mirco Ghini's analysis of phrasing in Italian convinc-ingly argues that Nespor & Vogel's branching conditions can be successfully reana-lyzed into prosodic notions of balancing and maximum weight (Ghini 1993a, 1993b).[1] Recent work on English, Egyptian Arabic, and Romance languages has acknowledged that prosodic constraints are crucial in predicting phonological phrasing (see Prieto 2005 for Catalan, Sandalo & Truckenbrodt 2002 for Brazilian Portuguese, Selkirk 2000 for English, and Hellmuth forthcoming for Egyptian Arabic). These have adopted a version of the binarity size constraint suggested by Ghini. As stated in (3), MAX-BIN enforces binarity at the p-phrase level and expresses the fact that the average p-phrases at a normal speech rate are formed by two prosodic words.

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1.   Nespor & Vogel (1986:185) themselves suggested that the branching condition could reflect a mini-mal length requirement: "It should be noted that the restructured φ is the first constituent of prosodic structure that reflects the idea that length plays a role in the determination of prosodic categories. That is, since nonbranching complements are generally shorter than branching ones, the relative length of nonbranching vs. branching complements appears to be a crucial factor in determining the possibil-ity of restructuring in certain languages. That is, there may be a general tendency to avoid forming particularly short (i.e., nonbranching) phonological phrases."

(3)   MAX-BIN (after Sandalo & Truckenbrodt 2002:295)
      P-phrases consist of maximally two prosodic words.

The goal of this study is to examine the influence of both syntactic and prosodic factors on prosodic boundary placement in Spanish. A corpus of 85 utterances was designed to provide appropriate data on the effects of syntactic boundary locations and length on phrasing decisions. Four speakers of Peninsular Spanish were asked to read each sentence three times at different speech rates (normal, slow, and fast). The use of three different speech rates was crucial to test the possibility of different groupings of utterances.

The Spanish data will provide critical evidence that length constraints play a major role in phrasing decisions, often suppressing the effects of syntactic constraints. Evidence for the prominent role played by prosodic requirements in Spanish phrasing stems from the tendency to divide utterances into phrases of similar syllabic lengths. For example, the typical grouping (*Comeré pasteles*) (*de chocolate amargo*) 'I will eat cakes of dark chocolate' illustrates how the binarity size constraint overrides a wrapping constituent requirement on the unity of the Object NP. Similarly, the possibility of producing (Subject Verb)(Object) phrasings as in (*Juan leerá*) (*novelas de aventuras*) 'John will read adventure novels' represents a challenge to both syntactic end-alignment and wrapping requirements. On the other hand, Spanish also offers crucial evidence for the role played by ALIGN-XP,R, which comes from the behavior of local versus non-local attachment of PP-adjuncts: the typical pattern of phonological phrasing (*Compró las películas de Woody*)φ (*en Londres*)φ 'He/she bought Woody [Allen] films in London' suggests that the syntactic alignment constraint is stronger than the phonological well-formedness binarity constraint.

The article is organized as follows. Section 1 provides a definition of phonological phrase and the cues that characterize this prosodic unit in Spanish; it also presents the corpus used for this study. Section 2 offers a wide empirical coverage of the Spanish phrasing data together with an OT constraint-based analysis of the default patterns of p-groupings.

1.   Methodology

1.1   Cues to phonological phrasing in Spanish

The theory of prosodic phonology (Selkirk 1986, Nespor & Vogel 1986) proposes the existence of a prosodic representation which is independent of (but related to) syntactic structure. Prosodic structure consists of a hierarchy of prosodic constituents represented in (4). The phonological phrase (PPh, p- or φ-phrase, also called Minor Phrase, MiP) is the prosodic unit above the PW.[2] Different cues to prosodic structure have

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2. Earlier work on the prosodic hierarchy also posited the Clitic Group between the Prosodic Word and the Phonological Phrase (Nespor & Vogel 1986), though this prosodic level has fallen out of favor in more recent years.

been reported for a variety of languages. Romance languages like Italian and Brazilian Portuguese have phonological diagnostics to test phonological constituency, that is, phonological processes whose domain of application is the phonological phrase. In Florence Italian, Radoppiamento Sintattico, Final Lengthening and Stress Retraction are φ-level phenomena (Nespor & Vogel 1986, 1989; Ghini 1993a, 1993b). In French and Brazilian Portuguese, Stress Retraction also applies within the φ-phrase domain (see Post 1999, 2000; Sandalo & Truckenbrodt 2002, respectively; e.g. Port. *café quente* → *café quente* 'hot coffee').

> (4) The prosodic hierarchy
> IP   Intonational Phrase (also called Major Phrase)
> PPh, φ   Phonological Phrase (also called Minor Phrase)
>
> PW, ω   Prosodic Word
> F   Foot
> σ   Syllable

Evidence from phonological phrasing in Spanish comes from stress/accent facts and intonation. Spanish speakers place a prominent stress (what we will call p-phrase prominence) or an accent on the last tonic syllable of a p-phrase. In this article, we will assume that a stable and reliable cue for the presence of a phonological phrase is the perception of a prominent stress (together with a level 2 phrase break in the ToBI framework). Optionally, speakers produce a continuation rise at the right boundary of a p-phrase, though it is also possible to perceive a clear phrasing break with no continuation rise. Thus in Spanish the right edges of phonological phrases can be optionally cued by tonal marking. We take the standard view, following Nespor and Vogel (1986) and Selkirk (2005), that phonological phrases can be 'stylistically promoted and optionally realized as intonational phrases'.

Figure 1 illustrates the waveforms and intonation contours of the utterances (*Compraré yogures*)φ (*de la sierra de Gredos*)φ 'I will buy yoghourts from the Gredos Range' (top figure) and (*María bebe*)φ (*agua destilada*)φ 'Mary drinks distilled water' (bottom figure) as produced by two speakers of Peninsular Spanish. The intonation contours display a high boundary tone separating the two phrases: in the first utterance, the H tone is located after the first noun in the object complement; in the second, the continuation rise is placed after the verb, clearly exemplifying a (Subject Verb)(Object) grouping.

1.2 Materials

The main source of data reported in this article is based on a reading task of a corpus containing a set of 85 target utterances (see the complete database in the Appendix). The corpus contained three types of structures (namely, SVO, VP and NP projections) in which constituent length (in terms of the number of prosodic words) and location of syntactic boundaries (including those of PP and AdjP with different level attachments) have been systematically varied. (5) offers several examples from the database: the first triplet varies the length of the subject in SVO structures: (5a) contains a simplex noun,
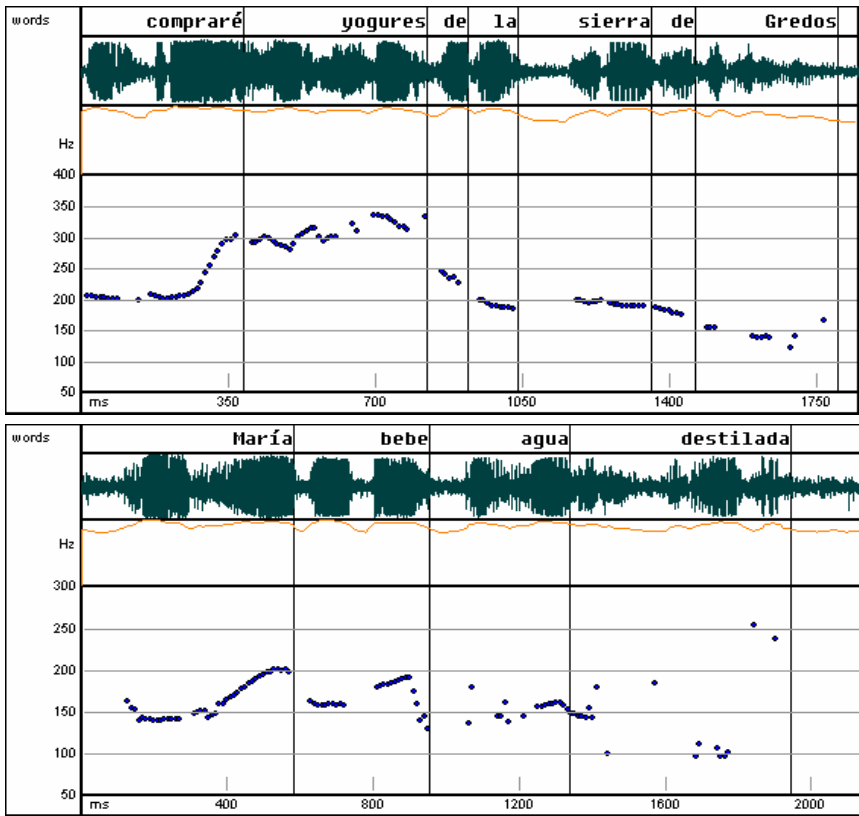
Figure 1. Waveforms and intonation contours of the utterances (*Compraré yogures*)φ (*de la sierra de Gredos*)φ 'I will buy yoghurts from the Gredos' Sierra' (top figure, speaker AE) and (*María bebe*)φ (*agua destilada*)φ 'Mary drinks distilled water' (bottom figure, speaker MM).

(5b) two prosodic words, and (5c) three prosodic words. The second triplet varies the length of the object in VP structures:

(5)   a.   El presidente sufre.
             'The president is suffering.'
       b.   El presidente de la Comunidad sufre.
             'The president of the Community is suffering.'
       c.   El presidente de la Comunidad de Madrid sufre.
             'The president of the Madrid Community president is suffering.'

       a′. Le nombraron profesor.
             'They appointed him professor.'
       b′. Le nombraron profesor de filología.
             'They appointed him professor of philology.'
       c′. Le nombraron profesor de filología románica.
             'They appointed him professor of Romance philology.'

Recordings were made of four native speakers of Peninsular Spanish (3 from Madrid, CA, CG, AE, and 1 from Burgos, MM) ranging from 35 to 58 years of age. Each utterance was read three times, at normal, fast, and slow rates of speech. The different rates were obtained by giving specific instructions to speakers, namely, by asking them to read each sentence at a normal, fast, and slow rate of speech, in this order. The recorded utterances were prosodically transcribed using the ToBI conventions for tonal and break tiers (Beckman & Hirschberg 1994). After that, we equated major phrases with phrase breaks level 3 and level 4 (intermediate phrases and full intonational phrases) and minor phrases (or phonological phrases) with level 2 phrase breaks (with a disjuncture that is weaker than expected).

Variation in rate of speech was especially crucial in order examine the speech rate effects on phrasing decisions and, specifically, to test possible patterns of p-phrase optionality on our target utterances. Utterances uttered at a slow speech rate quite often produced unnatural pronunciations: typically, every prosodic word was pronounced as a separate intonational phrase. Thus the article will report the typical patterns of phrasing found in normal and fast read speech.[3] Finally, the informants were instructed to read the sentences as new information, without topics or foci.

The results on SVO sentences will be compared to a section dealing with Spanish in recent Romance crosslinguistic study conducted by M. D'Imperio, G. Elordieta, S. Frota, P. Prieto, and M. Vigário (Elordieta, Frota, Prieto & Vigário 2003, Elordieta, Frota & Vigário 2005, D'Imperio, Elordieta, Frota, Prieto & Vigário 2005). This Romance Languages Database (RLD) was designed to allow a direct comparison of intonational phrasing strategies in SVO structures among different Romance languages with regard to the manipulation of constituent length and syntactic complexity.

2.   Results: Phonological Phrasing in Spanish

2.1   Minimality effects

The examples in (6) and (7) show that speakers normally phrase verbal heads together with simple objects containing a single noun (V NP)φ and simple noun heads together with simple adjectival or prepositional phrases (N PP)φ. Yet, as we will see in the next section, they tend to produce them in separate p-phrases when complements contain two prosodic words. Thus, there is a contrast between (*Compraba mapas*)φ 'I/(s)he used to buy maps' and (*Compraba*)φ (*mapas de Barcelona*)φ or (*Compraba mapas*)φ (*de Barcelona*)φ 'I/(s)he bought maps of Barcelona'.

(6) $[V [NP]_{NP}]_{VP} \rightarrow (V NP)\varphi$
    a.   Le nombraron profesor)φ
        'They appointed him professor.'
    b.   (Compraba mapas)φ
        'I/(s)he used to buy maps.'

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3. For recent results on phrasing patterns found in Spanish spontaneous speech, see Rao (forthcoming).

(7)   [N [PP]$_{PP}$]$_{NP}$ → (N PP)φ
    a.   (Una botella de vino)φ
       'A bottle of wine.'
    b.   (Un anillo de plata)φ
       'A silver ring.'

Next consider the examples in (8). Utterances consisting of single prosodic word sub-jects plus single word verbs regularly group the two prosodic words in a single p-phrase. This is also the case in NP and VP projections.

(8)   [[NP]$_{NP}$ [V]$_{VP}$]$_{IP/CP}$ → (NP VP)φ
    a.   (La nena quiere)φ
       'The little girl wants some.'
    b.   (El presidente sufre)φ
       'The president is suffering.'

The groupings above are easily explained by a constraint on the minimum size of ut-terances, MIN-BIN-ω (IP), as stated in (9). This constraint states that speakers pre-fer to parse an Intonational Phrase containing two prosodic words into one p-phrase $((\omega\omega)\varphi)_{IP}$ rather than two p-phrases containing one prosodic word each $((\omega)\varphi (\omega)\varphi)_{IP}$. This constraint can be understood as a minimality requirement on the length of utter-ances. As we know, minimality requirements have been extensively used within pro-sodic phonology and morphology to express minimality size effects in terms of moras, syllables or feet (see McCarthy & Prince 1993b, among many others). In the case at hand, the requirement is expressed in terms of the number of prosodic words.

(9)   MIN-BIN
    P-phrases should consist of minimally two prosodic words.

The following three tableaux derive the minimality effects on IP/CP projections (10a), VP projections (10b), and NP projections (10c). As becomes clear from the example in tableau (10a), it is crucial that the prosodic condition MIN-BIN dominates ALIGN-XP,R in the hierarchy (MIN-BIN >> ALIGN-XP,R) because no phrase boundary is present after the subject phrase.

(10)   a.

[[La nena]$_{NP}$ [pide]$_{VP}$]$_{IP/CP}$	MIN-BIN	ALIGN-XP,R
a. ( )φ ( )φ	*!	
b. ☞ ( )φ		*!

    b.

[Compraba [mapas]$_{NP}$]$_{VP}$	MIN-BIN	ALIGN-XP,R
a. ( )φ ( )φ	*!	
b. ☞ ( )φ		

    c.

[Una botella [de vino]$_{PP}$]$_{NP}$	MIN-BIN	ALIGN-XP,R
a. ( )φ ( )φ	*!	
b. ☞ ( )φ		

2.2 Wrapping effects

The examples in (11) and (12) show that when verb or noun phrase heads are followed by syntactic complements (object nouns or prepositional phrases) containing two prosodic words, the speakers produce the utterances in two separate p-phrases. Two patterns of optionality in the assignment of phonological phrases are available to speakers, regardless of rate of speech. Cases of (ωωω)φ were typically produced in fast speech rate.

(11)   [V [N PP]$_{NP}$]$_{VP}$ → (V)φ (N PP)φ / (V N)φ (PP)φ
  a.   (Compraba)φ (mapas de Barcelona)φ
  a′.   (Compraba mapas)φ (de Barcelona)φ
        'He used to buy maps of Barcelona.'

  b.   (Comeré)φ (pasteles de chocolate)φ
  b′.   (Comeré pasteles)φ (de chocolate)φ
        'I will eat chocolate cakes.'

  c.   (Lo nombraron)φ (profesor de filología)φ
  c′.   (Lo nombraron profesor)φ (de filología)φ
        'They appointed him professor of philology.'

(12)   [N [PP[PP]$_{PP}$]$_{PP}$]$_{NP}$ → (N)φ (PP PP)φ
  a.   (Un montón)φ (de mapas de Barcelona)φ
  a′.   (Un montón de mapas)φ (de Barcelona)φ
        'A stack of maps of Barcelona.'

  b.   (Yogures)φ (de la sierra de Gredos)φ
  b′.   (Yogures de la sierra)φ (de Gredos)φ
        'Yoghourts from the Gredos Range.'

Table 1 shows the total percentages of (ω)φ(ωω)φ, (ωω)φ(ω)φ, and (ωωω)φpatterns produced in utterances consisting of phrase verbal or nominal heads followed by syntactic complements which contain two prosodic words, for the four speakers. A total of 16 sentences have been analyzed per speaker, for both normal and fast speech rates. The data in Table 1 reveal that while both groupings are possible, namely (ω)φ(ωω)φ and (ωω)φ(ω)φ, 3 out of 4 speakers prefer to place a phrase break within the complex object NP or PP. In our data, a mean of 60% of the cases in normal speech rate were instances of (ωω)φ(ω)φ.

Table 1. Percentages of (ω)φ(ωω)φ, (ωω)φ(ω)φ, and (ωωω)φ patterns produced in utterances consisting of phrase verbal or nominal heads followed by syntactic complements which contain two prosodic words, for the four speakers.

Speaker	(ω)φ(ωω)φ	(ωω)φ(ω)φ	(ωωω)φ
MN	8%	64%	28%
CA	31%	25%	44%
AE	13%	37%	50%
CG	13%	50%	37%

First, the examples produced at normal speech rates show that a binary length requirement Max-Bin such as the one in (13) has an active role in Spanish phrasing. The constraint Max-Bin enforces p-phrases to be maximally binary and thus disallows a phrasing like (ωωω)φ, which was only attested in fast speech reading. The output (ωωω)φ, as in (*Compraba mapas de Barcelona*)φ, typical of fast speech rates, will be dealt with in Sections 2.5 and 2.6.

(13)   Max-Bin (after Selkirk 2000, Sandalo & Truckenbrodt 2002)
       P-phrases consist of maximally two prosodic words.

If Wrap-XP were a strong constraint we would expect that each maximal projection (XP) should be contained in a phonological phrase, with no prosodic phrases breaking it (see (14)). Crucially, an XP is not 'wrapped' when the XP is split up across more than one p-phrase.

(14)   Wrap-XP (Truckenbrodt 1995, 1999:228)
       Each XP is contained in a phonological phrase.

Yet, the optionality between (*Compraba*)φ (*mapas de Barcelona*)φ and (*Compraba mapas*)φ (*de Barcelona*)φ (with a tendency to produce the latter phrasing option) indicates that the potential wrapping effect on syntactic constituents is weak in Spanish. Crucially, the phrasing (*Compraba mapas*)φ (*de Barcelona*)φ would constitute a double violation of Wrap-XP, since neither VP nor NP are contained in a φ-phrase, yet this phrasing pattern is found in 60% of the cases. If we take Wrap-XP to be active (see tableau 15a) the only winning candidate would be (*Compraba*)φ (*mapas de Barcelona*)φ. Candidates (b) (ω)φ(ωω)φ and (c) (ωω)φ(ω)φ both satisfy Max-Bin and thus the two options are possible, but candidate (b) wins because it incurs only one violation of Wrap-XP. Finally, Align-XP,R is not violated by any of the candidates because there are no internal maximal projection boundaries that have to be respected. However, if we assume that Wrap-XP is ranked lower in the hierarchy (see tableau 15b) then the right outcome is obtained and both phrasing options, namely (ω)φ(ωω)φ and (ωω)φ(ω)φ, are equally possible.

(15)   a.

[Compraba [mapas [de Barcelona] PP] NP] VP	Min-Bin	Wrap-XP
a. ( )φ	*!	
☞ b. ( )φ ( )φ		*
c. ( )φ ( )φ		**!

       b.

[Compraba [mapas [de Barcelona] PP] NP] VP	Min-Bin
a. ( )φ	*!
☞ b. ( )φ ( )φ	
☞ c. ( )φ ( )φ	

2.3 Maximality and minimality effects

Next consider the case whereby verbal heads are followed by a complex object containing three prosodic words (in syntactic structures such as [V [N [PP [AP]$_{AP}$]$_{PP}$]$_{NP}$]$_{VP}$). The examples in (16) and (17) illustrate a clear mismatch between syntactic and prosodic constituency: the first object noun is consistently phrased together with the preceding verb due to the fact that the prepositional phrase internal to the object is longer. The resulting prosodic structure, (ωω)φ(ωω)φ, was produced in practically 100% of the cases at both normal and fast speech rates. The prosodic difference between the two realizations (fast vs. normal rates of speech) was typically the presence vs. absence of a continuation rise at the end of the first p-phrase. The addition of a complement, thus, causes a complete 'rebalance' of the distribution of the phonological weight of the sequence in such a way that the resulting p-phrases are more balanced for length. Crucially, a potential phrasing candidate which groups 1+2+1 prosodic words, such as *(*Compraba*)φ (*mapas de la Barcelona*)φ (*antigua*)φ is unattested in our data and was considered to be ungrammatical by our informants.

(16)   [V [N [PP [AP]$_{AP}$]$_{PP}$]$_{NP}$]$_{VP}$ → (V N)φ (PP AP)φ
    a.   (Compraba mapas)φ (de la Barcelona antigua)φ
        'He used to buy maps of old Barcelona.'
    b.   (Comeré pasteles)φ (de chocolate amargo)φ
        'I will eat cakes of dark chocolat.'
    c.   (Lo nombraron profesor)φ (de filología románica)φ
        'They appointed him professor of Romance philology.'

(17)   [N [PP [PP [AP]$_{AP}$]$_{PP}$]$_{PP}$]$_{NP}$ → (N PP)φ (PP AP)φ
    a.   (Una botella de vino)φ (bastante rosado)φ
        'A bottle of fairly rosé wine.'
    b.   (Un anillo de plata)φ (bastante bonito)φ
        'A ring made of rather nice silver.'
    c.   (Yogures de limón)φ (de la sierra de Gredos)φ
        'Lemon yoghourts from the Gredos Range.'

Note that same phenomenon has been reported for Catalan (Prieto 2005) and for Italian (Ghini 1993a:49, 1993b): (*Ho mangiato*)φ (*dei pasticini ripieni*)φ 'I have eaten filled cakes' vs. (*Ho mangiato dei pasticini*)φ (*ripieni di cioccolata*)φ 'I have eaten cakes filled with chocolate'. These facts reveal that phonological well-formedness constraints (namely, Max-Bin) have a very prominent role in Romance phrasing.

    The examples above would go unaccounted for if we only took into account alignment or cohesional constraints. Align-XP, R would predict a p-boundary after the first maximal projection (that is, no breaks within NP of VP), and Wrap-XP would predict it at the right edge of V or N so that the syntactic complement is wrapped, as in (*Compraba*)φ (*mapas de la Barcelona antigua*)φ 'He used to buy maps of old Barcelona'. Yet the fact is that Catalan, Italian and Spanish speakers place p-boundaries within the verb complement object NP and the noun complement PP when the phonological weight of this complement is substantial. We propose that a combination of the

prosodic length constraints Max-Bin and Min-Bin easily derive the correct grouping (*Compraba mapas*)φ (*de la Barcelona antigua*)φ. This can be seen by inspecting the two tableaux in (18) with VP and NP projections: candidates (a) (ωωωω)φ, (b) (ω)φ (ωωω)φ, (c) (ωωω)φ (ω)φ, and (e) (ω)φ(ωω)φ(ω)φ clearly violate one of the two prosodic requirements. [NB: Note that in this case the winning candidate (d) could be obtained through the subordinate effect of Wrap-XP: Wrap-XP is violated twice in (d) (VP and NP are not contained in a p-phrase) and three times in (e) (VP, NP and PP are not wrapped). However, we have seen in Section 2.2 that Wrap-XP had no effect on optional groupings such as (*Compraba mapas*)φ (*de Barcelona)*φ and (*Compraba)*φ (*mapas de Barcelona)*φ:

(18) a.

[Compraba [mapas [de la Barcelona [antigua] $_{AP}$ $_{PP}$] $_{NP}$] $_{VP}$	Max-Bin	Min-Bin
a. ( )φ	*!	
b. ( )φ ( )φ	*!	*
c. ( )φ ( )φ	*!	*
☞ d. ( )φ ( )φ		
e. ( )φ ( )φ ( )φ		*!

b.

[Una botella [de vino [bastante [rosado] $_{AP}$] $_{AP}$] $_{PP}$] $_{NP}$	Max-Bin	Min-Bin
a. ( )φ	*!	*
b. ( )φ ( )φ	*!	*
c. ( )φ ( )φ	*!	*
☞ d. ( )φ ( )φ		
e. ( )φ ( )φ ( )φ		*!

2.4 Alignment effects

Typically, subjects are phrased on their own (S)φ (VO)φ when the verbal projection is relatively short and contains one or two prosodic words (see examples in (19)). Exceptions to this generalization are the following: (a) when the utterance consists of two prosodic words (see minimality effects in Section 2.1); (b) when the verbal projection is long and the V can be grouped with the preceding subject (see Section 2.5).

(19) a. (Javier)φ (visitó Galicia)φ
'Javier visited Galicia.'
b. (Los vecinos catalanes)φ (se enfadan)φ
'The Catalan neighbors get angry.'
c. (La casa de Pineda)φ (se quedó vacía)φ
'The house in Pineda is empty.'
d. (El presidente de la Generalitat)φ (sufre)φ
'The president of the Generalitat is suffering.'

The groupings above are accounted for by the dominant role of Align-XP,R, the constraint responsible for consistently placing a p-boundary after the subject phrase. In the tableaux in (20), the optimal outputs are always of the form (S)φ (VO)φ where the right candidate is the only one that satisfies both the right end-alignment requirement and the Max-Bin (later in this section we will provide evidence that Align-XP,R is ranked higher than Max-Bin). Finally, note that the subordinate constraint Weight-Bal does not play any role in the cases in (20).

(20) a.

[[Javier]$_{NP}$ [visitó [Galicia]$_{NP}$]$_{VP}$]$_{IP/CP}$	Align-XP,R	Max-Bin	Min-Bin
a. ( )φ	*!	*	
☞ b. ( )φ ( )φ			*
c. ( )φ ( )φ	*!		*

  b.

[[Los vecinos [catalanes] $_{AP}$]$_{NP}$ [se enfadan]$_{VP}$]$_{IP/CP}$ P	Align-XP,R	Max-Bin	Min-Bin
a. ( )φ	*!	*	
☞ b. ( )φ ( )φ			*
c. ( )φ ( )φ	*!		*

Crucial evidence for the dominant role of Align-XP,R in the hierarchy comes from the behavior of dative or adjunct PPs that do not depend directly on the preceding noun, that is, those that are non-locally attached to the higher node VP. In a structure like [V [NP]$_{NP}$ [PP]$_{PP}$]$_{VP}$ we can detect a right p-boundary between the accusative and dative objects. The examples in (21) and (22) show that non-local PPs are typically phrased on their own and resist being phrased together with preceding units. The same holds true of locative or temporal phrases. Right alignment of p-phrases with XP projections is thus enforced even when the first p-phrase contains three prosodic words, as in (*Compraba mapas de Barcelona*)φ (*para Ana*)φ. In these cases, two other phrasing options (typical of slower speech rates) are to group the utterance as 1+2+1 (*Compraba*)φ (*mapas de Barcelona*)φ (*para Ana*)φ or as 2+1+1 (*Compraba mapas*)φ (*de Barcelona*)φ (*para Ana*)φ. Significantly, something like *(*Compraba mapas*)φ (*de Barcelona para Ana*)φ with no p-boundary at the syntactic end of the VP projection is unattested in our data.

(21) [[V [NP]$_{NP}$ [PP]$_{PP}$]$_{VP}$]$_{IP/CP}$ → (V NP)φ (PP)φ
  a.   (Compraba mapas de Barcelona)φ (para Ana)φ
      Slower speech: (Compraba)φ (mapas de Barcelona)φ (para Ana)φ
      (Compraba mapas)φ (de Barcelona)φ (para Ana)φ
      BUT: *(Compraba mapas)φ (de Barcelona para Ana)φ
      'He/she used to buy maps of Barcelona for Ana.'
  b.   (Compró las películas de Woody)φ (en Londres)φ
      Slower speech: (Compró)φ (las películas de Woody)φ (en Londres)φ
      (Compró las películas)φ (de Woody)φ (en Londres)φ
      BUT: *(Compró las películas)φ (de Woody en Londres)φ
      'He/she bought Woody [Allen] films in London.'

(22)   [N [PP [AP]$_{AP}$]$_{PP}$ [PP]$_{PP}$]$_{NP}$ → (N PP AP)φ (PP)φ or (N)φ (PP AP)φ (PP)φ

    a.   (Una botella de vino rosado)φ (de Londres)φ
        Slower speech: (Una botella)φ (de vino rosado)φ (de Londres)φ
        (Una botella de vino)φ (rosado)φ (de Londres)φ
        BUT: *(Una botella de vino)φ (rosado de Londres)φ
        'A bottle of rosé wine from London.'

    b.   (Un anillo de plata suiza)φ (para mi madre)φ
        Slower speech: (Un anillo)φ (de plata suiza)φ (para mi madre)φ
        (Un anillo de plata)φ (suiza)φ (para mi madre)φ
        BUT: *(Una botella de plata)φ (suiza para mi madre)φ
        'A ring made of Swiss silver for my mother.'

Figure 2 shows the waveform and intonation contour of the utterance (*Compró las películas de Woody*)φ (*en Londres*)φ 'She/he bought Woody [Allen] films in London', as pronounced by speaker AE. The intonation contour clearly illustrates that the first phonological phrase is pronounced on a high plateau that ends at the boundary of the first p-phrase (after *Woody*); after that, the second phonological phrase is pronounced in a low tone.

    Remember that utterance (22a) is generally phrased as 3+1 (*Compraba mapas de Barcelona*)φ (*para Ana*)φ, and can be phrased in slower speech rates as 1+2+1 (*Compraba*)φ (*mapas de Barcelona*)φ (*para Ana*)φ or as 2+1+1 (*Compraba mapas*)φ (*de Barcelona*)φ (*para Ana*)φ. This example constitutes key evidence that Align-XP,R is ranked higher than Max-Bin and Min-Bin because the phrasing *(*Compraba mapas*)φ (*de Barcelona para Ana*)φ is unattested. As the tableau in (23) illustrates, the latter options 1+2+1 and 2+1+1 are easily derived by the proposed ranking of constraints. Crucially, the winning candidates (e) and (f) are the only ones that do not violate either Align-XP,R or Max-Bin. Yet candidate (c), which is a possible outcome, is ruled out by Max-Bin (where "⊗" means that the candidate should be co-optimal with (e,f) but is not).
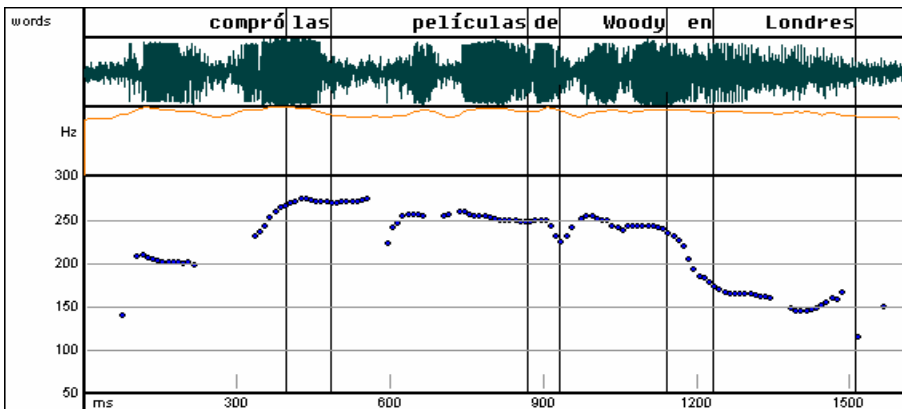

Figure 2. Waveform and intonation contour of the utterance (*Compró las películas de Woody*)φ (*en Londres*)φ '(S)he bought Woody [Allen] films in London', as pronounced by speaker AE.

(23)

[Compraba [mapas [de Barcelona]_{PP}]_{NP} [para Ana]_{PP}]_{VP}	ALIGN-XP,R	WRAP-XP
a. ( )φ	NP!	*
b. ( )φ ( )φ	NP!	*
⊗ c. ( )φ ( )φ		*!
d. ( )φ ( )φ	NP!	
☞ e. ( )φ ( )φ ( )φ		
☞ f. ( )φ ( )φ ( )φ		

At this juncture, we claim that phrasings such (*Compró las películas de Woody*)φ (*en Londres*)φ in (21) and (22) constitute crucial evidence that Max-Bin should be restricted to the end of the utterance: indeed, longer phrases (that is, p-phrases that contain 3 or more prosodic words) tend to appear in utterance-initial position. Similarly, when subjects are long, a p-boundary is placed after the subject, even if it is made up of by four/five prosodic words and the following verbal projections contains just a single word (see (24)). Note that other phrasing options are possible, namely, (*Los vecinos catalanes*)φ (*del Ebro*)φ (*se enfadan*)φ or (*Los vecinos*)φ (*catalanes del Ebro*)φ (*se enfadan*)φ 'The Catalan neighbors from the Ebro region get angry'.

(24)   a.   (Los vecinos catalanes del Ebro)φ (se enfadan)φ
            'The Catalan neighbors from the Ebro region get angry.'
       b.   (La casa de Pineda de Mar)φ (se quedó vacía)φ
            'The house in Pineda de Mar is empty.'
       c.   (El presidente de la Generalitat de Cataluña)φ (sufre)φ
            'The president of the Generalitat of Catalonia is suffering.'

The phrasing patterns above advocate for the substitution of Max-Bin with a more specific restriction on the maximum size of p-phrases Max-Bin(IP Head), stated in (25). This condition is sensitive to phrasal position: it restricts the binarity constraint to p-phrases located at the end of the utterance. In this connection, Frascarelli (2000:67ff) has proposed that in Italian the Min-Bin requirement is restricted to p-phrases with sentential or emphatic stress. Intuitively, prominent constituents within prosodic domains want to be branching, hence minimally and maximally binary.

(25)   Max-Bin (IP Head)
       A phonological phrase which is the head of an IP constituent must be binary
       (at the ω level).

In the case of the Spanish data at hand, if we consider Max-Bin to be restricted to the end of the utterance then we can obtain the right phrasing outcomes in (21), (22), and (24). In the following tableaux in (26), Max-Bin (IP Head) penalizes candidates (a) and (b) but candidates in (d), namely (*Compraba mapas de Barcelona*)φ (*para Ana*)φ and (*Los vecinos catalanes del Ebro*)φ (*se enfadan*)φ, are crucially not penalized by this constraint. The three winning candidates coincide indeed with the three optional outputs. However, in order to choose from these three candidates speech rate effects will have to be taken into account (see summary Section 2.6).

(26) a.

[Compraba [mapas [de Barcelona]$_{PP}$]$_{NP}$ [para Ana]$_{PP}$]$_{VP}$	Max-Bin (IP Head)	Align-XP,R
a. ( )φ	*!	*
b. ( )φ ( )φ	*!	*
⊗ c. ( )φ ( )φ		*!
d. ( )φ ( )φ		
☞ e. ( )φ ( )φ ( )φ		
☞ f. ( )φ ( )φ ( )φ		

b.

[[Los vecinos [catalanes [del Ebro]$_{PP}$]$_{AP}$]$_{NP}$ [se enfadan]$_{VP}$]$_{IP/CP}$	Max-Bin (IP Head)	Align-XP,R
a. ( )φ	*!	NP
b. ( )φ ( )φ	*!	NP
⊗ c. ( )φ ( )φ		NP!
☞ d. ( )φ ( )φ		
☞ e. ( )φ ( )φ ( )φ		
☞ f. ( )φ ( )φ ( )φ		

So far, the Spanish phrasing data have been straightforwardly accounted for by the following constraint hierarchy. Note that reference to syntax is obtained through Align-XP,R and the remaining of the constraints have the goal of maintaining prosodic well-formedness.

(27) Basic hierarchy of constraints
    Max-Bin (IP Head) >> Align-XP,R

2.5 The unexpected behavior of subjects

As the examples in (28) show, Spanish subjects can display some unexpected phrasing properties. In our data, SVO structures display various patterns of optionality when verbal projections are long enough (i.e., they contain three prosodic words): (S)(VO), (SV)(O) and (SVO) are all possible phrasings. While the first two options are possible at normal speech rates, the latter is typical of fast speech rates. That is, verbs can be grouped together with preceding subjects at normal speech rates when objects are long. The phrasing options for slower speech rates are given in (29).

(28) Normal/rapid speech rate
    [[NP]$_{NP}$ [V [N [PP]$_{PP}$]$_{NP}$]$_{VP}$]$_{IP/CP}$ → (S V)φ (O)φ
    a. (Juan leerá)φ (novelas de aventuras)φ
        (Juan)φ (leerá novelas de aventuras)φ
        (Juan leerá novelas de aventuras)φ
        'John will read adventure novels.'
    b. (El periodista comunicó)φ (la noticia del dia)φ
        (El periodista)φ (comunicó la noticia del dia)φ
        (El periodista comunicó la noticia del dia)φ
        'The journalist reported the news of the day.'

    c.   (Javier visitó)φ (la Galicia de sus sueños)φ
         (Javier)φ (visitó la Galicia de sus sueños)φ
         (Javier visitó la Galicia de sus sueños)φ
         'Javier visited his beloved Galicia.'

(29)   Slow speech rate
     [[NP]$_{NP}$ [V [N [PP] $_{NP}$]$_{NP}$]$_{VP}$]$_{IP/CP}$ → (S)φ (V)φ (O)φ
    a.   (Juan)φ (leerá)φ (novelas de aventuras)φ
         (Juan)φ (leerá novelas)φ (de aventuras)φ
         'John will read adventure novels.'
    b.   (El periodista)φ (comunicó)φ (la noticia del dia)φ
         (El periodista)φ (comunicó la noticia)φ (del dia)φ
         'The journalist reported the news of the day.'
    c.   (Javier)φ (visitó)φ (la Galicia de sus sueños)φ
         (Javier)φ (visitó la Galicia)φ (de sus sueños)φ
         'Javier visited his beloved Galicia.'

Figure 3 shows the waveform and intonation contour of the utterance (*Juan leerá*)φ (*novelas de aventuras*)φ 'John will read adventure novels', as pronounced by speaker AE. In the intonation contour, the continuation rise is placed after the verb and clearly exemplifies an (SV)(O) grouping.
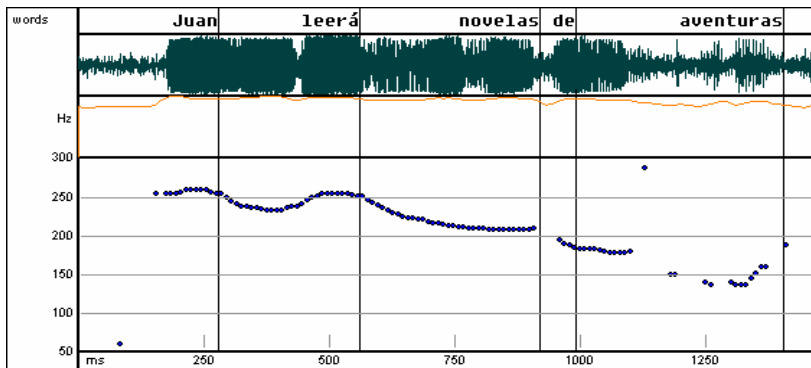

Figure 3. Waveform and intonation contour of the utterance (*Juan leerá*)φ (*novelas de aventuras*)φ 'John will read adventure novels', as pronounced by speaker AE.

While this special behavior of subjects has been systematically reported for Catalan (see Prieto 1997, 2005, Elordieta *et al.* 2003 and D'Imperio *et al.* 2005)[4] and for Japanese (Hirose 2002, in press)[5], for Spanish we find two contradicting reports. On the one

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4. Catalan displays a strong tendency to create prosodic units of similar sizes, thus when subjects are short and objects are long (SV)(O) phrasings are more common. The Catalan results in Elordieta *et al.* (2003) reveal that (SV)(O) phrasings increase both when subjects are short and when objects are long (between an 8%–24% increase in the short subject and long object conditions).

5. In Japanese, a structure like "subject NP + object NP + adverb + verb + dative NP" is generally produced by placing a major prosodic boundary after the subject when it consists of two NPs. But when the subject is made up of a single NP, the boundary is placed after the object NP.

Table 2. Percentages of (SV)(O), (S)(VO) and (SVO) patterns in sentences with short subjects (one prosodic word) followed by long objects (3 prosodic words), for the four speakers.

Speaker	(SV)(O)	(S)(VO)	(SVO)
MN	70%	23%	7%
CA	33%	33%	33%
AE	71%	7%	22%
CG	77%	1%	22%

hand, Nibert (2000) concludes that the default type of phrasing in Spanish is (SV)(O). On the other hand, Elordieta *et al.* (2003, 2005) obtain a large majority of (S)(VO) intonational phrasings and conclude that a default (S)(VO) phrasing predominates regardless of whether objects are long or short. Table 2 shows the total percentages of (SV)(O), (S)(VO) and (SVO) patterns produced in utterances with short subjects (one prosodic word) followed by long objects (3 prosodic words), for the four speakers. A total of 16 sentences have been analyzed per speaker, for both normal and fast speech rates. The results show variation depending on the speaker: while one speaker (CA) displays a balance between the two options, the other three display a strong tendency to produce (SV)(O) phrasings and maintain similar phrase sizes.

We thus conclude that in Spanish both (SV)(O) and (S)(VO) phrasings are possible when the "weight" conditions are favorable (that is, when there are enough number of words in the object), and that there are individual differences among speakers. In our data, the fact that the same utterance was grouped differently across repetitions (even by the same speaker) indicates that there is a certain degree of freedom among different phrasings.

This behavior of these subjects is not predicted under a theory of syntax-phonology interface that takes only Align-XP/Wrap-XP constraints into account: neither the order Align-XP,R >> Wrap-XP nor Wrap-XP >> Align-XP,R would explain an output such as (*Juan leerá*)φ (*novelas de aventuras*)φ 'John will read adventure novels' with no phrase break after the subject.

The constraint hierarchy proposed so far (see tableau (30)) accounts for the two possible phrasings in slow speech (i.e., the phrasings in (29)). The optimal candidates (e) and (f) are the ones that satisfy both Max-Bin(IP Head) and Align-XP. Yet candidate (d), which is a possible outcome, is ruled out by Align-XP (where "⊗" means that the candidate should be co-optimal with (e,f) but is not).

(30)	[[Juan]$_{NP}$ [leerá [novelas [de aventuras]$_{PP}$]$_{NP}$]$_{VP}$]$_{IP/}$	Max-Bin (IP Head)	Align-XP,R
a. ( )φ		*!	*
b. ( )φ ( )φ		*!	
c. ( )φ ( )φ			*!
⊗ d. ( )φ ( )φ			*!
☞ e. ( )φ ( )φ ( )φ			
☞ f. ( )φ ( )φ ( )φ			

How do we obtain the phrasing patterns obtained in more rapid speech? We propose to capture the effects of speech rate on phrasing through the constraint stated in (31), Min-N-PhP = Minimize number of Phonological Phrases, which is only active in fast speech. This constraint penalizes, in a gradual way, outputs with a higher number of p-phrases containing a maximum of 4 prosodic words within a p-phrase. This indeed responds to the universal tendency to have fewer phonological phrases at faster speech rates.[6]

(31)   Min-N-PhP (rapid speech)
      In rapid speech, minimize the number of phonological phrases within an IP.

In tableau (30), Min-N-Phrases would penalize twice the output forms with more than two p-phrases (candidates (e) and (f)), and penalize once the output forms with two p-phrases (candidates (b), (c) and (d)). Thus, the best candidate in fast speech would be the one that grouped all four prosodic words into one p-phrase (ωωωω)φ. Among the possible candidates with two p-phrases (b-d), the optimal candidates are (c) and (d). Although only one right output is obtained, this leaves open the possibility of having optional reorderings of constraints within a given rate of speech.

2.6 Summary of OT analysis of p-phrasing in Spanish

This section contains a summary of the OT analysis of Spanish phrasing defended throughout this article. (32) illustrates the basic hierarchy of constraints for normal/slow speech rates. As shown in the preceding section, the main difference between a normal speech rate and fast speech rates is stated through the constraint Min-N-PhP (minimize the number of p-phrases within an intonational phrase). For fast speech rates, Min-N-PhP would be added as a gradual evaluator of the potential candidates:

(32)   Normal/slow speech rate
      Max-Bin (IP Head) >> Align-XP,R >> Min-Bin

The tableaux in (33) show a summary of the possible outputs in normal/slow speech rates taking into account the complete ranking of constraints. The example types follow the order of their presentation in this article.

(33)   a.

[Compraba [mapas [de Barcelona] PP] NP] VP	Max-Bin (IP Head)	Align-XP,R	Min-Bin
a. ( )φ	*!		
☞ b. ( )φ ( )φ			*
☞ c. ( )φ ( )φ			*

---

6. As an anonymous reviewer has pointed out, another possibility for analyzing the rapid speech effects is to treat them as phonetics-phonology mismatches (in the spirit of Blevins 1995).

b.

[Compraba [mapas [de la Barcelona [antigua] _AP] _PP] _NP] _VP	Max-Bin (IP Head)	Align-XP,R	Min-Bin
a. ( )φ	*!		
b. ( )φ ( )φ	*!		
c. ( )φ ( )φ			*
☞ d. ( )φ ( )φ			
e. ( )φ ( )φ ( )φ			*

c.

[[Javier]_NP [visitó [Galicia]_NP]_VP]_IP/CP	Max-Bin (IP Head)	Align-XP,R	Min-Bin
a. ( )φ	*!	*	
b. ( )φ ( )φ		*!	*
☞ c. ( )φ ( )φ			*!

d.

[Compraba [mapas [de Barcelona]_PP]_NP [para Ana]_PP]_VP	Max-Bin (IP Head)	Align-XP,R	Weight-Bal
a. ( )φ	*!	*	*
b. ( )φ ( )φ	*!	*	*
c. ( )φ ( )φ		*!	
☞ d. ( )φ ( )φ			*
☞ e. ( )φ ( )φ ( )φ			*
☞ f. ( )φ ( )φ ( )φ			*

e.

[[Los vecinos [catalanes [del Ebro]_PP]_AP]_NP [se enfadan]_VP]_IP/CP	Max-Bin (IP Head)	Align-XP,R	Weight-Bal
a. ( )φ	*!	NP	
b. ( )φ ( )φ	*!	NP	*
c. ( )φ ( )φ		NP!	
☞ d. ( )φ ( )φ			*
☞ e. ( )φ ( )φ ( )φ			*!
☞ f. ( )φ ( )φ ( )φ			*

3. Conclusions

The Spanish phrasing data provides critical evidence that prosodic well-formedness constraints play a major role in phrasing decisions, often overriding the syntactic constraints. Following up on Ghini's reanalysis of Italian phrasing, our analysis shows that p-phrase construction in Spanish cannot rely solely on syntactic information but must also obey two prosodic well-formedness constraints: Max-Bin (IP Head) (a binary

phonological weight preference at the end of the utterance), and Mɪɴ-Bɪɴ (a minimality requirement on the prosodic parsing of utterances). These prosodic conditions can be understood as constraints which have the role of increasing the eurhythmic properties of sentences in the sense of creating regular and balanced stress periods. Of course, the constraints that connect syntax to prosody (such as end alignment Aʟɪɢɴ-XP,R) are still relevant. We have demonstrated that Spanish displays no wrapping effects in the data at hand and that the apparent wrapping effects in other sentences can be explained through a prosodic well-formedness constraint on weight balancing. Finally, optimal outputs in fast speech rates are obtained through a constraint (Mɪɴ-N-PʜP) which minimizes the number of phonological phrases in this style of speech. In summary, an adequate theory of prosodic phrasing has to recognize the complex interaction and contribution between syntactic and prosodic (and eurhythmic) effects on phrasing together with crosslinguistic and intralinguistic variation.

References

Beckman, M.E. and Hirschberg, J. 1994. The ToBI Annotation Conventions. http://www.ling.ohio-state.edu/~tobi/ame_tobi/annotation_conventions.html

Blevins, J. 1995. The syllable in phonological theory. In *Handbook of Phonological Theory*, J. Goldsmith, 206–244. Londong: Basil Blackwell.

D'Imperio, M., Elordieta, G., Frota, S., Prieto, P. and Vigário, M. 2005. Intonational phrasing in Romance: The role of syntactic and prosodic structure. In *Prosodies*, S. Frota, M. Vigário and M.J. Freitas (eds), 59–98. The Hague: Mouton de Gruyter.

Elordieta, G., Frota, S., Prieto, P. and Vigário, M. 2003. Effects of constituent length and syntactic branching on intonational phrasing in Ibero-Romance. In *Proceedings of the XVth International Congress of Phonetic Sciences*. M-J. Solé, D. Recasens and J. Romero (eds), Vol. 1, 487–490. Barcelona: Causal Productions.

Elordieta, G., Frota, S. and Vigário, M. 2005. Subjects, objects and intonational phrasing in Spanish and Portuguese. *Studia Linguistica* 59(2–3): 110 –143, (Special issue on *Boundaries in Intonational Phonology*, M. Horne and M. van Oostendorp (eds)).

Frascarelli, M. 2000. *The Syntax-Phonology Interface in Focus and Topic Constructions in Italian*. Dordrecht: Kluwer.

Ghini, M. 1993a. Phonological Phrase Formation in Italian. MA thesis, University of Toronto.

Ghini, M. 1993b. φ-formation in Italian: A new proposal. *Toronto Working Papers in Linguistics* 12: 41–77.

Hellmuth, S. Forthcoming. Prosodic weight and phonological phrasing in Cairene Arabic. *Proceedings of the 40th Annual Chicago Linguistics Society*. Chicago IL: CLS.

McCarthy, J. and Prince, A. 1993a. Generalized alignment. In *Yearbook of morphology 1993*. G. Booij and J. van Marle (eds), 79–153. Dordrecht: Kluwer.

McCarthy, J. and Prince, A. 1993b. *Prosodic Morphology* I: *Constraint interaction and satisfaction*. New Brunswick NJ: Center for Cognitive Science.

Nespor, M. and Vogel, I. 1986. *Prosodic Phonology*. Dordrecht: Foris.

Nespor, M. and Vogel, I. 1989. On clashes and lapses. *Phonology* 6: 69–116.

Nibert, H. 2000. Phonetic and Phonological Evidence for Intermediate Phrasing in Spanish Intonation. PhD dissertation, University of Illinois at Urbana-Champaign.

Post, B. 1999. Restructured phonological phrases in French. Evidence from clash resolution. *Linguistics* 37: 41–63.

Post, B. 2000. Tonal and Phrasal Structures in French Intonation. PhD dissertation, Katholieke Universiteit Nijmegen. (LOT series, Netherlands Graduate School of Linguistics 34).

Prieto, P. 1997. Prosodic manifestation of syntactic structure in Catalan. In *Issues in the Phonology of the Iberian Languages,* F. Martínez-Gil and A. Morales-Front (eds), 179–199. Washington DC: Georgetown University Press.

Prieto, P. 2005. Syntactic and eurhythmic constraints on phrasing decisions in Catalan. *Studia Linguistica* 59(2–3): 194–222.. (Special issue on *Boundaries in Intonational Phonology*, M. Horne and M. van Oostendorp (eds)).

Rao, R. Forthcoming. On intonation's relationship with pragmatic meaning in Spanish. In *Proceedings of the 8th Hispanic Linguistics Symposium*. Somerville MA: Cascadilla.

Sandalo, F. and Truckenbrodt, H. 2002. Some notes on phonological phrasing in Brazilian Portuguese. *MIT Working Papers in Linguistics* 42: 285–310.

Selkirk, E. 1986. On derived domains in sentence phonology. *Phonology Yearbook* 3: 371–405.

Selkirk, E. 2000. The interaction of constraints on prosodic phrasing. In *Prosody: Theory and experiment. Studies presented to Gösta Bruce*, M. Horne (ed.), 231–261. Dordrecht: Kluwer.

Selkirk, E. 2005. Comments on intonational phrasing in English. In *Prosodies*. S. Frota, M. Vigário and M.J. Freitas (eds), 11–58. The Hague: Mouton de Gruyter.

Truckenbrodt, H. 1995. Phonological Phrases: Their relation to syntax, focus, and prominence. PhD dissertation, MIT.

Truckenbrodt, H. 1999. On the relation between syntactic phrases and phonological phrases. *Linguistic Inquiry* 30: 219–255.

Appendix

Encuesta agrupación prosódica

Nombre, edad y lugar de nacimiento: _____

_____

Lea las siguientes frases en dos veces separadas. La primera a una velocidad más bien lenta (es decir, si la frase no es muy corta, agrupando la frase en varias partes) y la segunda a una velocidad más bien rápida. Es importante que imagine que está leyendo información nueva, al estilo noticia (es decir, imagine que son frases respuesta a una pregunta como *¿Qué pasa?*

1. Le nombraron profesor
2. Le nombraron profesor de filología
3. Le nombraron profesor de filología románica

4. Saldrán dos volúmenes
5. Saldrán dos volúmenes importantes
6. Saldrán dos volúmenes importantes de verdad

7. Recibió la felicitación
8. Recibió la felicitación de amigos
9. Recibió la felicitación de amigos personales

10. Compraré yogures
11. Compraré yogures de la sierra

12. Compraré yogures de la sierra de Gredos

13. He visto el circo
14. He visto el circo lleno
15. He visto el circo lleno de cebras

16. Comeré pasteles
17. Comeré pasteles de chocolate
18. Comeré pasteles de chocolate amargo

19. Compraba mapas
20. Compraba mapas de Barcelona
21. Compraba mapas de la Barcelona antigua

22. Sacó a los tigres
23. Sacó a los tigres de la jaula
24. Sacó a los tigres fuera de la jaula

25. Compraba mapas para Ana
26. Regaló el libro a María
27. Empujó a Juan dentro del agua
28. Envió besitos a Ana
29. Compró las películas de Woody
30. Compró las películas en Londres
31. Compró las películas de Woody en Londres

32. Comprarán un anillo de plata
33. Comprarán un anillo de plata en Suiza
34. Comprarán un anillo de plata suiza

35. Una botella de vino
36. Una botella de vino rosado
37. Una botella de vino rosada

38 .Un anillo de plata
39. Un anillo de plata suiza
40. Un anillo de plata suizo

41. La nena quiere
42. La nena quiere los regalos
43. La nena de María no quiere los regalos
44. La nena boliviana de María no quiere los regalos

45. La casa se quedó vacía
46. La casa de Pineda se quedó vacía
47. La casa de Pineda de Mar se quedó vacía

48. El presidente sufre
49. El presidente de la Comunidad de Madrid sufre
50. El presidente de la Comunidad de Madrid sufre por los resultados
51. El presidente de la Generalitat de Catalunya sufre

52. Los vecinos catalanes se enfadan
53. Los vecinos catalanes del Ebro se enfadan
54. Los vecinos catalanes del otro lado del Ebro se enfadan

55. El discurso terminó
56. El discurso del norteamericano terminó
57. El discurso del Secretario de Estado Colin Powell terminó
58. El discurso del Secretario de Estado norteamericano Colin Powell terminó

59. El periodista comunicó la noticia
60. El periodista comunicó la noticia del día
61. El periodista comunicó la emotividad de la noticia

62. Javier visitó Galicia
63. Javier visitó Galicia en bicicleta
64. Javier visitó la Galicia de sus sueños
65. Javier visitó la Galicia de sus sueños en bicicleta

66. María bebió agua destilada
67. María bebe agua destilada
68. María bebía agua destilada
69. María vende peras de Valencia
70. María vendía peras de Valencia
71. Juan leerá novelas de aventuras
72. Juan leerá libros de aventuras

73. Compraba mapas de Barcelona
74. Compraré mapas de Barcelona
75. Compraré pasteles de chocolate
76. Compraba flanes de chocolate
77. Compraré flanes de chocolate
78. Saldrán volúmenes importantes
79. Saldrán cartas importantes
80. Recibirá la felicitación de amigos
81. Recibirá cartas de amigos
82. Compraré yogures de la sierra
83. Compraré peras de Lérida
84. Leyó novelas de aventuras
85. Leyó libros de aventuras