

Focus-related constituent order variation without the NSR: A prosody-based crosslinguistic analysis*

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Abstract

In this paper we show how to derive focus-related constituent order variation in transitive clauses in English, Spanish, and German, within a prosodic theory of prominence such as Selkirk (1995) or Truckenbrodt (1999). These works have noted that focus, intonation and constituent order requirements can be in conflict with one another, and Truckenbrodt (1999) has shown that sacrificing the canonical pattern of phonological phrasing is a strategy that some languages use to solve such potential conflicts. Building on these observations, we propose that movement of focused XPs is the strategy that is used to accommodate these conflicts in languages where sacrificing the canonical pattern of phonological phrasing is not an option. The resulting analysis is one where the focus and intonational requirements of English, Spanish and German are essentially the same, contrary to what has been suggested in previous work. Instead, these languages differ in when and whether they sacrifice phonological phrasing requirements or syntactic requirements. As such, our analysis preserves the insights captured in Zubizarreta's (1998) treatment of these phenomena, while maintaining the assumption, shared in most recent work on phonological phrasing and accenting, that prominence is not governed by parameterized syntax-based principles such as the Nuclear Stress Rule.

0. Introduction

It is well known that languages differ in whether or not they show non-canonical constituent order in cases of subject focus (Contreras 1976, Vallduví 1992, Ladd 1996, Zubizarreta 1998, to cite just a few references), a phenomenon that will be referred to henceforth as focus-related constituent order variation. There are languages like English (SVO), where constructions with focused subjects display canonical constituent order, with a focused subject receiving the main pitch accent (marked by caps) in-situ, as in (1).

- (1) a. Who bought the newspaper?
b. JOHN bought the newspaper. SVO

On the other hand, there are languages like Spanish (also SVO), that display subject inversion when the subject is in focus, as in the answer in (2b).

- (2) Spanish
- a. Quién compró el periódico ayer?
 who bought the newspaper yesterday
 ‘Who bought the newspaper yesterday.’
 - b. Ayer compró el periódico JUAN. VOS
 yesterday bought the newspaper Juan
 ‘JUAN bought the newspaper yesterday.’

Finally, there are languages like German that display both patterns. Thus in German subordinate clauses (canonically SOV) a focused subject can be accented in-situ, as in the answer in (3b), or it can follow the object, as in (3c) (although there is a slight preference for the former construction).¹

- (3) German
- a. Wer ernannt den Aussenminister? - Es wird erwartet, dass
 who nominates the foreign-minister it is expected that
 ‘Who’s in charge of nominating the foreign minister?- It is expected that...’
 - b. der KANZler den Aussenminister ernannt. SOV
 the chancellor the foreign-minister nominates
 ‘...the chancellor nominates the foreign minister.’
 - c. den Aussenminister der KANZler ernannt. OSV
 the foreign-minister the chancellor nominates
 ‘...the chancellor nominates the foreign minister.’

On the other hand, in transitive sentences in which the direct object, the VP, or the whole sentence is in focus, all three languages behave similarly, with the main pitch accent on the direct object of the clause, and the subject preceding the object as shown in (4-6).

- (4) English
- a. Sentence focus
 - i. What’s been happening?
 - ii. John bought the NEWSpaper.
 - b. VP focus
 - i. What did John do?
 - ii. John bought the NEWSpaper.
 - c. Object Focus
 - i. What did John buy?
 - ii. John bought the NEWSpaper.

(5) Spanish

a. Sentence focus

- i. Qué pasó?
'What happened.'
- ii. Juan compró ayer el periódico.
Juan bought yesterday the newspaper
'Juan bought the newspaper yesterday.'

b. VP focus

- i. Qué hizo Juan?
'What did Juan do?'
- ii. Juan compró ayer el periódico.
Juan bought yesterday the newspaper
'Juan bought the newspaper yesterday.'

c. Object Focus

- i. Qué compró Juan ayer?
'What did Juan buy yesterday?'
- ii. Juan compró ayer el periódico.
Juan bought yesterday the newspaper
'Juan bought the newspaper yesterday.'

(6) German

a. Sentence focus

- i. Worauf warten all? - Es wird erwartet, dass
where-upon wait all it is expected that
'What's everybody waiting for? -It is expected that...'
- ii. der Kanzler den Aussenminister ernennt.
the chancellor the foreign-minister nominates
'... the chancellor nominates the foreign minister.'

b. VP focus

- i. Was wird der Kanzler als nächstes tun? -Es wird erwartet,
what will the chancellor for next do it is expected
dass
that
'What's the chancellor supposed to do next?-It is expected
that...'
- ii. der Kanzler den Aussenminister ernennt.
the chancellor the foreign-minister nominates
'... the chancellor nominates the foreign minister.'

c. Object Focus

- i. Wen ernennt der Kanzler als nächstes? - Es wird
who nominates the chancellor for next it is
erwartet, dass
expected that
'Who is the chancellor going to nominate next? -It is expected
that...'
- ii. der Kanzler den Aussenminister ernennt.
the chancellor the foreign-minister nominates
'... the chancellor nominates the foreign minister.'

Descriptively, what the examples in (4-6) show when compared with the examples in (1-3), is that all three languages have fairly similar intonational and syntactic properties. When the subject is in focus, however, these languages differ in whether the intonational pattern is changed, as in English, whether canonical constituent order is sacrificed, as in Spanish, or whether either possibility is allowed, as in German.

In a large number of recent works (Vallduví 1992, Ladd 1996, Zubizarreta 1998, to cite just a few references; see also Costa 1996, 1998 for an Optimality-theoretic approach), focus-related constituent order variation as in (2b) and (3c) has been linked to the need for foci to receive prominence via sentential stress, sentential stress in turn determining the location of the nuclear pitch accent; in other words, the target position of the focused items is not a specific focus position, but simply a (nuclear) stress position. The difference between focus marking between, say, English and Spanish is not ‘prosodic prominence versus syntactic position’, but rather ‘prosodic prominence in situ versus prosodic prominence in a specific position’. Focus marking, on this view, is inevitably realized by prosodic prominence, in particular stress.

The present proposal shares this view, but differs from previous implementations of it (such as Zubizarreta 1999, Neeleman & Reinhart 1998, Costa 1996, Choi 1996) in that it adopts a genuinely prosodic account of stress. It thereby attempts to bridge the gap between the aforementioned theories of constituent order variation, which assume a syntax-based algorithm for main stress assignment, and the huge phonological literature on phrasing and stress, which convincingly shows that stress assignment is based on prosodic structure. This in turn yields empirical advantages, such as a uniform treatment of nuclear and pre-nuclear pitch accents, which ultimately results in a simpler theory of the focus--stress relation.

Specifically, we propose to view stress assignment as a function of the alignment of prosodic phrases, in particular at a level we call the phonological phrase, which roughly corresponds to the accent domains of Gussenhoven (1984). Sentences (4)-(6) display the optimal way for all three languages to align prosodic phrases to the syntactic structure. The subject focus patterns in (1b) and (3b) on the other hand present adjustments of the phonological phrasing, which serve to guarantee relative prominence patterns between the constituents that are consistent with the focus structure assigned.

We thus provide a specific and perhaps somewhat unexpected implementation of the idea expressed by Vallduví (1992), Ladd (1996), among others, that the assignment of sentential stress is strictly sentence-final in Spanish, but flexible in English (and German). On our view, sentential stress assigned identically in all constructions in all three languages, but “hits” different constituents, depending on the number and alignment of phonological phrases. The uniformity of primary stress assignment in (4)-(6) is due to this one uniform sentential stress assignment. The differences in the subject focus patterns result from more subtle differences at the level of phonological phrase construction.

We present our approach in terms of ranked and violable constraints (Optimality Theory), which lends itself naturally to the prosodic treatment proposed. It also allows for an alternative approach to cross-linguistic variation, which instead of switching particular mechanisms on and off (such as Zubizarreta's (1998) ‘metrical invisibility’) or replacing one by the other (such as ‘main stress by focus’ vs. ‘main stress by structure’) simply varies the relative strength of identical conditions across languages. This kind of approach implies that even a condition that is apparently irrelevant in a particular language, such as the requirement to map onto a phonological phrase and hence give phrasal stress to every lexical projection of a certain size --- which is clearly violated in subject

focus constructions in English --- can be seen to be active under certain favorable circumstances in that language, for example broad focus constructions.

We believe that this pattern is indeed evidenced in the languages under consideration quite in general, lending support to a constraint-ranking approach. For example, the prosodic patterns of sentences with foci in medial position in English and German (e.g. on the direct object in double-DP ditransitive clauses) is identical to that in broad focus constructions to the left of the main stress, though not to its right. This follows from the kind of approach given here, though space does not permit us to discuss these more complex constructions here.

In general, we have deliberately chosen to present an extremely limited fragment of constructions in an extremely limited set of languages, in order to be able to illustrate the essential workings of the prosody based account within the confines of a journal article. More detailed investigations into the languages discussed here can be found in Büring (2001a,b) and Gutiérrez-Bravo (2000).²

1. Constituent order

With respect to the syntax of the data under consideration, we will use the following constraint, which establishes that the subject is structurally more prominent than the object in the unmarked case.

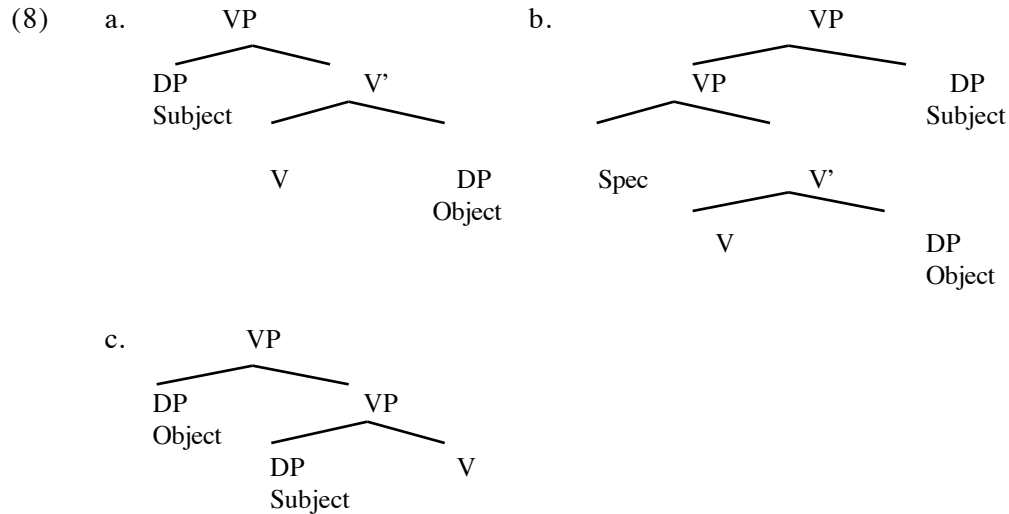
(7) SO

The subject is structurally more prominent than the object.

-Violated when the subject does not asymmetrically m-command the object.

Concretely, SO is satisfied when the subject occupies Spec-IP and the object remains in its VP-internal position. Crucially, all the structures

in (8) violate this constraint. Whether the subject remains in Spec-VP (8a), or it is right-adjoined to VP (8b), or the object is scrambled, the subject fails to asymmetrically m-command the object.



We follow the standard assumption that the verb undergoes movement to I in Spanish.³ After V-to-I movement, (8b) and (8c) result in the VOS order characteristic of the cases where the subject is in focus. We also assume that German OSV is the result of scrambling of the direct object, where the subject stays in Spec-VP, so these structures will also incur in a violation of SO.

While the effects of SO follow to a large extent from simpler and independently proposed constraints such as Grimshaw's (1997) SUBJECT constraint or Costa's (1996, 1998) SUBJECT-CASE, some structural variants of OS-ordering punished by SO, e.g. scrambling of the object across a subject in Spec-IP in German, do not, and would hence necessitate the inclusion of further syntactic constraints. Furthermore, a number of analyses of the syntax of Spanish (Contreras 1991, Ordóñez & Treviño 1999, Gutiérrez-Bravo 2002) have claimed that in this language the subject does not move to the preverbal position because

of Case considerations. Since these considerations are orthogonal to the main goal of this paper, we will stick to the SO constraint for expository reasons.⁴

2. Phrasing and intonation

Throughout we assume that sentences are mapped into exhaustive strings of phonological phrases (henceforth, pP's), which in turn form an intonational phrase (henceforth, iP). However, we assume that the languages under consideration differ with respect to the kinds of constituents which they allow phonological phrases to correspond to. While English and German phonological phrases sometimes contain more than one prosodic word and correspond roughly to lexical XPs (Selkirk 1984, Truckenbrodt 1999), Spanish strictly aligns phonological phrases with prosodic words (PrWds).⁵ So English and German map a transitive sentence as in (9a) and (9b) respectively, whereas Spanish maps it as in (10).

- (9) a. English
 (S) (V O)
 [NP] [[NP]VP]
- b. German
 (S)(O V)
 [NP] [VP [NP]]
- (10) Spanish
 (S) (V)(O)
 [N_{NP}] [V [N_{NP}]VP]

The effect of these different mappings is subtle but systematic: Since each phonological phrase has exactly one head, it has exactly one position with phrasal stress that a pitch accent (nuclear or pre-nuclear) can be associated with. Accordingly, we find two pitch accents in English and German transitive sentences – one on the subject, one on the object – while there are three – subject, verb, and object – in Spanish.

The well-known fact that predicate and argument form an ‘accent domain’, or that focus can ‘project’ from an argument to a head, or that predicates and argument ‘integrate’ (Schmerling 1976, Gussenhoven 1983, Rochemont 1986, Jacobs 1993, Selkirk 1995, among many others) in English and German is thus captured as a fact about prosodic phrasing.⁶ It is also worth noting that Spanish is not the only language in which verbs do not integrate with their arguments and hence bear their own pitch accent. A particularly striking example, brought to our attention by a reviewer, is Bengali, as discussed in Hayes and Lahiri (1990), where, too, the verb carries its own pitch accent. Since Bengali is a head-final language, this pitch accent often becomes the nuclear pitch accent (i.e. the head of the intonational phrase) as well.

We follow Truckenbrodt (1999) in assuming that (all else being equal) phonological phrases do not align with functional projections, so we do not represent in the schemas the functional projections present in the structures in (9) and (10). From here onwards we represent phonological phrases with parentheses.

2.2 English and German

For the cases of simple transitive clauses, the phrasing pattern of English and German in (9) can be derived immediately by Truckenbrodt’s (1999) constraints WRAP and STRESS-XP: The former requires that lexical XPs not be ‘split up’ into several prosodic phrases; the latter requires that each XP receive phrase level stress, i.e., that it contain the head of a prosodic phrase, which effectively stops prosodic phrases from growing too large. So if two lexical XPs exclude one another, as in the case of the subject NP and VP, each forms its own prosodic phrase, satisfying STRESS-XP; WRAP is not violated, since there is no higher lexical XP containing the subject NP and the VP that gets split up by this phrasing.

On the other hand, if a lexical XP contains another one (call it YP), WRAP will demand that they be part of the same prosodic phrase. Crucially, STRESS-XP can be satisfied in that configuration too if the head of that prosodic phrase (i.e. the phrasal stress) is within the embedded YP (since in this case both XP and YP receive phrase level stress; note that there is no constraint requiring that the syntactic head of XP be itself stressed). Thus a VP containing an object will be mapped onto one prosodic phrase, with the stress put on the object. Again both STRESS-XP and WRAP are satisfied. The English/German phrasing and accenting pattern is thus derived, regardless of the relative ranking of these two constraints.

WRAP and STRESS-XP, however, do not cover all cases which accent domain formation rules such as Gussenhoven's (1983) Sentence Accent Assignment Rule (SAAR) do, for example. Observe that a number of predicate argument constructions in English show the characteristic accent-on-the-argument pattern, in which, however, the predicate is itself (or contains) a lexical XP, not just a head:

- (11) a. A TRAIN arrived. (unaccusative verbs)
 b. The SUN is shining. (certain unergative intransitives)
 c. They bought the SHOP empty. (resultative secondary predicates)
 d. I've got a TRAIN to catch. (short infinitival relatives)
 e. He met a GIRL he knew. (short finite relatives)

We conclude that the phrasing of verbs and their objects is not purely a function of phrase structure, but rather of their semantic relation, and therefore adopt the rather more descriptive constraints in (12) in favor of Truckenbrodt's constraints:

- (12) XP=pP:
Align a (lexical) XP with a phonological phrase.
- A. PRED
A predicate shares a phonP with at least one of its arguments.
- B. XP
A phonP contains an XP. If XP and YP are within the same phonP, one contains the other (where X and Y are lexical categories).

The evaluation of the XP=pP constraint is exemplified in the tableaux (13) and (14), where for clarity each condition is presented separately on the right side of the tableau. Candidates (13b) and (14b), where there is a single phonological phrase in the sentence, violate the XP condition, since the subject and the object are part of the same phonological phrase but neither contains the other. On the other hand, candidates (13c) and (14c), where every phonological phrase corresponds to a prosodic word, violate the PRED condition, since the verb does not form a phonological phrase with any of its arguments. The winning candidates are thus (13a) and (14a), with one phonological phrase aligned with the subject NP and the other one with the VP.

(13) English

	XP=pP	
	PRED	XP
☞ a. (John) (bought the newspaper)		
b. (John bought the newspaper)		*!
c. (John) (bought) (the newspaper)	*!	

(14) German: ‘...(that) the chancellor nominates the foreign minister.’

	XP=pP	
	PRED	XP
☞ a. (der Kanzler) (den Aussenminister ernennt)		
b. (der Kanzler den Aussenminister ernennt)		*!
c. (der Kanzler) (den Aussenminister) (ernennt)	*!	

When a phonological phrase contains both a predicate and its argument, as in the VPs in (13) and (14), it is the argument that receives the accent, all else being equal. This result is obtained by means of the constraint in (15):⁷

- (15) ARGUMENT-OVER-PREDICATE (A/P)
 Within a Phonological Phrase, an argument is more prominent than a predicate.

Tableau (16) exemplifies for an English VP how this constraint is evaluated. Concretely, A/P is violated when the verb is accented instead of its complement.

(16) English

	A/P
☞ a. (bought the NEWSspaper)	
b. (BOUGHT the newspaper)	*!

To be sure, the phrasing derived by these constraints only shows up if focusing doesn't intervene, as it does in the narrow subject focus cases we discuss below. Other instances in which the phrasing will come out differently include narrow verb focus and wide foci with given objects (e.g. pronouns), in all of which cases the pitch accent falls on the verb. See Büring (2001a,b) for discussion.

2.3 Spanish

Consider now Spanish, where, following an observation by Sosa (1991:54), we propose that every phonological phrase corresponds to a prosodic word. This kind of phrasing is the result of the constraint in (17).

- (17) PrWd=pP
Align the right edge of each prosodic word with the right edge of a PhonP.
Violated once for every lexical head (N, V, etc.) whose right edge is not aligned with the right edge of a PhonP.

Evidence for the claim that in Spanish every prosodic word corresponds to a phonological phrase can be found in the fact that in Spanish every prosodic word receives an accent (Fant 1984; Sosa 1991, 1999; Face 2000).

- (18) A+ A A B
Los mozos sacaron la moto del garaje.⁸
the butlers took the motorcycle of-the garage
'The butlers took the motorcycle out of the garage.' (Fant 1984)⁹

In (18) we adopt Fant's representation of pitch accents in Spanish to abstract away from dialectal variation; Sosa (1999), for example, analyses the A accents in Latin American and Peninsular Spanish as L*+H, and the B nuclear accent as typically L*. In a more detailed study of Peninsular Spanish, Face (2000) also analyzes the pre-final pitch accents as L*+H, but instead analyzes the final pitch accent as L+H*. The important point, however, is that the pattern in (18) is observed in one way or another in the data analyzed in all these works.

It is important to note that the accents in (18) are not simply the realization of lexical stress in Spanish, a fact that is systematically pointed out in the literature on intonation in this language (see for instance Fant 1984, Sosa 1991, 1999; Hualde 2002 and references therein). This is because, as noted in these works, there are cases in Spanish where prosodic words are not accented, but still receive lexical stress, which shows that there is no necessary one-to-one relation between accenting and lexical stress. The precise characterization of these cases is still poorly understood, but they are sometimes described as instances where the unaccented word has less semantic or functional "weight" than what it would usually have. They typically correspond to "light" verbs such as be and go,

transitive infinitival verbs followed by their direct objects, and the verbs of some lexicalized expressions. In example (19) we present an example of such a lexicalized expression, from Sosa (1999: 131; gloss and translation are our own), where we represent all lexically stressed syllables in small caps. Although Sosa does not include this example as part of his discussion of the difference between lexical stress and accent in Spanish, our observation is that (19) is not literally a petition for someone to go and bring a chair closer, but rather a polite request for someone to have a seat. In this case the unit formed by the verb and its nominal complement receives just one accent, which falls on the complement.

- (19) L*+H L+H* H*+H L%
 | | |
 QueRRÍA ustED acerCAR unaSilla?
 would you bring.close a chair
 ‘Would you please have a seat?’

In analyzing the intonational pattern of Spanish, Alcoba & Murillo (1998) propose that an intonational phrase in Spanish is composed of one or more tonic groups, each of which consists of a prosodic word plus all the clitics and stressless elements that appear to its left (Cf. also Sosa’s 1991, 1999 notion of *rhythmic group*). We would like to suggest that what has been described in the literature on intonation in Spanish as tonic groups are phonological phrases that result from the ranking where PrWd=pP outranks XP=pP. This is shown in tableau (20); for clarity, violations of PrWd=pP are signaled in the tableau with the category of the prosodic word that fails to have its right edge aligned with the right edge of a phonological phrase.

(20) Spanish: ‘Juan bought the newspaper.’

	PrWd=pP	XP=pP
a. (Juan) (compró el periódico).	V!	
b. (Juan compró el periódico).	N!V	
☞ c. (Juan) (compró) (el periódico).		*

Candidate (20a) violates PrWd=pP because the verb compró ‘bought’, does not form a phonological phrase by itself. Candidate (20b), where a single phonological phrase corresponds to the whole of the sentence incurs two violations of this constraint because neither the subject nor the verb is right-aligned with a phonological phrase. The winning candidate is (20c), where every prosodic word corresponds to a phonological phrase. The winning candidate violates XP=pP, specifically, the PRED condition, since the predicate does not form a phonological phrase with any of its arguments, but this violation has no effects because of the ranking PrWd=pP >> XP=pP. English and German, on the other hand, display the opposite ranking, as exemplified for English in tableau (21). This derives the phrasing pattern previously discussed for these languages, where the sentence is mapped into two phonological phrases, corresponding to the subject NP and the VP. Here the losing candidate (21b) loses to (21a) because of its violation of the PRED condition, since the predicate does not form a phonological phrase with any of its arguments.

(21) English

	XP=pP	PrWd=pP
☞ a. (John) (bought the newspaper).		V
b. (John) (bought) (the newspaper).	*!	

2.4 Prominence in the intonational phrase

To conclude this section, we consider how the most prominent prosodic unit in the intonational phrase is determined. Again following Selkirk (1984, 1995), Truckenbrodt (1999), *inter alia*, we assume that one of the phonological phrases that make up the intonational phrase is signaled by the nuclear pitch accent as the head of the intonational phrase. We propose that in all three languages under consideration this process is governed by the alignment constraint in (22), which requires the rightmost phonological phrase to become the head of the intonational phrase (see Truckenbrodt 1999).

- (22) iP-Hd-right:
Align the right edge of every iP with the right edge of the PhonP that is the head of the iP.
-Violated when the phonP that receives the nuclear accent is not right-aligned with the iP.

Henceforth, in the prosodic representation we mark the head of the iP by an \underline{x} within the iP. The constraint in (22) will be violated by a structure like the one schematized in (23), where the phonological phrase that contains this accent is not right-aligned with the intonational phrase:

- (23) $\left(\begin{array}{c} X \\ \end{array} \right)_{iP}$
 $\left(\right)_{\text{PhonP}}$

We further propose that iP-Hd-right is undominated in all three languages. As a summary of the discussion on intonation in this section, the rankings of the intonational constraints presented in this section for English, German and Spanish are presented in (24).¹⁰

- (24) a. English: iP-Hd-right, A/P, XP=pP >> PrWd=pP
b. German: iP-Hd-right, A/P, XP=pP >> PrWd=pP
c. Spanish: iP-Hd-right >> PrWd=pP >> XP=pP, A/P¹¹

At this point, we can already derive one of the observations made in the introduction. Although English and German resort to a phrasing strategy different from the one observed in Spanish, the rankings in (24) yield the result that, all else being equal, in a transitive sentence in the three languages the nuclear accent will fall on the direct object. This is shown in the tableaux in (25).

(25) a. English

	iPHd-R	A/P	XP=pP	PrWd=pP
☞ a. (John) (bought the NEWSpaper)				V
b. (John) (BOUGHT the newspaper)		*!		V
c. (JOHN) (bought the newspaper)	*!			V
d. (John) (bought) (the NEWSpaper)			*!	

b. German

	iPHd-R	A/P	XP=pP	PrWd=pP
☞ a. (der Kanzler)(den AUssenminister ernennt)				V
b. (der Kanzler)(den Aussenminister erNENNT)		*!		V
c. (der KANZler)(den Aussenminister ernennt)	*!			V
d. (der Kanzler)(den Aussenminister)(erNENNT)			*!	

c. Spanish

	iPHd-R	PrWd=pP	XP=pP	A/P
☞ a. (Juan) (compró) (el peRIÓdico)			*	
b. (Juan) (comPRÓ) (el periódico)	*!			
c. (JUAN) (compró) (el periódico)	*!			
d. (Juan) (compró el peRIÓdico)		V!		

The fact that, when all else is equal, all three languages will show the same intonational pattern, despite the differences in phrasing, will provide us with the basic foundations to understand how and when they differ and how and when they behave in a similar way once focus considerations are introduced.

3. Focus

Before introducing focus considerations to the picture laid out so far, we present our assumptions regarding foci. In what follows, we will consider only cases where the focus is the constituent in the answer to a simple *wh*-question that corresponds to the *wh*-phrase in the question, as in (26).

- (26) a. Who screamed?
 b. JOHN screamed.

Delimiting focus in this way is of particular importance when we consider the case of Spanish. Subject to some dialectal variation and also to the degree of definiteness and individuation of the subject DP, Spanish presents constructions like (27a), where the focused subject appears in Spec-IP (from Zubizarreta 1998). It has been noted in the literature (Silva-Corvalán 1983, Fant 1984, and Zubizarreta 1998) that in these cases the subject has intonational properties associated with it that are different from those of the sentence-final subject of VOS sentences like (2b)¹². More importantly, (27a) also differs from (2b) in its interpretation: It can only have a corrective interpretation, such as an answer to a question like (27b), where the answer is overtly implied by means of a tag or understood to be implied by the hearer.¹³ Whether the focus in (26b) and (27a) correspond to two different kinds of foci, or whether some other variable is responsible for the differences in intonation and interpretation between these two examples, is an issue that will not be dealt with here.

- (27) a. MARÍA me regaló la botella de vino.
 Maríato-me gave the bottle of wine
 ‘MARÍA gave me the bottle of wine.’
 b. Quién te regaló la botella de vino? (Juan, verdad)?
 who to-you gave the bottle of wine Juan right
 ‘Who gave you the bottle of wine?(Juan, right?).’

Now, to derive the effect by which the focus ends up being intonationally the most prominent constituent in the sentence we propose the formalization of Truckenbrodt's (1995) FOCUS PROMINENCE constraint in (28), which we further assume to be undominated in all three languages under consideration.¹⁴

- (28) FOCUS PROMINENCE (FP)
 Focus is most prominent.
 -If α is a prosodic constituent at level n which contains a syntactic node that is F-marked, β is the head of the prosodic category at level $n+1$ that contains α .

The effects of this constraint are exemplified in (29). When the focus is a prosodic word, this prosodic word must become the head of the phonological phrase that contains it, as in (29a). In turn, a phonological phrase containing a focus must become the head of the intonational phrase, as schematized in (29b). As with the iP-head, an \underline{x} at the phonological phrase level above a prosodic word marks that prosodic word as the head of the phonological phrase.

- (29) a. $\left(\begin{array}{c} \underline{X} \\ (X) \end{array} \right)_{\text{PhonP}} \left(\begin{array}{c} X_{\text{FOC}} \\ (X) \end{array} \right)_{\text{PrWd}}$
- b. $\left(\begin{array}{c} \underline{X} \\ (X) \end{array} \right)_{\text{iP}} \left(\begin{array}{c} X \\ (X) \end{array} \right)_{\text{PhonP}} \left(\begin{array}{c} X \\ (X) \end{array} \right)_{\text{PrWd}} \left(\begin{array}{c} X_{\text{FOC}} \\ (X) \end{array} \right)_{\text{PrWd}}$

In a nutshell, what the FP constraint ensures is that the nuclear accent in an intonational phrase will fall on the focus, thus making it the most prominent constituent in the sentence. Now the crucial observation at this point is that when the subject is the focus in a transitive construction, in all three languages a conflict results between the requirements of FOCUS PROMINENCE and iP-Hd-Right, as schematized in (30):

- (30) a. English: $\left(\begin{array}{c} \\ \left(\right) \\ S_{\text{Foc}} \quad V \quad O \end{array} \right)_{\text{iP}} \left(\right)_{\text{PhonP}}$ b. German: $\left(\begin{array}{c} \\ \left(\right) \\ S_{\text{Foc}} \quad O \quad V \end{array} \right)_{\text{iP}} \left(\right)_{\text{PhonP}}$
- c. Spanish: $\left(\begin{array}{c} \\ \left(\right) \\ S_{\text{Foc}} \quad V \quad O \end{array} \right)_{\text{iP}} \left(\right)_{\text{PhonP}}$

On the one hand, iP-Hd-Right requires the rightmost pP to be the head of the intonational phrase; on the other, FOCUS PROMINENCE requires the phonological phrase that corresponds to the subject (and which is not the rightmost pP) to become the head of the intonational phrase so that the focus can be most prominent. There are two ways to solve this conflict without violating iP-Hd-Right or FOCUS PROMINENCE. One is to violate the constraint that governs the optimal phrasing pattern in these languages (XP=pP in English and German, PrWd=pP in Spanish) so that there is a single phonological phrase, which is right aligned with the intonational phrase and which has the focus as its prosodic head (see also Truckenbrodt 1999). This possibility is schematized in (31).

- (31) a. English: $\left(\begin{array}{c} X \\ \left(X \right) \\ S_{\text{Foc}} \quad V \quad O \end{array} \right)_{\text{iP}} \left(\right)_{\text{PhonP}}$ b. German: $\left(\begin{array}{c} X \\ \left(X \right) \\ S_{\text{Foc}} \quad O \quad V \end{array} \right)_{\text{iP}} \left(\right)_{\text{PhonP}}$
- c. Spanish: $\left(\begin{array}{c} X \\ \left(X \right) \\ S_{\text{Foc}} \quad V \quad O \end{array} \right)_{\text{iP}} \left(\right)_{\text{PhonP}}$

An alternative possibility is to respect all the relevant intonational and phrasing requirements, but sacrifice the syntactic requirements of the SO constraint instead (descriptively, sacrificing canonical constituent order). This can be achieved by either having the subject in a position where it can form the rightmost phonological phrase with the verb, as in (32a) for English and (32b) for German, or by having the subject in the rightmost position forming its own phonological phrase, as in (32c) for Spanish.

- (32) a. English: $\begin{pmatrix} & & X \\ & & \end{pmatrix}_{iP}$
 $\begin{pmatrix} & & X \\ O & V & S_{Foc} \end{pmatrix}_{PhonP}$
- b. German: $\begin{pmatrix} & X & \\ & & \end{pmatrix}_{iP}$
 $\begin{pmatrix} & X & \\ O & S_{Foc} & V \end{pmatrix}_{PhonP}$
- c. Spanish: $\begin{pmatrix} & & X \\ & & \end{pmatrix}_{iP}$
 $\begin{pmatrix} & & X \\ O & V & S_{Foc} \end{pmatrix}_{PhonP}$

English chooses the strategy in (31), Spanish chooses the strategy in (32), while German allows for either. As will be shown in the following and final section, the correct result can be arrived at simply through the ranking of the SO constraint relative to the constraint that governs canonical phrasing in the languages under consideration.

4. A cross-linguistic analysis

The final rankings for the languages under consideration are presented in (33), where $\langle\langle\rangle\rangle$ indicates a constraint tie. For simplicity we leave the A/P constraint out of the rankings and in the tableau to follow we present only candidates that satisfy this constraint.

- (33) a. English: FocP, iPHdR, SO \gg XP=pP \gg PrWd=pP
 b. Spanish: FocP, iPHdR \gg PrWd=pP \gg SO, XP=pP
 c. German: FocP, iPHdR \gg {SO $\langle\langle\rangle\rangle$ XP=pP} \gg PrWd=pP

Consider English first. As mentioned in the introduction, English does not modify its canonical constituent order in cases of subject focus.

- (34) a. Who bought the newspaper?
 b. JOHN bought the newspaper. SVO
 c. *Bought the newspaper JOHN. VOS

In terms of the discussion developed so far, English can thus be understood as a language that sacrifices optimal phrasing in favor of canonical constituent

order, which is the result of the ranking $SO \gg XP=pP$. The analysis is presented in the tableau in (35). We assume that focus is marked in the input, and that this marking cannot be deleted, due to an undominated FAITH-FOCUS constraint not included in the tableaux.

(35) English subject focus

	FOCP	iP-HdR	SO	XP=pP
☞ a. (JOHN _{Foc} bought the newspaper)				*
b. (John _{Foc}) (bought the NEWSpaper)	*!			
c. (JOHN _{Foc}) (bought the newspaper)		*!		
d. (bought the newspaper)(JOHN _{Foc})			*!	

Consider the losing candidates in (35) one by one. Notice first of all that all these losing candidates display the optimal phrasing pattern of this language, so $XP=pP$ is respected by all of them. They all lose, however, as the result of violating a higher ranked constraint. Candidate (35b), where the nuclear accent falls on the direct object of the verb, fatally violates FOCUS PROMINENCE, since the phonological phrase that contains the focus is not the head of the intonational phrase (and consequently, the focus is not the most prominent constituent). Candidate (35c) satisfies FOCUS PROMINENCE by mapping the subject onto its own phonological phrase and making this pP the head of the intonational phrase. This candidate, however, is ruled out because of its violation of iP-Hd-R, since the head of the intonational phrase is not the rightmost phonological phrase in iP. Lastly, candidate (35d) satisfies both FOCUS PROMINENCE and iP-Hd-R by making the focused subject the final constituent of the sentence, but in the constraint ranking of English the resulting violation of SO proves fatal.¹⁵ The winning candidate is candidate (35a), which makes a single phonological phrase

out of the whole sentence and makes the subject the head of this phonological phrase by assigning the nuclear accent to it.

Note that both candidates (35a) and (35c) have canonical constituent order and a nuclear accent on the subject (= the focus). The difference is that (35c) has two phonological phrases with a “shifted” iP-head, while the winner (35a) has one “super-sized” pP. Since we take the presence of a phrase level stress to be a sufficient condition for pitch accent assignment, (35c) thus predicts that the second pP, (specifically the noun newspaper) can bear a pitch accent, albeit a secondary one. However, this is not the case: English, like German, characteristically allows for secondary pitch accent preceding the nuclear pitch accent, but never following it. We take this to be evidence that these languages achieve a shift of the main accent by means of “de-phrasing” post-focal material (i.e. extending the right boundary of the focus pP all the way to the end of the iP), rather than by shifting the iP head to the left. This is why iP-HdR is crucially ranked above XP=pP.

Spanish, on the other hand, displays the opposite pattern, in which canonical constituent order is sacrificed in cases of subject focus. The correct result, shown in tableau (37), is achieved by ranking PrWd=pP, the constraint that dictates phonological phrasing in this language, over SO.¹⁶

- (36) a. Who bought the newspaper yesterday?
 b. #JUAN compró ayer el periódico. SVO
 Juan bought yesterday the newspaper
 c. Ayer compró el periódico JUAN. VOS
 yesterday bought the newspaper Juan
 ‘JUAN bought the newspaper yesterday.’

(37) Spanish subject focus

	FOCP	iP-HdR	PrWd=pP	SO
a. (JUAN _{Foc} compró el periódico)			N!V	
b. (Juan _{Foc}) (compró) (el periódico)	*!			
c. (JUAN _{Foc})(compró) (el periódico)		*!		
d. (compró) (el periódico) (JUAN _{Foc})				*

Candidates (37b) and (37c) are ruled out in the same way as candidates (35b) and (35c) in English; the former violates FOCUS PROMINENCE, since the phonological phrase that contains the focus is not the head of the intonational phrase, and the latter violates iP-Hd-R, since the phonological phrase that is the head of the iP is not right-aligned with it. But with the ranking PrWd=pP >> SO, candidate (37a), which sacrifices optimal phrasing, now loses to the candidate that sacrifices canonical constituent order (more concretely, structural prominence of the subject over the object) instead.

Lastly, consider German, which as proposed allows for either deviating from the optimal phrasing pattern or from canonical constituent order.

- (38) a. Who's in charge of nominating the foreign minister?- It is expected that...
- b. der KANZler den Aussenminister ernennt. SOV
the chancellor the foreign-minister nominates
'...the chancellor nominates the foreign minister.'
- c. den Aussenminister der KANZler ernennt. OSV
the foreign-minister the chancellor nominates
'...that the chancellor nominates the foreign minister.'

In this case the correct result is arrived by means of a constraint tie between SO and XP=pP, the constraint that dictates optimal phrasing in this language. The resulting analysis is presented in tableau (39), where the constraint tie is represented by not having any division between the tied constraints in the topmost row of the tableau.

(39) German subject focus

	FOCP	iP- Hd-R	XP=pP	SO
☞ a. (der KANZler _{Foc} den Aussenminister ernennt).			*	
b. (der Kanzler _{Foc}) (den Aussenminister ernennt).	*!			
c. (der KANZler _{Foc}) (den Aussenminister ernennt).		*!		
☞ d. (den Aussenminister) (der KANZler _{Foc} ernennt).				*

Consider now cases of sentence focus. As mentioned in the introduction, this is an instance where all three languages show a similar behavior; not only does the nuclear accent fall on the direct object, and the felicitous answers show canonical constituent order, but also the winning candidates in the tableaux (35), (37), and (39) (i.e. the optimal outputs for cases of subject focus) are all infelicitous answers to the relevant *wh*-question.

(40) English

- a. What's been happening?
- b. John bought the NEWSpaper.
- c. #JOHN bought the newspaper.

(41) Spanish

- a. Qué pasó?
'What happened.'
- b. Juan compró ayer el periódico.
Juan bought yesterday the newspaper
'Juan bought the newspaper yesterday.'
- c. #Ayer compró el periódico JUAN.
yesterday bought the newspaper Juan

(42) German

- a. Worauf warten alle? -Es wird erwartet, dass
where-upon wait all it is expected that
What's everybody waiting for? -It is expected that...

- b. der KANzler den AUssenminister ernennt.
the chancellor the foreign-minister nominates
'... the chancellor nominates the foreign minister.'
- c. #der KANzler den AUssenminister ernennt.
the chancellor the foreign-minister nominates
'...the chancellor nominates the foreign minister.'
- d. #den AUssenminister der KANzler ernennt.
the foreign-minister the chancellor nominates
'...that the chancellor nominates the foreign minister.'

The data in (40-42) can be captured straightforwardly in the analysis developed so far. We assume that the subject, the verb and the object are all F-marked, rather than just the highest constituent, say S. In this we follow Selkirk (1984, 1995), among many others, where it is convincingly argued that such subordinated F-markers are crucial in accounting for deaccenting phenomena within the focus, though we must omit discussion of these cases in the present paper in the interest of space (cf. Büring 2001a). Consequently, FOCUS PROMINENCE will necessarily be violated, since only one of the three can get to be the head of the phonological phrase that will in turn be the head of the intonational phrase.¹⁷ Since there is no way to avoid these violations of FOCUS PROMINENCE anyway, candidates that depart from canonical phrasing and constituent order (40c, 41c, 42c, d) will be less harmonious than those that do not violate SO and the highest ranked phrasing constraint that dictates optimal phrasing. This analysis is presented in the tableaux in (43-45).

(43) English sentence focus

	FOCP	iP-HdR	SO	XP=pP
a. (JOHN _{Foc} bought _{Foc} the newspaper _{Foc})	**			*!
☞ b. (John _{Foc})(bought _{Foc} the NEWSpaper _{Foc})	**			
c. (JOHN _{Foc})(bought _{Foc} the newspaper _{Foc})	**	*!		
d. (bought _{Foc} the newspaper _{Foc})(JOHN _{Foc})	**		*!	

(44) Spanish sentence focus

	FOCP	iP-HdR	PrWd=pP	SO
a. (JUAN _{Foc} compró _{Foc} el periódico _{Foc})	**		N!V	
☞ b. (Juan _{Foc})(compró _{Foc})(el periódico _{Foc})	**			
c. (JUAN _{Foc})(compró _{Foc})(el periódico _{Foc})	**	*!		
d. (compró _{Foc})(el periódico _{Foc})(JUAN _{Foc})	**			*!

(45) German sentence focus

	FOCP	iP-Hd-R	XP=pP	SO
a. (der KANZler _{Foc} den Aussenminister _{Foc} ernennt _{Foc}).	**		*!	
☞ b. (der Kanzler _{Foc})(den Aussenminister _{Foc} ernennt _{Foc}).	**			
c. (der KANZler _{Foc})(den Aussenminister _{Foc} ernennt _{Foc}).	**	*!		
d. (den Aussenminister _{Foc})(der KANZler _{Foc} ernennt _{Foc}).	**			*!

The crucial observation is that, in contrast to what is observed in cases of constituent focus, sacrificing canonical phrasing or canonical constituent order does not improve the structures in any respect (i.e. the violations FOCUS PROMINENCE of cannot be avoided either way), so the canonical structures first presented in (25) emerge as the winners. As the reader will be able to verify, the rankings in (33) also account for those cases in (4-6) where the VP or the direct object is the focus of the sentence.

4. Conclusions

In this paper, we have provided a constraint-based cross-linguistic analysis of focus-related constituent order in English, Spanish and German based on the theories of prosodic phrasing of Selkirk 1995, Truckenbrodt 1999, *inter alia*. We have shown how this kind of analysis can preserve the insights captured in Zubizarreta's (1998) work on constituent order, without resorting to a mechanism

by which intonational prominence is derived syntactically (the NSR), and without assuming different intonational and syntactic properties for the languages under consideration.

The core of this analysis has been to claim that languages differ in whether they sacrifice phonological phrasing requirements or syntactic requirements when there is a potential conflict between FOCUS PROMINENCE and iP-Hd-R, or whether they allow for both possibilities. By making use of ranked violable constraints, the analysis further captures the parallelism that all three languages display when there is no conflict between these two constraints or when violation of FOCUS PROMINENCE is altogether unavoidable.

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NOTES

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¹ Throughout this paper we use German subordinate clauses to keep the constituent order effects independent from the verb-second requirement observed in matrix clauses. Since constituent order in German is influenced not only by focus considerations, but also by the relative animacy and definiteness of the arguments of the verb involved (Lenerz 1977, Müller 1998), both the subject and the object display the same degree of animacy and definiteness in the German examples in order to keep the focus phenomena independent from these other variables.

² At the time of the revision of this article we can add to this Szendrői (2001) and Samek-Lodovici (2002), which are very similar spirit, as well as Frascarelli (2000), which presents a prosody based account that does not use ranked violable constraints. Since we didn't have access to these works before, we will not comment on them in the rest of this article.

³ Following Vikner (1995) we also assume that V moves to I in German. This, however, has no effects on the relative constituent order of the subject and the object since the verb moves to the head position of a right-headed IP (see also Webelhuth 1992). Finally, we assume that V-to-I movement is governed by an independent constraint related to the morphology of the verb, the characterization of which will not be relevant for our analysis (see Grimshaw 1997 and Ackema 2001 for some proposals).

⁴ Notice, in the absence of a direct object, movement of the subject to Spec-IP is not forced by SO (thanks to João Costa for bringing this point to our attention). On a first impression this would seem to be an undesirable consequence, but upon closer inspection, the situation is not so clear. English, for example, despite its fairly rigid constituent order, still has a good number of constructions where the subject of an intransitive verb does not move to Spec-IP. Such is the case of locative inversion (*In that corner now stands a mini-mall*) and expletive-associate

constructions (*There are many students in that class*). Crucially, these kinds of constructions are not attested in English when the verb is transitive. Although this issue certainly merits further investigation, we assume that the structural condition stated in the SO constraint is a relevant requirement, even when there may be more than one constraint at play in deriving movement of the subject to Spec-IP.

⁵ As the reader will be able to verify later, this assumption is not necessary to derive the word order facts observed in transitive sentences, which could also be derived by an analysis where Spanish has the same pattern of phonological phrasing as English and German (many thanks to Judith Aissen and Anne Sturgeon for bringing this point to our attention). Constituent order variation in intransitive clauses, however, provides evidence that the pattern of phonological phrasing is the one we suggest here. Concretely, the requirement that the focus be sentence final is also observed in clauses with intransitive verbs in Spanish, as is well known. This is exemplified by the following contrast between Spanish and English, adapted from Bolinger (1954).

- (i) a. The fighting will be over as soon as a TRUCE is signed.
- b. They've been talking truce for two years, but I won't believe anything until the truce is SIGNED.

- (ii) a. El conflicto terminará tan pronto [se firme una TREGUA]. VS
 the conflict will finish as soon be-signed a truce.
 'The conflict will be over as soon as a TRUCE is signed.'
- b. Desde hace dos años vienen hablando de una tregua, pero yo
 from made two years they come talking of a truce but I
 no voy a creer nada hasta que [la tregua se FIRME]. SV
 not going to believe nothing until that the truce be-signed
 'For two years they have been talking about a truce, but I won't
 believe anything until the truce is SIGNED.'

If Spanish had the same pattern of phonological phrasing as English, we would expect it to resort to the strategy of accenting the focus in-situ

characteristic English (i.a-b), and not to the word order variation observed in (ii), contrary to fact. In contrast, in our analysis the word order variation in (ii) is expected. This is because each prosodic word forms its own phonological phrase in this language. Consequently (as will be discussed in detail in what follows), the prosodic word that is the focus must appear in the sentence final position if the phonological phrase that corresponds to this prosodic word is to be the one that receives the nuclear accent.

⁶ It is worth noting that in contradistinction to these theories, and in line with Truckenbrodt (1999), this *accent domain formation* is not viewed by us as a process pertaining to the realization of *focus* in particular, but to prosodic phrasing in general. Accordingly, we expect it to occur with predicate-argument sequences in the background as well, which is correct. Thus in the answer in (i), the same distribution of accents is found within the relative clause, which is part of the background, as in the (focused) main clause:

(i) (What did the girl that wore the hat buy?) The girl that wore the HAT bought a NEWSpaper.

⁷ See also Schwarzschild (1999) for a similar constraint. Once again, the effect of A/P follows from Truckenbrodt's (1999) STRESS-XP constraint, but A/P further captures all instances of predicate-argument integration shown in (11), which STRESS-XP does not.

⁸ Fant (1984) uses the A+ notation to indicate that the leftmost A accent is the most prominent A accent.

⁹ The gloss and the free translation are our own.

¹⁰ For concreteness, we assume that iPhd-R outranks A/P in both English and German. In the case of German, for instance, justification for this ranking can be

found in cases of narrow verb focus, which, however, we cannot discuss because of space considerations. The ranking iPHd-R >> XPpP of English and German will be argued for in detail in section 4 of this paper.

¹¹ The reader will be able to note that the ranking iPHd-R >> PrWd=pP in Spanish is not crucial for the analysis of the examples that follow. We have assumed this ranking, however, because the data presented in most works on Spanish intonation cited here point to the conclusion that iPHd-R is undominated in Spanish, whereas PrWd=pP is not. In example (19), for instance, two prosodic words, the verb and the direct object, presumably form a single phonological phrase, in violation of PrWd=pP.

¹² But see Face (2000) for an alternative interpretation of these data.

¹³ Rizzi (1997) reports this same property for fronted foci in Italian.

¹⁴ This version of the constraint, from Büring (2001a), takes both the focus and the domain of the focus to be prosodic units, and defines the notion of being a focus as containing an F-marked syntactic node. This is in all likelihood the intention behind Truckenbrodt's (p.107) formulation "If F is a focus and DF is its domain, then the highest prominence in DF will be within F."

¹⁵ An anonymous reviewer asks whether it is not a problem for our analysis that losing candidate (35d) corresponds to an ungrammatical sentence, while this is not the case of the other losing candidates in this tableau: candidate (35b), for instance, is just infelicitous in this particular context. This does not represent a problem in the characterization of the distinction between ungrammaticality and infelicity in OT in Gutiérrez-Bravo (2002), which is the one we adopt here (see also McCarthy 2002). In this characterization, ungrammatical and infelicitous candidates are not inherently different. An ungrammatical candidate is a structure that is not optimal for *any* input, given the grammar (i.e. the constraint ranking) of the language. In contrast, a candidate that is perceived as infelicitous

in a specific context is a structure that is not optimal for the input under consideration, but which (again, given the constraint ranking of the language) is optimal for at least *one* input. The losing candidate (35b), for instance, actually corresponds to the felicitous utterance in cases of sentence focus. As such, the difference between ungrammatical and infelicitous candidates does not have to do with their inherent properties (and so it is valid to compare them in a tableau), but rather with the relation they have with the set of inputs and the constraint ranking of a given language.

¹⁶ In the tableau in (37), we leave out for clarity the temporal adverb *ayer* ‘yesterday’, in the different structures in the candidate set. This has no effect on the evaluation of the candidates (even when the absence of *ayer* in the preverbal position in (36c) leads to ungrammaticality in some varieties of Spanish, such as Mexican Spanish) since the presence of the adverb plays no role in the satisfaction or violation of the constraints in our analysis.

¹⁷ Alternatively, each prosodic word could form its own pP – (JOHN)(BOUGHT)(the NEWSPAPER) – making each focused word maximally prominent within its pP. But this would yield the exact same violation profile at the iP level because only one of these pPs could in turn become maximally prominent within the iP (due to the same logic, (43b) and (45b) have as many FocP violations as (43a) and (45a), respectively; one because the verbal Pwd is not the head of its pP, the second because the pP corresponding to the subject is not the head of iP). Ultimately, all but one focus will be prosodically subordinated, in violation of FocP; whether this happens at the pP or at the iP level depends on whether any other constraint like XP=pP favors larger or smaller pPs.

Note, too, that FocP violations are counted per prosodic unit. Thus, a focus marker on the VP will not cause additional violations in, say, (43c) since the smallest prosodic unit containing it is the second pP, i.e. the same that contains

the verbs and the object. The same applies *mutatis mutandis* to F-marks on the S, except that in all the cases discussed here, the smallest prosodic unit containing S, iP, is maximally prominent. Our treatment is thus fully compatible with Selkirk's theory of F-marking, or its recent adaptation in Schwarzschild (1999).