Manuscript, 2017. To appear in *Romance Languages and Linguistic Theory 2016. Selected papers from 'Going Romance' Frankfurt 2016*. Edited by Martin Elsig, Ingo Feldhausen, Imme Kuchenbrandt, and Mareike Neuhaus. John Benjamins Publishing.

Prosody-Driven Scrambling in Italian*

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Italian displays a scrambling pattern where the structure of the constituent following a postverbal focus affects which of its components can scramble before the focus . The actual governing factor is the prosodic phrasing projected by the postfocal constituent. Scrambling is only possible when it improves the stress alignment with the right boundary of the intonational phrase wrapping the sentence. This study provides further evidence that the classic T-model where syntax feeds prosody needs to be replaced by a new model where prosody and syntax interact. As this study shows, OT provides a possible model for such interaction that entirely dispenses with interface-related stipulations.

Keywords: prosody-syntax interface, focus, scrambling, Italian, prosodic phrasing, optimality.

1. Introduction

Italian can scramble postfocal constituents above a preceding focus (Bonet 1990, Belletti and Shlonsky 1995, Samek-Lodovici 1996, 2015, Zubizarreta 1998). For example, a prepositional phrase may scrambled above a focused object ('F' signals focus, V moves to T and hence precedes the PP).

(1) S V PP_i O_F t_i

Zubizarreta (1998) analyzed this operation in prosodic terms. The focused object carries stress and the canonical position of Italian stress is sentence-final. Scrambling the PP leaves stress sentence-final, thus improving stress placement. Zubizarreta's analysis was rooted in the theory of prosodic phrasing in Samek-Lodovici (2005). As Selkirk (1984, 1986, 1995) and Truckenbrodt (1995, 1999) showed, syntactic phrases project *phonological phrases* (pp) and *intonational phrases* (ip) as in (2), where round parentheses represent *ip* and *pp*-boundaries and 'x' the unique local stress in each *ip* and *pp*. *Ip*-level stress must fall on one of the *pp*-level stress slots (i.e. on one of the *pp*-level *x*'s).

(2)
(x)$_{ip}$
(x) (x) (x)$_{pp}$
[S V O PP]$_F$

* I am grateful to audiences at Going Romance 2016, the Linguistic Symposium on Romance Languages 46, LAGB 2015, and the Rutgers Optimality Research Group for their feedback on earlier versions of this research.

In simple monoclausal sentences like (2), *ip*-level stress coincides with main stress (a.k.a. nuclear stress). Note how the final position of main stress emerges from the allocation of local prominence to each *pp* and *ip* rather than from a dedicated rule. Specifically, the constraints Right-pp-stress and Right-ip-stress require local stress to occur rightmost in each *pp* and *ip*. Consequently, *ip*-level stress falls sentence-rightmost whenever the entire sentence is focused as in (2). Like many languages with culminative stress, however, main stress in Italian is also subject to the StressFocus constraint requiring focus to be stressed (Jackendoff 1974). When a specific constituent is focused – e.g. the object in (3) – StressFocus forces *ip*-stress to fall on the object as in (3)(a). This leaves *ip*-stress misaligned relative to the *ip*'s right-boundary, violating Right-ip-stress (the intervening stress-slot is shown as '_'). Focalization of non-final constituents thus unleashes a conflict between StressFocus and Right-ip-stress because stress right-alignment is degraded in order to comply with StressFocus.

		(	x	_)$_{ip}$			(	x)$_{ip}$	
		(x)(	x)	(x)$_{pp}$			(x) (	x)	(x)$_{pp}$
(3)	a.	S	V	O_F	PP	→	b. S	V	PP$_i$ O_F t$_i$

Scrambling the PP above focus, as in (3)(b), removes the offending stress-slot and creates a new prosodic configuration that satisfies both constraints (Samek-Lodovici 2005, 2015). Focus is now stressed and stress is right-aligned. Under this analysis, scrambling is governed by prosody. It occurs when it can create a structure whose prosodic phrasing better complies with StressFocus and Right-ip-stress. This paper examines some additional, striking consequences of the interaction of StressFocus and Right-ip-stress. Their conflict is claimed to also govern what may scramble from *within* postfocal phrases, with scrambling again only possible if it improves stress-alignment. The relevance of stress-alignment, and prosody in general, as factors governing syntactic movement is thus significantly strengthened, since it is at play across a wider range of data. The classic T-model where syntax feeds prosody but not vice versa cannot account for these data and is replaced by an OT account that dispenses with interface-specific stipulations. Section 2 describes the data and considers the relevance of stress-alignment, and section 3 provides the formal analysis.

2. Prosody-driven scrambling

The data below involve a post-verbal focus followed by an in-situ unfocused constituent (additional data are available in Appendix A). We examine scrambling above focus from within the unfocused constituent. Strict space limits drastically reduced the number of full references I could supply in the references section; my apologies.

Case I (head-complement) – When a postfocal constituent consists of a lexical head H taking a complement ZP as in (4)(a), it may scramble above the preceding focus XP_F as in (4)(b), but ZP cannot (4)(c). (Scrambled phrases are underlined. The dots represent any additional material, including

the functional heads potentially preceding H).

(4) a. ... XP_F [... H ZP] (*head complement)*

b. ... [... H ZP]$_i$ XP_F t_i

c. * ... ZP$_i$ XP_F [... H t_i]

See (5)(b) where a focused subject is followed by a head-complement phrase. While the postfocal object can scramble in (5)(c), its PP complement cannot in (5)(d). The structure for (5)(b) is in (5)(a). The verb moves to the higher past-participle projection headed by the suffix '-ato'. The focused subject is in spec-*v*P. The postfocal object remains in specVP, in accord with a VP-shell structure. Other assumptions are possible with no detriment for the analysis. For example, the focused subject can be assumed to occur in a focus projection above *v*P, and the object as the complement of V. Provided the c-commanding relations are maintained, the structural details of the lower part of the clause do not undermine the overall analysis.

(5) a. ... [$_{vP}$ DP_F t_v [$_{VP}$ [$_{DP}$ D **[$_{NP}$ N PP]**] t_v]]

b. Ha filmato [la POLIZIA]$_F$ l'arrivo di Marco.
Has filmed the police the arrival of Mark
'The POLICE filmed Mark's arrival.'

c. Ha filmato l'arrivo di Marco$_i$ [la POLIZIA]$_F$ t_i.

d. *Ha filmato di Marco$_i$ [la POLIZIA]$_F$ l'arrivo t_i.

Crucially, no syntactic constraint blocks the PP's movement in (5)(d). The same PP can wh-extract in (6)(a), and front via contrastive focalization in (6)(b). This is unsurprising, since the PP is selected and theta-marked. What's in need of an explanation is it's inability to scramble.

(6) a. Di chi$_i$ ha filmato [l'arrivo t_i], la polizia?
Of whom has filmed the arrival, the police
'Whose arrival did the police film?'

b. [Di MARCO]$_{F,i}$, la polizia ha filmato [l'arrivo t_i]!
Of Mark, the police filmed the arrival
'The police filmed the arrival of MARK!'

Case II (independent phrases) – We may wonder whether scrambling is simply unavailable to all internal components of postfocal constituents. But that is not the case. When postfocal constituents are formed by two independent, non-overlapping, lexical phrases YP and ZP, either of them may scramble. This is shown in (7)(b)-(c) for YP and ZP, while (7)(d) scrambles the entire postfocal constituent, which is always an option.

(7) a. ... XP_F [... YP ... ZP] (*independent phrases)*

b. ... $\underline{YP_i}$ XP_F [... t_i ... ZP]

c. ... $\underline{ZP_i}$ XP_F [... YP ... t_i]

d. ... $\underline{[... YP ... ZP...]_i}$ XP_F t_i

An example follows in (8)(b). The focused subject is in spec*v*P and follows the raised verb. The postfocal object and indirect object are in the specifier and complement positions of VP, see (8)(a). Crucially, they can both scramble, see (8)(c-d). As mentioned, the entire postfocal constituent may scramble too, see (8)(e). Scrambling is always optional.

(8) a. ... [$_{vP}$ DP_F t_V [$_{VP}$ **DP** t_v **PP**]]

b. Ho dato IO_F l'acqua alle piante.
have given I the water to-the plants
'It was ME who watered the plants.'

c. Ho dato $\underline{\text{l'acqua}_i}$ IO_F [t_i alle piante].

d. Ho dato $\underline{\text{alle piante}_i}$ IO_F [l'acqua t_i].

e. Ho dato $\underline{\text{l'acqua alle piante}_i}$ IO_F t_i.

In all examples, the postfocal constituent is assumed to be marginalized in-situ (i.e. destressed in-situ; see Cardinaletti 2001, 2002, Samek-Lodovici 2015). This assumption must be checked because Italian may also right dislocate unfocused constituents to a TP-external position and do so without clitic-doubling (Samek-Lodovici 2015). We check whether postfocal constituents *can* remain in-situ – which is all we need – by replacing them with negative phrases and then test for grammaticality. Negative expressions licensed by a neg-marker in T cannot right dislocate beause that places them outside their licensing domain (Samek-Lodovici 2015). Since the postfocal negative phrases in (9)(A) remain grammatical, postfocal constituents can marginalize in-situ. As is always the case with marginalization, the entire question answer pair in (9) must be read aloud. Assessing (9)(A) in isolation prevents the negative phrases from acquiring the discourse-givene status necessary for licensing their marginalization.

(9) Q: Chi non ha dato nulla a nessuno?
Who not has given anything to anybody?
'Who did not give anything to anybody?'

A: Non ho dato IO_F nulla a nessuno.
Not have given I anything to anybody
'I didn't give anything to anybody'

The data in (4)-(8) raise two questions. First, why is scrambling conditioned by the syntactic layout of postfocal constituents? Second, since the

complement *can* wh- and focus-extract, how can a preceding focus block extraction under scrambling? The answer is rooted in the properties of prosodic phrasing. As explained below, only independent phrases improve stress right-alignment when scrambled. Scrambled complements leave right-alignment unaltered. To see this, we need to first consider the different *pp*-phrasings projected by constituents with different syntactic layouts. Following Truckenbrodt (1996, 1999), *pp*-phrasing is governed by the constraints Wrap and StressXP (see also Samek-Lodovici 2005, Dehè and Samek-Lodovici 2009). Wrap requires lexically headed projections to be entirely contained in a *pp*. StressXP requires lexically headed projections to receive *pp*-stress on one of their words.

(10) Wrap = Wrap lexically-headed phrases in a *pp*.
StressXP = Lexically headed syntactic phrases receive *pp*-stress.

As Truckenbrodt noted, the *pp*-phrasing assigned by Wrap and stressXP to head-complement constituents – our Case I – differs from that assigned to constituents containing independent phrases (our Case II). Wrapping head-complement constituents in a single *pp* with local stress on the complement as in (11) satisfies both constraints. Wrap is satisfied because NP and PP are both wrapped in a *pp*. StressXP is satisfied because NP and PP both receive *pp*-stress (PP directly; NP because it contains PP). For comparison, the alternative phrasing in (12) with one *pp* for N and one for PP violates Wrap because NP is no longer wrapped in a single *pp* (*pp*-recursion is absent in Italian). Our Case I postfocal constituents are thus assigned the *pp*-phrasing in (11). Note that functional items, e.g. determiners, are prosodically inert and ignored by *pp*-phrasing (Truckenbrodt 1999:226, Selkirk 1984:334).

(11) (x)$_{pp}$
[N PP]$_{NP}$ (*pp*-parsing of Case I constituents)

(12) (x) (x)$_{pp}$
*[N PP]$_{NP}$ (suboptimal *pp*-parsing)

Independent, non overlapping, lexical projections are instead mapped each into a *pp* of their own; see (13). Wrap is satisfied because NP and PP are each wrapped in a *pp*. StressXP is satisfied because NP and PP both receive *pp*-stress. For comparison, sharing a single *pp* as in (14) inevitably violates StressXP because there is only one stress per *pp*, so one of the two projections cannot receive it. In (14), this projection is NP.

(13) (x) (x)$_{pp}$
[NP ø$_{Head}$ PP] (*pp*-parsing of Case II constituents)

(14) (x)$_{pp}$
* [NP ø$_{Head}$ PP] (suboptimal *pp*-parsing)

The different prosodic phrasing decides whether scrambling improves stress right-alignment or not. Consider first Case II, where postfocal constituents

consist of independent phrases. Prior to scrambling, the prosody of sentences like (8)(b) is (15) (to improve legibility, I add a *pp* and *ip* boundary to the left of focus, but this boundary need not be present). Focus is parsed in a *pp* of its own and so are the independent NP and PP in the postfocal constituent. Since *ip*-stress falls on focus on pressure from StressFocus, *ip*-stress lies two slots away from the right *ip*-boundary, thus violating Right-ip-stress.

(x _ _)$_{ip}$
(x) (x) (x)$_{pp}$
(15) ... **DP$_{F}$** ... [NP ø$_{Head}$ PP] (*stress is 2 slots away from ip-edge*)

Scrambling either NP or PP before focus as in (16) and (17) – which correspond to sentences (8)(c-d) – removes one intervening slot, thus improving stress alignment.

(x _)$_{ip}$
(x) (x)$_{pp}$
(16) ... NP$_i$ **DP$_{F}$** ... [t$_i$ ø$_{Head}$ PP] (*stress is 1 slot away from ip-edge*)

(x _)$_{ip}$
(x) (x)$_{pp}$
(17) ... PP$_i$ **DP$_{F}$** ... [NP ø$_{Head}$ t$_i$] (*stress is 1 slot away from ip-edge*)

The same improvement does not occur under the head-complement constituents of Case I. Prior to scrambling, the prosodic phrasing of Case I sentences like (5)(b) is (18). Since the postfocal constituent is parsed into a single *pp*, the *ip*-stress is just one – not two – slots away from the right *ip*-boundary. Scrambling the complement PP as in (19) does not improve stress alignment because the stranded N head projects a *pp* which, in turn, creates an intervening stress slot between stress and the *ip*-boundary.

(x _)$_{ip}$
(x) (x)$_{pp}$
(18) ... **DP$_{F}$** ... [N PP]$_{NP}$ (*stress is 1 slot away from ip-edge*)

(x _)$_{ip}$
(x) (x)$_{pp}$
(19) ... PP$_i$ **DP$_{F}$** ... [N t$_i$]$_{NP}$ (*stress still 1 slot away from ip-edge*)

The prosodic phrasing of postfocal constituents thus determines whether scrambling of its internal phrases will improve stress alignment. The formal analysis in the next section treats this as the decisive factor determining the grammaticality of scrambling. When scrambling improves stress alignment, the movement cost is justified by the improved prosody. When stress alignment cannot be improved, the cost of movement is unjustified and scrambling is ungrammatical. The analysis thus answers the two questions asked earlier on. Scrambling is conditioned by the syntactic layout of postfocal constituents because only the *pp*-phrasing of independent phrases is such that their scrambling improves stress alignment. And a preceding

focus blocks scrambling of otherwise extractable complements because such focus attracts stress, causing misalignment, but scrambling of the complement cannot mitigate the misalignment.

3. Full analysis

As the above discussion showed, scrambling is possible whenever it improves stress alignment, *even if perfect alignment is not achieved*. This property is typical of optimality-based grammars where grammaticality is defined in terms of best possible compliance with ranked universal constraints, with lower constraints minimally violated whenever this decreases the violations of higher constraints (Prince & Smolensky 1993, 2004). Adopting Selkirk (2005), but for her analysis of focus alignment, I assume that mono-clausal sentences are parsed into single *ip*s. The constraints giving rise to the scrambling data are listed below. Wrap and StressXP have already been discussed. Right-ip-stress and Right-pp-stress, cast in terms of alignment theory (McCarthy & Prince 1993), require *ip*'s and *pp*'s to be stressed rightmost and are violated once for each unused stress-slot at the right of *ip*- and *pp*-stress. StressFocus requires *ip*-stress on the focused constituent. Stay is violated once per movement. All constraints have already been proposed, albeit under different names, in several analyses of the syntax-prosody interface (e.g. Samek-Lodovici 2005).

(20) Right-ip-stress = Stress the rightmost item in an *ip*.
Right-pp-stress = Stress the rightmost item in a *pp*.
StressFocus = Focus carries sentential stress (here ip-stress).
Wrap = Wrap lexically-headed phrases in a *pp*.
StressXP = Lexically-headed phrases receive *pp*-stress.
Stay = Don't move.
Marg (marginalization) = Don't move M-marked phrases.

The only new constraint, Marg, requires discourse-given phrases marked for marginalization ('M-marked') to remain in-situ. Like Stay, Marg penalises movement, but whereas Stay is a gradient constraint – hence incurring multiple violations – and it ignores discourse status, Marg is boolean – incurring one violation at most – and it is sensitive to discourse-givenness. Marg is necessary to account for marginalization which is optional and available independently of scrambling. To model this fact, I maintain that discourse-given phrases are optionally assigned an M-feature that makes them visible to the Marg constraint. Non M-marked phrases are invisible to Marg and will therefore inevitably scramble whenever scrambling improves stress alignment. The analysis thus models marginalization as optional (through optional M-marking) and scrambling as either obligatorily present or obligatorily absent depending on its effect on stress alignment.
The fact that it is equally possible to scramble the entire postfocal constituent or just one of its parts supports this analysis. As we will see, different M-feature assignments lead to different optimal forms, thus governing what remains free to scramble – provided stress alignment improves – and what is frozen in-situ by marginalization. Without M-

marking, scrambling the entire postfocal constituent would always be preferable to scrambing just one of its part because it creates perfect stress alignment whereas scrambling just a part does not. Scrambling from within the postfocal constituent would thus remain unaccounted for. This difficult point is discussed in detail below, where I will show how the entire scrambling distribution emerges from the following ranking conditions.

(21) StressXP>>Wrap;
{ StressFocus, Marg, StressXP}>>Right-ip-Stress>>Stay.

3.1 Case I – Complements cannot scramble

When postfocal constituents consist of a lexical head H and a complement ZP (plus functional projections), the free assignment of M-features to the postfocal constituent's immediate components creates the four inputs in (22). Input A1 has no M-features. Input A2 M-marks ZP. A3 M-marks H and hence also its projection. A4 M-marks H, its projection, and ZP.

(22) A1. XP_F [H ZP]
A2. XP_F [H ZP_M]
A3. XP_F [H_M ZP]$_M$
A4. XP_F [H_M ZP_M]$_M$

For each input, we examine whether leftward scrambling of the entire postfocal constituent [H ZP] or its complement ZP is optimal under the proposed ranking. To do so, we check which of three possible syntactic realizations – (i) no scrambling, (ii) scrambling [H ZP], (iii) scrambling just ZP – is optimal for each input. As we will see, scrambling the entire postfocal constituent is optimal for inputs A1 and A2, whereas keeping it in-situ is optimal for A3 and A4 due to Marg's pressure. Crucially, scrambling the complement ZP alone is suboptimal under every input, explaining its ungrammaticality.

Input A1 – Tableau (23) lists the three competing syntactic realizations for input A1. The postfocal constituent is perfectly *pp*-phrased, satisfying Wrap, StressXP, and Right-pp-stress as described in section 2. The ranked constraints in (21) select scrambling the entire postfocal constituent in (a) as optimal. Leaving the constituent in situ as in (c) violates the higher ranked Right-ip-stress. Scrambling ZP alone as in (b), violates Right-ip-stress and Stay (and is thus harmonically-bounded by (a) and (c); Samek-Lodovici and Prince 1999, 2002).

(23) No M-marking → Movement of entire postfocal constituent

Input A1: XP_F [H ZP]	Wrp	Str XP	Rt-pp-str	SF	Marg	Rt-ip-str	Stay
(x)$_{ip}$ (x) (x)$_{pp}$ ☞ a. [H ZP]$_i$ XP_F t_i							*
(x _)$_{ip}$ (x) (x) (x)$_{pp}$ b. ZP_i XP_F [H t_i]						*	*
(x _)$_{ip}$ (x) (x)$_{pp}$ c. XP_F [H ZP]						*	

We should also examine whether a prosodic variant of (b) or (c) with a suboptimal *pp*-phrasing might nevertheless beat or co-win with (a) by avoiding the fatal violation of Right-ip-stress. The only way to avoid such violation while still satisfying the higher ranked StressFocus is by parsing XP_F and H into a single *pp* as in (b') in (24), because under this *pp*-phrasing H no longer projects its stress slot at the *ip*-level. This structure, however, violates Right-pp-stress and the higher ranked StressXP because the phrase projected by H receives no *pp*-stress. Structure (b') thus remains suboptimal when compared against (a) in (23) (it is also harmonically bounded by it). Similarly, a variant of (c) could only beat or co-win with (a) if it avoided the fatal violation of Right-ip-stress incurred by (c) in (23). Once again, the only variant that does so while satisfying StressFocus is (c') in (24). Like (b'), (c') parses XP_F and [H ZP] into a single *pp* with local stress on XP_F. This structure, too, violates Right-pp-stress and StressXP, and is thus suboptimal for the reasons just described above. The optimal realization for input A1 thus scrambles the entire postfocal constituent as in (a).

(24) Variants of (b) and (c)

Input A1: XP_F [H ZP]	Wrp	Str XP	Rt-pp-str	SF	Marg	Rt-ip-str	Stay
(x)$_{ip}$ (x) (x _)$_{pp}$ b'. ZP_i XP_F [H t_i]		*	*				*
(x)$_{ip}$ (x _)$_{pp}$ c'. XP_F [H ZP]		*	*				

Input A2 – Scrambling the entire postfocal constituent is also the optimal outcome for input A2 where only the complement ZP is M-marked and hence required to marginalize in situ by Marg. The violations incurred by the competing structures (a)-(c) are identical to those shown in the previous tableau except for the additional violation of Marg incurred by (b) by moving the M-marked ZP. Note that Marg is not violated by (a) because ZP remains in-situ in its constituent, even if the constituent itself has moved. Since all violations remains the same but for the additional violation of Marg by (b), the optimal structure remains identical as well, namely scrambling the postfocal constituent as in (a).

(25) ZP M-marked → Movement of entire postfocal constituent

Input A2: XP_F [H ZP_M]	Wrp	Str XP	Rt-pp-str	SF	Marg	Rt-ip-str	Stay
(x)$_{ip}$ (x) (x)$_{pp}$ ☞ a. [H ZP]$_i$ XP_F t_i							*
(x _)$_{ip}$ (x) (x) (x)$_{pp}$ b. ZP_i XP_F [H t_i]					*	*	*
(x _)$_{ip}$ (x) (x)$_{pp}$ c. XP_F [H ZP]						*	

As before, we consider whether any prosodic variant of (b) and (c) can beat or cowin with (a). Once again, the only relevant variants are (b') and (c') in tableau (24) which are suboptimal for the same reasons discussed there (structure (b') would also add a violation of Marg for moving ZP).

Input A3 – When H and its projection are M-marked, the postfocal constituent is required to marginalize in situ. Scrambling it as in (a) in (26) below violates the high-ranked constraint Marg and is thus suboptimal.
The complement ZP, on the other hand, is not M-marked and can therefore scramble as in (b) without violating Marg. Despite this, the optimal structure is (c) with the postfocal constituent, ZP included, in situ. Scrambling ZP in (b) violates Right-ip-stress because the head H stranded in postfocal position still projects a stress slot to the right of main stress. Structure (b) violates Right-ip-stress as much as (c), but it also violates Stay due to ZP's scrambling, whereas (c) satisfies Stay. The competition between (b) and (c) constitutes the formal analysis of the insight described in section 2.1: Case I complements cannot scramble because their scrambling does not improve stress alignment.

(26) H and its projection M-marked → No scrambling

Input A3: XP_F [H_M $ZP]_M$	Wrp	Str XP	Rt-pp-str	SF	Marg	Rt-ip-str	Stay
(x)$_{ip}$ (x) (x)$_{pp}$ a. [H ZP]$_i$ XP_F t_i					*		*
(x _)$_{ip}$ (x) (x) (x)$_{pp}$ b. ZP_i XP_F [H t_i]						*	*
(x _)$_{ip}$ (x) (x)$_{pp}$ ☞ c. XP_F [H ZP]						*	
(x)$_{ip}$ (x) (x _)$_{pp}$ b'. ZP_i XP_F [H t_i]		*	*				*

As before, we also consider the prosodic variant (b') where a stretched *pp* wrapping XP_F and H removes the stress slot that causes stress misalignment in (b). This variant satisfies Right-ip-stress but violates Right-*pp*-stress and

also the higher ranked StressXP because H's projection receives no *pp*-level stress. Variant (b') is thus suboptimal.

Input A4 – Under input A4, ZP and the postfocal constituent [H ZP] are both M-marked. The competing structures and constraint violations remain the same as in (26) above but for the additional Marg violation incurred by (b) and (b') when scrambling the M-marked ZP. Structure (c) is again selected as optimal for the same reasons provided for input A3.
To sum up the analysis of the Case I data, M-marking governs what marginalizes on pressure of Marg, but the non M-marked complement ZP of input A3 fails to scramble due to its inability to improve stress alignment.

3.2 Case II – Independent phrases can scramble

When the postfocal constituent consists of two independent, non-overlapping phrases YP and ZP, both can scramble, and so can the postfocal constituent containing them. . Here, I only discuss ZP, treating YP as M-marked and ignoring the candidate scrambling YP alone; the analysis for YP would be identical. The free assignment of M-features to ZP and ø, where 'ø' is the silent head of the post-focal constituent, then creates the four inputs in (27). As before, with the exception of the M-marked YP, M-marking may be absent (B1), only affect ZP (B2), only affect ø and its projection (B3), or affect both ø, its projection, and ZP (B4).

(27) B1. XP_F [YP_M ø ZP]
B2. XP_F [YP_M ø ZP_M]
B3. XP_F [YP_M $ø_M$ ZP]$_M$
B4. XP_F [YP_M $ø_M$ ZP_M]$_M$

As we did for Case I, for each input we examine whether leftward scrambling of the entire postfocal constituent [YP ø ZP] or its complement ZP is possible. As we will see, scrambling the entire postfocal constituent is optimal for inputs B1 and B2, while keeping the postfocal constituent in-situ is optimal for B4 on pressure from Marg. Crucially, however, scrambling ZP alone is optimal under input B3, because under the syntactic and prosodic configuration of Case II constituents scrambling ZP does improve stress alignment.

Inputs B1 and B2 – The violations incurred by the competing structures for input B1 are almost identical to those discussed for input A1; see (28). The only difference is the additional violation of Right-ip-stress incurred by (c) due to the additional stress slot to the right of focus made available by the *pp* that wraps YP. The reasoning described for input A1 applies unchanged and selects scrambling of the entire postfocal constituent in (a) as optimal. The same holds for input B2, where the M-marking of ZP only adds one Marg violation to (b), thus leaving (a) as optimal.

(28) ZP and ø not M-marked → Scrambling of postfocal constituent

Input B1: XP_F [YP_M ø ZP]	Wrp	Str XP	Rt-pp-str	SF	Marg	Rt-ip-str	Stay
☞ a. (x)$_{ip}$ (x) (x) (x)$_{pp}$ [YP ø ZP]$_i$ XP_F t_i							*
b. (x _)$_{ip}$ (x) (x) (x)$_{pp}$ ZP_i XP_F [YP ø t_i]						*	*
c. (x _ _)$_{ip}$ (x) (x) (x)$_{pp}$ XP_F [YP ø ZP]						**	

We may again consider variants of (b) and (c) that satisfy Right-ip-stress by wrapping XP_F and the material at its right in a single *pp* with *pp*-stress on XP_F. As repeatedly mentioned, these candidates violate StressXP and Right-pp-stress and are thus suboptimal under ranking (21).

Input B3 – When the postfocal constituent is M-marked for marginalization but ZP is not, ZP scrambles. This is the input where the different *pp*-phrasing assigned to Case II postfocal constituents leads to a different outcome than the corresponding input for Case I postfocal constituents. As before, (a) is suboptimal because scrambling the postfocal constituent violates the high-ranked Marg; see (29). Scrambling ZP in (b), however, is now better than leaving ZP in situ in (c) because it removes one stress slot. Therefore, (b) violates Right-ip-stress one less time than (c). Structure (b) also violates Stay, but since Right-ip-stress outranks Stay, (b) is the optimal realization for this input, explaining why ZP scrambles when postfocal constituents consist of independent phrases.

(29) ø and its projection M-marked → Scrambling of ZP

Input B2: XP_F [YP_M $ø_M$ ZP]$_M$	Wrp	Str XP	Rt-pp-str	SF	Marg	Rt-ip-str	Stay
a. (x)$_{ip}$ (x) (x) (x)$_{pp}$ [YP ø ZP]$_i$ XP_F t_i					*		*
☞ b. (x _)$_{ip}$ (x) (x) (x)$_{pp}$ ZP_i XP_F [YP ø t_i]						*	*
c. (x _ _)$_{ip}$ (x) (x) (x)$_{pp}$ XP_F [YP ø ZP]						**	

The prosodic variants of (c) that eliminate Right-ip-stress violations by wrapping YP and ZP together with XP_F incur additional violations of Right-pp-stress and of the higher ranked StressXP constraint, thus remaining suboptimal.

Input B4 – When ZP and the postfocal consitutent are both M-marked, scrambling them in (a) and (b) violate Marg, leaving the movement-free (c)

optimal for input B4. The prosodic variants of (a) and (b) that eliminate Right-ip-stress by altering their *pp*-phrasing still violate Marg, and thus remain suboptimal.

(30) ZP, the head ø, and its projection M-marked → No scrambling

Input B4: XP_F $[YP_M$ $ø_M$ $ZP_M]_M$	Wrp	Str XP	Rt-pp-str	SF	Marg	Rt-ip-str	Stay
(x)ip (x) (x) (x)pp a. [YP ø ZP]i XP_F t_i					*		*
(x _)ip (x) (x) (x)pp b. ZP_i XP_F [YP ø t_i]					*	*	*
(x _ _)ip ☞ (x) (x) (x)pp c. XP_F [YP ø ZP]						**	

Summing up, when postfocal constituents consist of independent phrases, Marg still decides which phrases are subject to marginalization through M-marking. When ZP is not M-marked, however, it will scramble, because its movement improves stress alignment.

3. Conclusions

As this paper showed, the syntactic and prosodic constraints responsible for Italian rightmost focalization in Samek-Lodovici (2005) also govern which components within a postfocal constituent will or will not scramble to the left of a preceding focus.[1] This is a remarkable result, showing that the interation of prosody and syntax – and in particular the subordination of syntactic movement to stress-alignment – is a core property of Italian grammar and one with multiple consequences.

The fact that constraints responsible for rightmost focus cover additional empirical ground also strengthens Samek-Lodovici (2005)'s approach to the prosody-syntax interface: once the fundamental and independently necessary constraints of syntax and prosody are allowed to conflict in optimality theoretic terms, interface phenomena like those discussed here necessarily and straightforwardly follow. Nothing else is needed. There is no formal interface component. Some constraints, such as StressXP and Wrap, simultaneously refer to syntactic and prosodic properties, but other than that the term *prosody-syntax interface* is just the name of an area of study, not an actual component of grammar. This simplifies the overall model of human grammar and is thus a highly desirable property.

This study also further supports a model of UG where prosody affects

[1] But for the addition of Marg, the constraints in this paper are the same used in Samek-Lodovici (2005). The ranking conditions are also the same but for Stress>>Right-ip-stress. This change, too, is consistent with the 2005 analysis once *pp*-phrasing is carefully examined; see footnote 11 of Samek-Lodovici (2015:272).

syntactic structure rather than having syntax as its input as in Chomsky (1995, 2008). In doing so, it joins a growing research trend, including the studies in Costa (1998), Harford and Demuth (1999), Szendröi (2001, 2002, 2003), Büring (2001, 2002, 2006), Büring and Gutierrez-Bravo (2002), Gutierrez-Bravo (2002), Schmid and Vogel (2004), Dehé (2004, 2005), Samek-Lodovici (2005, 2015), Downing (2006), Féry (2006, 2013), Zerbian (2006), Hamlaoui (2008, 2011), Bouma and de Hoop (2008), and Cheng and Downing (2009, 2012).

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Appendix A

The sentences in (1) and in (2) provide additional Case I data. Those in (3) provide the corresponding Case II data. The focused adverb occurs in-situ in the specifier of a functional projection 'fnctP' above *v*P (Cinque 1999). Prosody matters: stress must fall on the focus or the sentence will be ungrammatical. Providing a context making unfocused constituent discourse-given enhances grammaticality, as marginalization needs licensing via discourse-givenness.

(1) a. ... [$_{AdvP}$ Adv$_F$ ø$_{Adv}$ [$_{vP}$ t$_V$ [$_{VP}$ [$_{DP}$ D **[$_{NP}$ N PP]**] t$_v$]]] (Case I)

b. Faremo SPESSO$_F$ una pulitura della cattedrale.
(we) will do often a cleaning of-the cathedral
'We will OFTEN do a cleaning of the cathedral.'

c. * Faremo <u>della cattedrale$_i$</u> SPESSO$_F$ [una pulitura t$_i$].

d. ? Faremo <u>una pulitura della cattedrale$_i$</u> SPESSO$_F$ t$_i$

(2) Di cosa farete spesso una pulitura?
Of what (you) will do often a cleaning
'What will you often do a cleaning of ?'

(3) a. ... [$_{AdvP}$ Adv$_F$ ø$_{Adv}$ [$_{vP}$ t$_V$ [$_{VP}$ **DP** t$_v$ **PP**]] (Case II)

b. Daremo SPESSO$_F$ una pulitura alla cattedrale.
(we) will give often a cleaning to-the cathedral
'We will OFTEN give a cleaning to the cathedral.'

c. Daremo <u>una pulitura$_i$</u> SPESSO$_F$ [t$_i$ alla cattedrale].

d. Daremo <u>alla cattedrale$_i$</u> SPESSO$_F$ [una pulitura t$_i$].

e. Daremo <u>una pulitura alla cattedrale$_i$</u> SPESSO$_F$ t$_i$