ON THE SYNTAX-PROSODY INTERFACE:
AN ANALYSIS OF THE PROSODIC PROPERTIES OF POSTFOCAL MATERIAL IN ITALIAN AND ITS IMPLICATIONS[*]

Giuliano Bocci
University of Siena

1.   Introduction

In this paper, I discuss some properties of the prosodic system of Tuscan Italian argued for in Bocci & Avesani (2005, 2008) and their implications for a model of the syntax-prosody interface. Building on the cartographic approach (Cinque 1999, Rizzi 2004a, 2006), I argue for a model in which scope-discourse properties such as topic and focus are encoded as features in the syntactic representation starting from the numeration (Aboh 2007). In such a view, a direct link between LF and PF is dispensed with, in compliance with the T-model of grammar and current minimalist assumptions. I argue that the syntactic output where scope-discourse properties are explicitly encoded (Rizzi 2004b), is converted at spell-out into the prosodic representation by two interacting sets of mapping rules: default rules and marked feature-sensitive rules (see Selkirk 2007). Building on Bocci & Avesani's (2008) prosodic analysis of postfocal material in Tuscan Italian, I argue that, even if discourse features (and the syntactic structure) feed the prosodic computation, the application of mapping rules (in interaction with structural requirements) does not guarantee isomorphism either between the prosodic representation and the syntactic structure, or between the prosodic representation and the informational properties. I argue that such a conclusion is expected to the extent to which prosody is part of the morpho-phonological component.

The paper is organized as follows. In 2.1., I briefly introduce the cartographic approach and defend the idea that focus is encoded in syntax as a feature (*contra* Szendröi 2001, a.o.). Building on Aboh (2004, 2007), I assume that the information structure of a linguistic expression is predetermined in the numeration, where discourse-related functional heads are inserted as lexical items endowed with optional formal features. In this way, discourse features can drive the syntactic computation similarly to case and φ-features and the T-model of grammar is preserved in accordance with current minimalist framework. In section 2.2, I sketch the format of the syntax-prosody interface, arguing in favor of the idea that syntactic

representations are converted in prosodic representations by two sets of mapping rules: default mapping rules and marked feature-sensitive mapping rules (Selkirk 2007).

In section 3, I discuss specific properties of the prosodic system of Tuscan Italian. In 3.1, I present the results of Avesani & Vayra (2003), which show that contrastive focus and new information focus associate with distinctive pitch accents (PAs) in Florentine Italian. Such a result leads to conclude that the notion of focus cannot be eliminated and derived from Schwartzchild's (1999) notion of Givenness (Bader 2001), or from the one of Presupposition (Sauerland 2005). I then argue that contrastive and new information focus are both marked with features (*contra* Selkirk 2007). In 3.2, I introduce the proposals presented in Bocci & Avesani (2008). According to their analysis, postfocal material in Tuscan Italian is in no way extrametrical (as assumed by Szendröi 2001, a.o.), but it is fully prosodically represented: it is phrased, stressed, and intonationally specified. Bocci & Avesani argue that postfocal material in Tuscan Italian is forced to associate with a L* pitch accent. L* is not inserted as a correlate of any discourse property (either Givenness, (back)-ground or tail in the sense of Vallduvì 1992), but rather as a special marker to define the right-hand side of the focus phrased by marking postfocal material as non-focus. L*-association in Tuscan Italian is ruled by the Focus Defining Rule which requires that the focal pitch accent (i.e. the pitch accent from which the focus projection is computed) is the rightmost accent in the utterance able to convey focus. In such a view, L*-association is non-locally triggered by the occurrence of a focus feature. I then discuss some consequences of this analysis for the distinction between focus and topic. In 3.3, I provide convergent evidence for Bocci & Avesani's proposals, basing on the metrical properties of the postfocal material and the properties of wh-questions. Showing that postfocal material is not extra-metrical, I argue that in case of focus in non-final position marked mapping rules override default rules leading to the formation of intonational phrases whose metrical head is not aligned with the rightmost element, as shown by Frota (2000) with regard to European Portuguese.

In section 4, I argue that prosody is not isomorphic either to the syntactic structure or to the discourse properties. I show that syntactic elements consistently endowed with certain discourse properties receive different prosodic interpretations in accordance with the position occupied within the prosodic structure. This is the case, for instance, of right dislocated topics which associate with different pitch accents according to their positions, although invariantly count as tail in the sense of Vallduvì (1992). Moreover, I discuss the consequences of assuming that focus always is associated by overt syntactic movement as proposed by Kayne (1998) and Belletti (2004a). I argue that even if this assumption can lead to a reformulation of the domain of the L*-association in terms of syntactic configuration, such a reformulation does not guarantee isomorphism between prosody and syntax.

2.   Background Assumptions

2.1. Topic and Focus in Syntax

According to the cartographic approach (Cinque 1999, Rizzi 2004a), scope-discourse properties are assumed to be encoded as features in dedicated and ordered functional projections and to play a role in the syntactic computation. In this view, syntax presents to the interfaces representations in which discourse-scope properties are transparently mapped. So, discourse properties like focus or "topichood" can be directly read off the syntactic output and be interpreted by the external components, i.e. the interpretative component and phonology. In such an approach, hence, there is no need to postulate a direct connection between the interpretative component and phonology, in compliance with the T-model of grammar.

With regard to the left periphery of the clause, Rizzi (1997) proposes that CP is to be split in different layers, containing distinct focus and topic projections. A phrase endowed with a certain scope-discourse feature enters in a probe-goal relation with the appropriate functional head endowed with the pertinent feature. In this way, an element hosted in the Specifier of a topic projection is interpreted as Topic, while a phrase occupying the Specifier of the focus projection is interpreted as focused. Such positions where scope-discourse feature are encoded are called criterial positions.

In the current minimalist framework, a linguist expression is conceived of as a pair $<\pi, \lambda>$ consisting of a PF representation associated with a LF representation. The computational system maps some array of lexical choices composing the initial numeration N to the pair ($<\pi, \lambda>$). Chomsky (1995: 228) proposes that a Condition of Inclusiveness (IC) applies to the computation from N to LF: "any structure formed by the computation […] is constituted of elements already present in the lexical items selected for N; no new objects are added in the course of the computation apart from rearrangements of lexical properties […]."

It has been observed by several scholars (Zubizarreta 1998, Szendröi 2001, Brunetti 2004, Reinhart 2006, a.o.) that assuming a focus feature would lead to violate Inclusiveness Condition, since it is neither obvious how focus can be a property of a lexical item, nor clear how it could drive the syntactic computation within Chomsky's feature-checking mechanism. In the light of such considerations, Zubizarreta (1998) proposes a weakened formulation of IC which allows that a focus feature plays a role in the syntactic computation. By contrast, building on Reinhart (1995), Szendröi (2001, 2002) argues that the existence of a focus feature in syntax must be rejected and that focus is encoded in prosody by means of the main prominence. The correspondence between prosodic prominence and focus is made possible by a direct link between LF and PF. In such a view, focus does not play any role in syntax: focus movement cannot be feature driven, nor are there distinct positions of topic and focus. Rejecting the T-model of grammar, she proposes an architecture – couched within the Optimal Theoretical framework – in which LF and PF communicate directly. The Inclusiveness Condition principle is preserved at the cost of dismissing the T-model of grammar.

With regard to Hungarian, Szendröi (2001) proposes that focus fronting is not feature driven, but it results from the need to align the focus phrase with the location where the prosodic component assigns the main prominence by means of its own independent mechanism: the focus phrase moves in preverbal position to receive the phrasal prominence assigned by the prosodic system of Hungarian invariantly to the leftmost element. Italian, nevertheless, exhibits leftward focus movement, even though prosodic phrasal prominences are assigned to the rightmost element. Given that in her model focus movement cannot be feature driven, Szendröi advances the proposal that focus fronting in Italian is (part of) a marked strategy to allow d-linked material to be extrametrical and hence unstressed as prescribed by a "Anaphoric Interpretation Principle". Such a principle, assumed as universal by Szendröi, requires that material is discourse-linked if it is unstressed. Some aspects of this analysis will be discussed in sections 3.2 and 3.3.

A different answer to the issue posed by Inclusiveness Condition is discussed by Aboh (2007). Aboh (2004) provides a comprehensive analysis of Gungbe, a SVO language of the Gbe group spoken in Niger-Congo. Gungbe, and Gbe languages in general, transparently spell out the backbone of the left periphery, providing sharp evidence in favor of the split CP hypothesis (Rizzi 1997). Aboh (2004, 2007) shows that in Gungbe, focus and topic phrases must be fronted in a specific space between the complementizer and the subject as shown in (1).

(1)   Ùn sè   ɖɔ xwé lɔ́ yà   Kòfí wɛ̀   Àsíbá gbá-ɛ̀   na
        I heard that house Det TOP° Kofi FOC° Asiba build-3sg for

        'I heard that, as for the house, for KOFI Asiba built it.'   (from Aboh 2007: (23))

Indeed, the left periphery of the clause in Romance Languages and in Gungbe has basically the same structure and shares a striking number of properties, except for the fact that Romance languages, unlike Gungbe, never lexicalize the functional heads of topic and focus by means of particles. As shown in (1), topic and focus phrases in Gungbe are respectively followed by specific particles, which Aboh analyzes as the lexicalization of the topic and focus heads: a Topic is invariantly followed by the particle "yà" and a focus phrase by the particle "wɛ̀". Such discourse-markers do not have any lexical meaning apart from indicating that what precedes them is a topic or focus phrase. Moreover, Gungbe does not allow any focalization *in situ* strategy, being focus movement mandatory. Phrases cannot be fronted without the appropriate particles and particles can never appear *in situ*. Remarkably, Aboh observes that focus in Gungbe does not associate with any prosodic special prominence: what unambiguously signals focus is only the segmental morpheme "wɛ̀".

Aboh (2004, 2007) shows that discourse particles determine the syntactic structure in Gungbe. He argues, indeed, that there is no clear reason to conclude that question particles project in syntax, as currently accepted, while topic and focus particles do not. Accordingly, he proposes that, given a sentence containing a topic, a focus phrase or an interrogative expression $<\pi, \lambda>$, its numeration N must include topic, focus or interrogative lexical choices

which are then manipulated by syntax (e.g. feature matching, displacement). In such a view, hence, the numeration N pre-determines the information structure of a linguistic expression. Looking at Gungbe from this perspective, the Inclusiveness Condition itself requires that discourse particles, i.e. the head of topic or focus, are included in the numeration. Aboh proposes that the discourse particles are endowed with optional formal features of topic and focus added as lexical items enters in the numeration, similarly to case and φ-features.[1] In this way, the heads of topic and focus drive the syntactic computation undergoing feature checking and triggering movement.

In conclusion, the account proposed by Aboh (2007) complies with the current minimalist assumptions, and, in particular, with the Inclusiveness Condition and the T-model of grammar. At the same time, it is explicitly cartographic: informational properties are encoded in syntax starting from the numeration and drive the syntactic derivation. In this view, what syntax hands over to the external components at Spell-Out are indeed representations where relevant discourse properties are transparently indicated (Rizzi 2004b: 7). Building on the cartographic approach, I will sketch a model of the syntax-prosody interface in which prosody accesses only to the syntactic output. Prosodic mapping rules can read not only the X-bar schema, but also the discourse-scope features encoded in the syntactic representation so that a direct link between prosody and LF is dispensed with.

2.2. Background Assumptions Concerning the Syntax-Prosody Interface

After spell out, the prosodic component maps the syntactic representation into a prosodic representation. Building on Selkirk (1984, 1995) and Nespor & Vogel (1986), I assume that the prosodic hierarchy is neither recursive (although it might allow iteration)[2], nor binary. Moreover, I will argue in section 4. that the prosodic structure does not need to be isomorphic to the syntactic one. As observed by Chomsky, prosody intrinsically violates Inclusiveness condition: "Let us assume that this condition [Inclusiveness Conditions] holds (virtually) of the computation from N to LF […]: standard theories take it to be radically false for the computation to PF" (Chomsky 1995: 228).

I assume that the prosodic representation is built by the interaction of two distinct classes

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[1] An alternative proposal concerning the syntactic encoding of focus is put forth by Brunetti (2004). She proposes that focus is an intonational morpheme lexically included in the numeration and it takes the focus phrase as its complement. Brunetti's proposal complies with Inclusiveness Condition and the T-model of grammar. However, this account suggests that intonational properties in general are to be conceived of as lexical morphemes included in the numeration. This sort of lexicalist view of intonation, nevertheless, is not compatible with the analysis of the Italian intonation I argue for. In particular, I show in section 3.2 that in Italian the pitch accent L* cannot be included in the initial numeration because it is inserted only in virtue of a morpho-phonological rule. See also section 4.

[2] Some sort of iteration is assumed in different prosodic models: Nespor & Vogel's (1986) phonological phrase restructuring, Selkirk's (1995) violable "No-recursion" constraint and Ladd's (1996) Compound Prosodic Domain Hypothesis.

of rules/constraints.[3] A first set of rules is not sensitive to discourse features and derives the default phrasing and prominence assignment. In this paper, I will not address the issue concerning the formulation of the default mapping rules. The levels of the prosodic hierarchy relevant for the current discussion are the phonological phrase (φ), the intonational phrase (ι) and the utterance (υ).[4] With regard to the prosodic system of Italian, there is widespread agreement in the literature (Nespor & Vogel 1986, a.o.) that within any level of constituency above the word level prominences are by default assigned to the rightmost element. I will assume that the default prominence assignment mechanism in Italian is not directly computed on the syntactic representation in accordance to the syntactic embedding (Cinque 1993), but rather on the prosodic constituency. Firstly, if we factor out the role of focus, prominences are always assigned on the rightmost element and no effect of the argument structure or asymmetries between complement and adjunct are detectable in Italian, in contrast to Germanic languages (Zubizarreta & Vergnaud 2004, see also Bocci forthcoming). Accordingly, there is no independent evidence to assume that the syntactic embedding determines the main stress location. Secondly, an algorithm based on the prosodic boundaries is able to account for the distribution of prosodic prominences in Italian at any level, while an algorithm based on the syntactic embedding cannot (see Bocci forthcoming). As a consequence, a prosodic constituency based algorithm must anyway apply.

The second set of rules interacting with the default mapping mechanism is composed of rules sensitive to discourse features. Assuming this second set of rules is a necessary move as we consider pitch accent (PA) association rules. According to the model put forth in Pierrehumbert & Hirschberg (1990), for instance, PA-association is a local process which directly pairs pragmatic properties with intonational morphemes. Given the approach adopted here, I assume that the intonation component is sensitive to discourse properties encoded as features in the syntactic representation and that they rule the association of tonal events. This reformulation ensues naturally from the assumption that intonation is part of the morpho-phonological component and from assuming the T-model of grammar.[5] In section 3.2, I will

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[3]   In this paper, I will remain agnostic about the question of whether mapping rules should be implemented in terms of constraints within the Optimality Theory framework or in terms of derivational rules. The main proposal concerning the PA association discussed here (i.e. the focus Defining Rule, see further in the main text), is formulated as a representational rule on the intonational structure, leaving aside the issue concerning its derivational or OT implementation.

[4]   Even though the relevance of the Utterance level is often neglected, I argue that this notion is necessary to deal with focus (and main wh-question) in Italian (see Bocci, forthcoming).

[5]   If we consider for instance yes/no questions, it is very plausible to conclude that the intonation can be sensitive to discourse-scope properties in an intonation language such as Italian. Building on Rizzi (2001), I assume that interrogative force is encoded in a functional projection in the high part of the left periphery: IntP. In some northern varieties of Italian, this projection can trigger subject-auxiliary inversion which signals interrogative force, while in other dialects (e.g. central Sicilian) the head of Force can be lexicalized by a clausal typing particle (see Cruschina 2007). In standard Italian, finally, force typing distinction between declaratives and polar questions is signaled only by prosodic means.

argue *contra* Pierrehumbert & Hirschberg (1990) that PA association is not exclusively locally driven by the interpretative properties characterizing a phrase. I will propose indeed that PA selection must refer also to nonlocal properties of the prosodic structure.

3.   Towards a Model of Italian Prosody

3.1.   Contrastive Focus and New Information Focus are Distinct at PF

As discussed by Rizzi (1997) and Belletti (2004a), contrastive focus and new information focus have a different positional distribution in Italian. While contrastive focus can appear *in situ* or be fronted to the left periphery of the clause, new information focus can only appear in postverbal position, as illustrated by contrast between (2b-c) and (3b-c). Following Belletti (2004a), I assume that in Italian new information focus (NIFoc) is expressed in a dedicated functional projection in the low area of the IP domain. Moreover, in order to account for the availability of contrastive focus *in situ*, I assume that it can be licensed *in situ* by means of long distant agreement.

(2)   a.   -A: Mi hanno detto che hai incontrato Lucia ieri. Come l'hai trovata?

           [They] told me that [you] met Lucia yesterday. How did you find her?

      b.   -B: MARIA ho incontrato   (, non Lucia)!   CFoc *ex situ*

               MARIA [I] met   (, not Lucy)!

      c.   -B':   Ho incontrato MARIA   (, non Lucia)!   CFoc *in situ*

               [I] met MARIA   (, not Lucy)!

(3)   a.   -A: Chi hai incontrato?

               Who did you meet?

      b.   -B: */[??]Maria ho incontrato.

               Mary [I] met

      c.   -B':   Ho incontrato Maria.

               [I] met Mary.

Taking for granted that contrastive and new information focus occupy different syntactic positions (Belletti 2004a), a relevant question to ask is whether contrastive focus and new information focus are distinguished by the prosodic component (see also Drubig 2003). Avesani & Vayra (2003) carry out a production experiment to investigate the intonational properties associated to different types of focus occurring in sentence final position. They find that in Florentine Tuscan Italian new information and contrastive focus are signaled by distinctive PAs: new information focus - as well as broad focus - is associated with a falling

accent phonologically transcribed as H+L*, while contrastive focus is associated either with a rising pitch accent transcribed as L+H* or with a high plateau transcribed as H+H*.[6]

Avesani & Vayra's findings are supported and generalized by Bocci & Avesani (2008) who investigate the intonational properties associated with focus in Siena Tuscan Italian carrying out a production experiment (described below). They observe that the (rightmost lexically stressed syllable of the) focus phrase systematically bears the main prominence in the utterance and that the PA type associated with that prominence is selected in accordance to the focus type: new information focus systematically associates with H+L*, while contrastive focus does with L+H*.[7] Moreover, they showed that such PA-associations were consistent regardless of the focus position within the utterance. According to their proposal, the only PA signaling the focus type is the one associated with the rightmost metrical prominence of the focus phrase. When focus is instantiated by a branching long phrase, for instance, the PAs assigned before the rightmost metrical prominence of the focus phrase appear to be selected without regard to the focus type.

(4) and (5) are an example of minimal pair taken from Bocci & Avesani (2008) where the focus phrases precede a right dislocated object. In (4) the new information focus phrase is characterized by a fall transcribed as H+L*, while in (5) the contrastive focus phrase is marked with a rise transcribed as L+H*.

(4) a. -A: When will you invite Mariangela?

   b. -B: La invito **domain** Mariangela (NIFoc)

      [I] Her-invite tomorrow, Mariangela
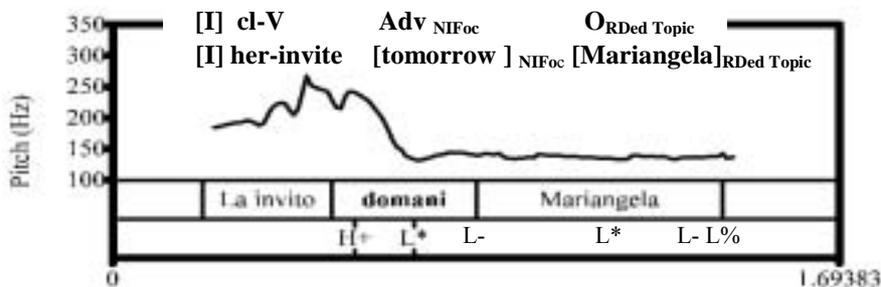
(5) a. -A: Leo mi ha detto che ieri hai invitato Mariangela.

    Leo told me that you invited Mariangela yesterday.

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[6] Ladd & Schepman (2003) question the validity of a phonological distinction between H* and L+H* which, according to Pierrehumbert & Hirschberg (1990) are respectively associated with new information focus and contrastive focus. Note, however, that the distinction between L+H* (a rising PA) and H+L* (a fall) observed in Tuscan Italian is currently assumed to be phonological within the auto-segmental metrical theory of intonation (Pierrehumbert 1980).

[7] The H+H* PA observed in Florentine Italian is not attested as a variant of L+H* in Siena variety of Italian.

b. -B: La invito   DOMANI   Mariangela.   (CFoc)
       [I] Her-invite TOMORROW, Mariangela
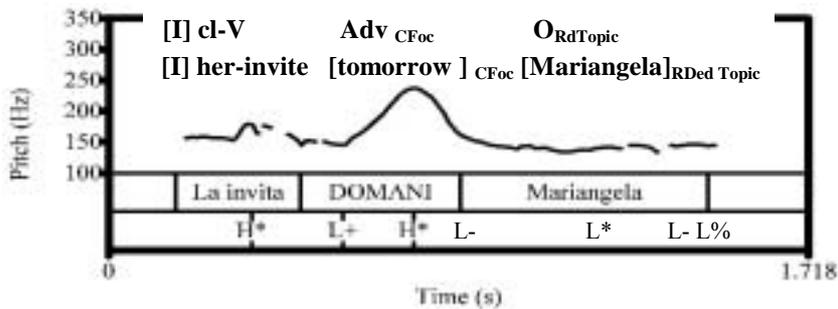
Let us take for granted the intonational opposition between informational and contrastive focus and consider some implications of such a contrast. Firstly, it strengthens the need for feature-sensitive mapping rules, since the default mapping rules cannot account for PA associations. Secondly, this intonational contrast between PAs provides evidence in favor of the existence of a typology of focus which has been long disputed in the literature (Rooth 1992, Kiss 1998, Belletti 2004a, Brunetti 2004, a.o.). Thirdly, if types of focus are phonologically distinct in Italian, it follows that the approaches to focus which eliminate the notion of focus from the grammar fail to account for the properties of focus (in Italian). Building on Schwarzschild (1998), Bader (2001) proposes that focus is not a legitimate property and that all focus-related prosodic effects in English as in Italian are induced by Givenness, denying focus any role. On different grounds, Sauerland (2005) argues in favor of a purely presuppositional account of focus, according to which what is semantically marked and prosodically interpreted is destressed rather than focused material. Leaving apart other considerations, the distinction between types of focus argued for in Avesani & Vayra (2003) leads to reject such reductionist approaches where the notion of focus is dismissed and replaced by Givenness or Presupposition: if focus were just negatively defined as "non-given", it would not be possible to differentiate between contrastive and new information focus.

In order to account for the contrast between new information and contrastive focus observed in Tuscan Italian, it is necessary to assume that at least one of them is identified by a positive mark. Indeed, this is what Selkirk (2007) proposes with regard to English. In her account, contrastive and new information focus are distinguished by the fact that the former is marked with a feature +F(ocus), while no feature is assigned to the latter which lacks any discourse-scope specification.[8] New information focus is further distinguished from given material since it is not marked with +G(iven), that is the feature characterizing given material. In principle, such a proposal could account for the accentual opposition between contrastive and new information focus observed in Tuscan Italian. However, some considerations suggest that new information and contrastive focus are both positively marked (see Bocci,

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[8]   Note however that Selkirk (2007) adopts a definition of contrastive focus built on Rooth (1992), while I adopt the notion of contrastive focus as proposed by Calabrese (1982), Kiss (1998) and Vallduví & Vilkuna (1998).

forthcoming). In the first place, according to Belletti (2004a), new information focus is expressed in Italian in a dedicated projection in the low IP area. If this is the case, a feature must be involved in the syntactic computation in order to account for movement to such a focus position. In the second place, consider that only one focus phrase per utterance is allowed in Italian, regardless of its contrastive or new-informational status, so that contrastive focus (whether *in situ* or *ex situ*) and new information focus are not compatible (see Calabrese 1982, Belletti 2004a and Bocci 2004, forthcoming). If new information focus lacked any feature specification as in Selkirk's approach, it would not be clear how to account for the uniqueness requirement on focus. In the third place, Bocci (forthcoming) and Bocci & Avesani (2008) propose that new information focus, contrastive focus and main wh-elements count similarly at the prosodic interface: they call for the association with the main prominence overriding the default prominence rules and trigger the association of a L* PA with material which linearly follows (see the discussion below). In the light of such considerations, I assume that both contrastive and new information focus are encoded as features.

3.2. The Properties of Postfocal Material: Bocci & Avesani's Focus Defining Rule and the Role of L* in Tuscan Italian

Bocci & Avesani (2008) carry out a production experiment to investigate the prosodic correlates of different informational properties and the way they interact each other. Three native speakers of the Tuscan variety of Italian spoken in Siena read 36 short scripts (from 3 to 6 repetitions for each speakers). The scripts were designed in order to induce in the target sentences different types of focal structure: contrastive focus *in situ* and *ex situ*, new information focus in final and nonfinal position and broad focus. Moreover, they combined the instances of the different focus types with the occurrence of clitic left dislocated topics and right dislocated topic in both short and complex utterances. The complex utterances were constituted by a main and an adjunct clause (in some cases separated by an additional parenthetical clause) in both linear orders. In such complex utterances, they combined the occurrence of a right or left dislocated topic in a clause with the occurrence of a focus phrase in the other. Such a design allowed them to factor out the linear order in which focus and topics appear and to evaluate the impact of focus on other phrases endowed with discourse scope properties, such as dislocated topics. The corpus, consisting of 480 utterances was analyzed and ToBI-transcribed and data about alignment and scaling of the tonal targets were collected and analyzed.

Bocci & Avesani (2008) observe that the focus phrases always call for the association with main prominence of the utterance. When focus is not in sentence-final position, the main prominence hence fails to align with the rightmost element in the clause violating in this way the default mapping rules (see 3.3 for a discussion). Moreover, Bocci & Avesani show that the pitch contour characterizing postfocal material is systematically realized as low and flat until the end of the utterance, regardless of the number and length of constituents occurring in such position. Indeed, in Siena Tuscan Italian, lack of pitch movement characterizes any element following focus: Presupposition of contrastive focus *ex situ*, right dislocated topics,

marginalized elements (in the sense of Antinucci & Cinque 1976). Even parenthetical clauses occurring after focus are invariantly characterized by a flat and low contour, even though they are phrased into independent intonational phrases.

In the literature, it has been proposed that Italian requires that elements occurring after focus are extrametrical. For instance, Szendröi (2001) assumes that postfocal material, being discourse-given, is extraposed and extrametrical in virtue of a universal "Anaphoric Interpretation Principle" requiring discourse-given material to be unstressed (see also Samek-Lodovici 2006).[9] If postfocal material were invisible to the prosodic component, it would be possible to maintain the conclusion that in Italian the main prominence is always assigned to the rightmost (visible) element. In this way, the default prominence rules would be able *per se* to account the distribution of the prominences. Moreover, if postfocal elements were prosodically invisible, the observed lack of intonational prominences on postfocal material would be consequently accounted for: PAs are not assigned, since there is no metrical head of the relevant level.

Bocci & Avesani, nevertheless, conclude that postfocal material is not extrametrical. They argue indeed that even if no intonational prominence after focus is audible, postfocal material is anyway metrically phrased and that metrical prominences of sentential level are invariably assigned. Consider the example in (6) from Bocci & Avesani. The main clause containing a right dislocated topic occurs in postfocal position. The perceptual and durational analyses of such examples show that that main clause and the RDd topic are phrased into two independent intonational phrases and both of them are metrically headed. Consequently, postfocal material cannot be invisible to the metrical component.

(6)

When arrives PIERANGELO_{CFoc}, [we] her-must inform Marianna_{RDed Top}
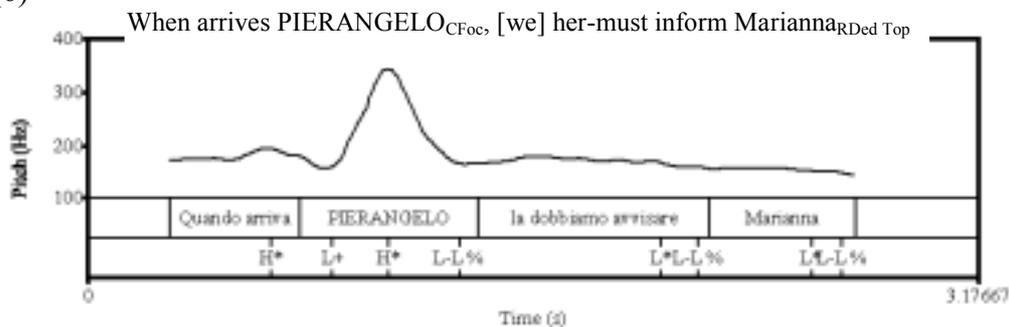
Moreover, convergent evidence against the extrametrical status of postfocal material comes from European Portuguese (Frota 2000) and Southern varieties of Italian (Grice et al. 2005). In these prosodic systems, there is no doubt that postfocal material is not extrametrical: not only postfocal material is phrased and stressed, as it is in Tuscan Italian, but it also associates with special downstepped pitch accents. If this is the case, postfocal material must be visible to both metrical and intonation components.

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[9]   See also section 3.3 and for a discussion of the properties of the prosodic constituency and the hypothesis of extrametricality.

On the light of such considerations, Bocci & Avesani (2008) propose that apparent deaccenting in postfocal position observed in Tuscan Italian must be analyzed in terms of association with a L* pitch accent on the postfocal phrasal metrical prominences. In this view, the flat contour is not the result of the lack of intonational events, but indeed the result of a phonological specification. By assuming L* associated with postfocal material, it is possible to retain a full correspondence between metrical and intonational prominences. If postfocal phrasal metrical prominences were not associated with tonal events, it would be needed to separate the prosodic system by divorcing the metrical component from the intonational one. By contrast, assuming L* guarantees that any phrasal metrical prominence is interpreted by intonation.[10] Moreover, the crosslinguistic differences observed between Tuscan Italian and other Romance varieties are reduced to a typological difference in the PA inventory. While postfocal phrasal prominences associate with !H+L* in European Portuguese (Frota 2000), Tuscan Italian exploits L* to mark them.

According to Bocci & Avesani's proposal, L* is neither assigned as the correlate of Givenness or D-linking nor as the correlate of the background (nor of the tails in the sense of Vallduví 1992, as discussed in section 4.). While destressing and deaccenting of given information is massively attested in Germanic languages (Ladd 1996, German et al. 2004, Selkirk 2007 a.o.), it has been observed that Romance languages fail to deaccent given information (Ladd 1996, Zubizarreta 1998, a.o.). Bocci & Avesani argue that in Tuscan Italian any element preceding linearly focus, irrespectively of Givenness, is always pitch accented with a PA different from L*. Indeed the L*-association is strictly confined to postfocal contexts in Italian, unlike English where, according to Pierrehumbert & Hirschberg (1990), L* is associated with given and presupposed element independently of the focus position.

Bocci & Avesani (2008) compare pairs of sentences with focus *in situ* and focus *ex situ* that were elicited in the same context. Consider the examples (7) and (8) taken from Bocci & Avesani. Focus fronting to the left periphery does not seem to impact in any way on the interpretative properties of the sentence: neither the focus phrase, nor the rest of the sentence seem to receive a different interpretation in the two cases. Consequently, it is plausible to assume *bona fide* that the sentences with focus *in situ* and focus *ex situ* share the same focus-background articulation.[11] However, while the focus phrase is consistently associated with the same PA, the phonological properties of the background are radically different between the two cases. In the example with CF *in situ* in (7), the background preceding focus is accented with H+L*, while in (8), the background following the focus phrase moved to the left periphery associates with L*. If we assume that contrastive focus *in situ* is actually licensed *in situ*, it is plausible to conclude that L* is not a phonological property which unambiguously identifies/marks the background. In the section 4, I take into consideration the prosodic

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[10] I follow Selkirk (2007) in assuming that any phonological phrase head must associate with a PA.

[11] See section 4. for a discussion of the prosodic properties of the notion of tail in the sense of Vallduví (1992).

consequences of the syntactic approach proposed by Belletti (2004a) in which focus always moves overtly.

(7)
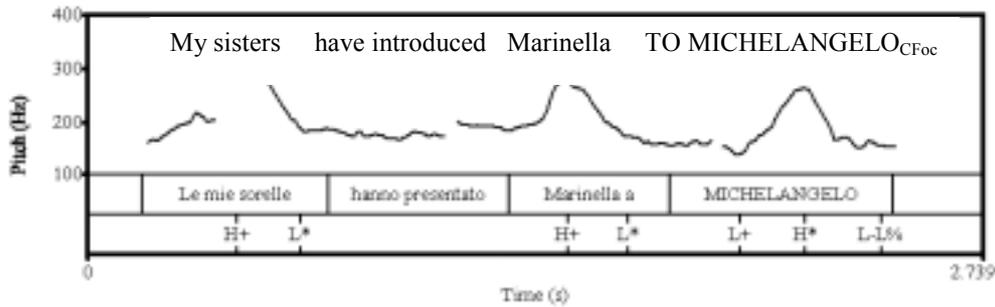
(8)
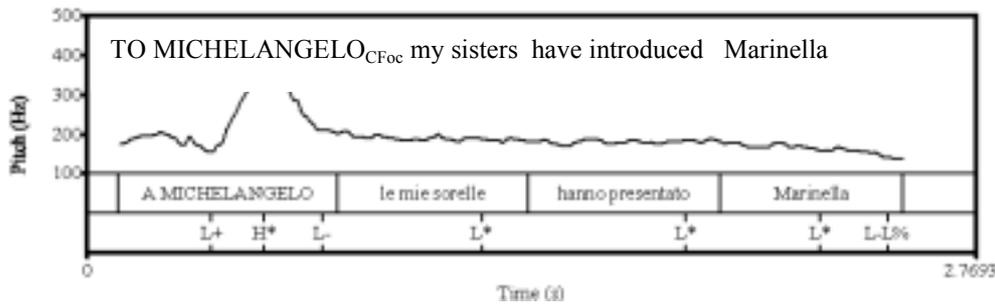
Bocci & Avesani (2008) propose that in Tuscan Italian L* is not a correlate of Givenness, as briefly discussed, but a marker dedicated to set the right-hand side of the focus phrase by marking the material to its right as non-focal. The focus phrase is not exhaustively marked by prosody, because prosody signals just its right-hand side.[12] Bocci & Avesani argue that the distribution of this marker is ruled by a Focus Defining Rule (FDR). This representational rule states that the pitch accent from which the focus projection must be computed and which defines the focus type (call it the focal PA) is the rightmost PA able to express focus. The accentual inventory of Tuscan Italian includes L* as a specialized marker unable to express focus, while European Portuguese exploits !H+L*. Moreover, following Selkirk (2007), they assume a Prosodic Correspondence Rule which requires that any phonological phrase head must be associated with a PA. This rule guarantees the full correspondence between phrasal stress and intonational prominence. Given the prosodic correspondence rule and the focus defining rule, it ensues that L* must be assigned to any relevant metrical prominence following focus within the application domain of FDR. Moreover, if we consider uniquely the

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[12] Following Büring (2004) and Selkirk (2007), I assume that there is not a special set of rules responsible for focus projection as the ones proposed by Selkirk (1984). As discussed in Bocci (forthcoming), I assume that focus projection results from the "asymmetric" character of the prosodic interpretation of the focus feature. In this way, focus projection is derived from the interaction of the syntactic structure and the prosodic mapping rules. I refer the reader to Bocci (forthcoming) for a discussion of the syntactic conditions on focus projection in Italian and for a discussion of the differences between the types of focus with regards to the focus projection.

melodic structure, such approach suggests that what identifies the focal pitch accent among different PAs typologically suitable to convey focus is only the position that the focal PA occupies in the prosodic structure.

Following Calabrese (1982), Belletti (2004a) and Bocci (2004), Bocci & Avesani assume that Italian disallows multiple discontinuous foci, so that only one focus per utterance is allowed. This uniqueness requirement seems to undergo typological variation and to parallel the availability of multiple wh-questions (Bocci forthcoming). In English, for instance, multiple foci are allowed (Rooth 1992), while in Gungbe focus uniqueness applies to the clausal level, so that only one focus phrase per clause is admitted, but each clause in complex utterances can express focus independently (Aboh 2004). In Italian, focus uniqueness applies to the entire utterance: even if the left peripheries of certain embedded clauses can host focus (Haegeman 2004, Bocci 2004), only one focus per utterance is allowed (Bocci, forthcoming).

The cases of complex utterances in Bocci & Avesani's corpus fully support their proposals: 1) L* is inserted as a special marker to define the right-hand side of the focus phrase, rather than as a correlate of Givenness or D-linking and 2) the application domain of the focus defining rule is the utterance. Indeed, L* appears to be uniquely ruled by the focus position: L* is assigned to whatever element occurring after focus until the end of the utterance, regardless of its discourse properties and overriding any other pitch accent association rule. In simple utterances, where ClLDed Topics usually precede focus, they are phrased into independent prosodic constituents and bear prominent PAs (see also Gili Fivela 1999). Notably, in such contexts they never associate with L*, not even in case of familiar topics (*pace* Frascarelli & Hinterhölzl 2007). Let us consider now the pair (9) and (10) extracted from Bocci & Avesani's corpus.

(9)   H+L* L-L%   H+L*L-L%   **L+H***   L-L%
{ [(   )φ]ι   [(|)φ]ι [(|)φ]ι }υ
Marianna_CLDed TOP la dobbiamo avvisare,   quando   arriva   PIERANGELO_CFoc
Marianna_CLDed TOP [we] her- must inform,   when   arrives PIERANGLO _CFoc
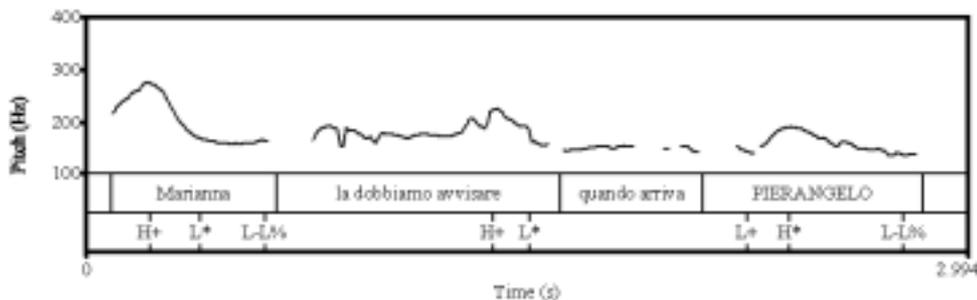
In (9), the main clause containing a ClLDed topic precedes an adjunct clause where an instance of contrastive focus occurs. As expected, the ClLDed topic preceding the focus phrase does not bear L*. Notably, in such example, the topic is phrased into an autonomous intonational phrase and bears a nuclear pitch accent H+L* able in principle to convey new information focus as discussed above. Nevertheless, H+L* on the initial topic

straightforwardly does not legitimate a focal interpretation: what prevents such an interpretation is the focus defining rule. Since the focal pitch accent is defined as the rightmost PA in υ able to convey focus, what counts as focal PA in (9) cannot be but L+H* on "PIERANGELO".

(10)   …   **L+H***   L-L%   L* L-L%   L* L-L%
    {[(|)φ]ι [(|)φ]ι   [(|)φ]ι}υ
    Quando   arriva PIERANGELO_CFoc, Marianna_ClLDed TOP   la dobbiamo   avvisare
    When   arrives PIERANGLO _CFoc , Marianna_ClLDed TOP [we] her- must   inform


(9) and (10) were elicited in the same context and differ only in the order of the main and adjunct clause. Crucially, such a difference in the order seems *bona fide* not to involve any interpretative effect. Nevertheless, even if there is no interpretative difference, the prosodic properties associated to the main clause and the topic in (10) are completely different from the ones in (9). In (10), where the focus phrase precedes the main clause, the clitic left dislocated topic and the rest of the main clause are forced to associate with L*: if their metrical prominences were associated with PAs different from L*, the L+H* on "PIERANGELO" could not be interpreted as focal in accordance with the FDR. Let us assume that ClLDed Topics, being endowed with discourse features, call for a specific PA association. Even if this is the case, the FDR overrides any other PA association rule: in postfocal contexts ClLDed topics, as any other element, associate with L*.

Let us consider now how the FDR impacts on the PAs associated with right dislocated topics.[13] Right dislocated topics in simple utterance generally follow focus and are phrased into an independent prosodic constituent characterized by the flat and low contour that I interpret as L*-accented following Bocci & Avesani (2008). See, for instance, (11b).

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[13]   Notably, the interpretative properties of right dislocated topics in Italian differ from the ones characterizing clitic left dislocated topics. In particular, RDed Topics cannot be used as contrastive topics and with "list interpretation" (Benincà & Poletto 2004, Bocci 2004), but just as familiar topics or "tail" in the sense of Vallduví (1992). Interestingly, Pierrehumbert & Hirschberg (1990) proposed that L* is used to mark salient items which are external to the predication and existentially presupposed. Adapting their proposal to the terminology used here, hence, L* in English could be conceived of as the mark of familiar topics. As discussed in the main text, this cannot be the case in Italian.

(11) a. -A: Quando inviterai Mariangela? Lia è molto curiosa.

When will you invite Mariangela? Lia is very curious about it.

$$
\begin{array}{llll}
 & \textbf{H+L*} & \text{L-L\%} & \text{L*} & \text{L-L\%} \\
\{[(& | &)_\varphi]_\iota & [(| &)_\varphi]_\iota \}_\upsilon
\end{array}
$$

b. -B: La invito   domani $_{\text{NIFoc}}$,   Mariangela $_{\text{RDed Top}}$

[I] her-invite   tomorrow$_{\text{NIFoc}}$,   Mariangela $_{\text{RDed Top}}$
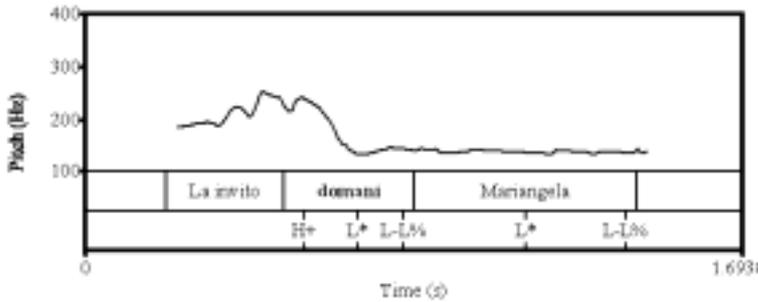
At this point, it is interesting to ask whether L* is assigned to right dislocated topics regardless of the location of focus. Let us consider the pair (12)-(13) from Bocci & Avesani.

(12)   H*   **L+H***   L-L%   L* L-L%   L*   L-L%
$$
\{[(\quad | \quad | \quad)_\varphi]_\iota \quad [(\quad |)_\varphi]_\iota \quad [(\quad | \quad)_\varphi]_\iota \}_\upsilon
$$
Quando arriva PIERANGELO$_{\text{CFoc}}$ la dobbiamo avvisare,   Marianna$_{\text{RDed TOP}}$
When   arrives PIERANGELO   [we]her-must inform,   Marianna

In (12), where the focus phrase precedes the topic right dislocated in the main clause, both the the RDed and the remaining part of the main clause bear L*. Now consider (13) where the order of the main clause and the adjunct clause is inverted without any evident impact on the informational properties, either on the right dislocated topic "Marianna" or any other element.[14]

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[14]   In both cases, for instance, the right dislocated topic "Marianna" cannot be used as contrastive topics. See also fn. 12, section 4 and fn. 24.

(13)   H+L* L-L% H+L*   L-H%   **L+H***   **L-L%**

{[(|)φ]ι [(|)φ]ι [(|)φ]ι}υ

La dobbiamo   avvisare,   Marianna_{RDed TOP},   quando arriva PIERANGELO_{CFoc}

[We] her-must   inform,   Marianna,   when arrives PIERANGELO
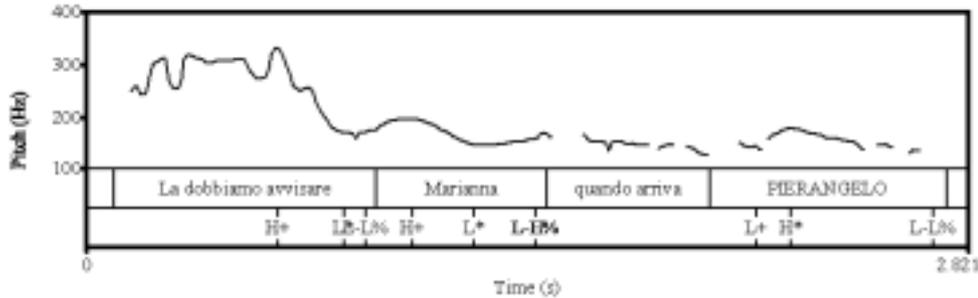
In (13), the right dislocated topic preceding focus is not L*-accented, but bears H+L*. Since it precedes the focus phrase, the FDR does not impose L*. If L* were just a correlate of right dislocated topics (or familiar topics in general), it should be assigned in (13) as it is in (11b) and (12). Indeed, in Bocci & Avesani's corpus RDed Topics preceding focus never associate with L*. These results straightforwardly show that right dislocated elements *per se* are not extrametrical and that given information in Italian does not undergo the "destress/deaccent given" constraint proposed by Féry & Samek Lodovici (2006) with regard to English (see also Selkirk 2007).[15] Moreover, it is worth emphasizing that the right dislocated topic bears a nuclear H+L* pitch accent which could potentially express new information focus. What prevents such focal interpretation is the FDR: H+L* on the right topic "Marianna" in (13) is not the rightmost PA able to express focus in υ. In section 4., I will discuss in more detail the examples of L* on topics, arguing, in particular, that L* cannot be conceived of as the direct correlate of the notion of tail as elaborated by Vallduví.

The FDR and the uniqueness requirement on focus predict a principled distinction between the prosodic properties characterizing utterances with fronted focus phrases on the one hand and left dislocated topics on the other. Following Büring (1997), let us assume that what is topic is not focus. In other words, topics are a subset of the background, that is of the complement of the focus set. Consider now the minimal pair in (14) and (15): the former is an instance of fronted focus-background articulation and the latter of topic-comment structure.

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[15]   According to Selkirk's implementation of the constraint "Destress Given" proposed by Féry & Samek-Lodovici (2005), Given(ness) is a feature represented in the syntactic output. Given the model of syntax-prosody interface depicted here, it is possible to assume that English – where "Destress Given" is active – and Italian – where it is not – do not differ with regard the encoding of the Given feature in syntax, while they do in the prosodic computation of such a feature: Givenness triggers deaccenting in English, while it has not prosodic effect in Italian. Bocci (forthcoming) argues in favor of such an analysis providing evidence from the interaction between destressing and NP-ellipsis in Italian and English.

(14)

TO THE VIROLOGIST$_{CFoc}$ Veronica want to send the **analyses**.

(15)

As for the virologist$_{CILDed TOP}$ Veronica want to send the analyses.
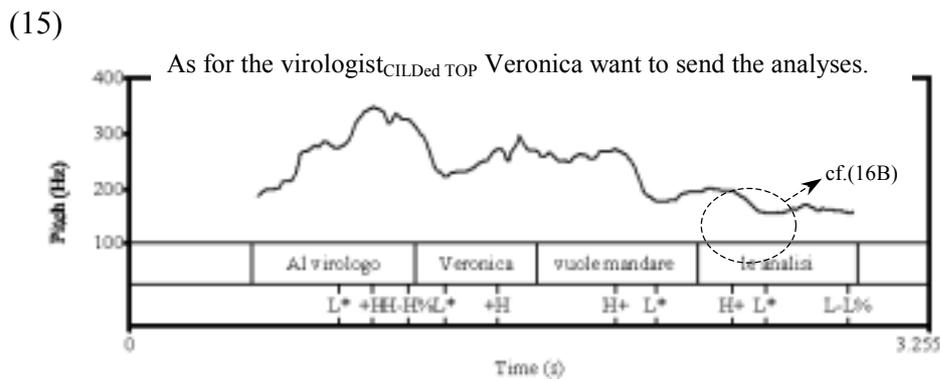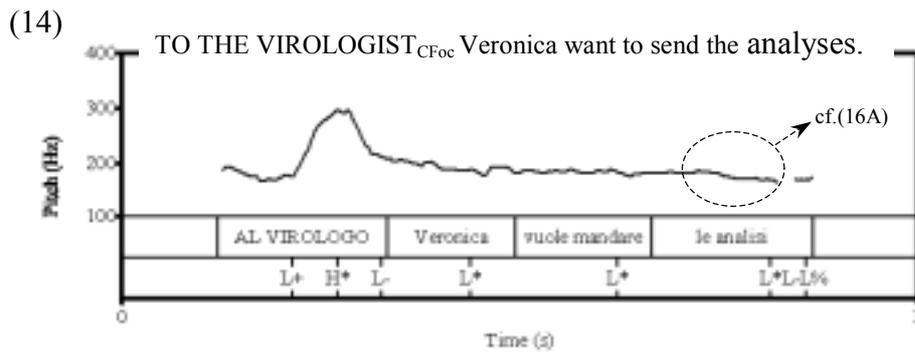
(16)   A.   B.
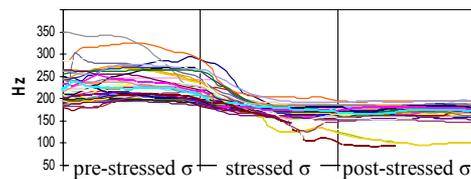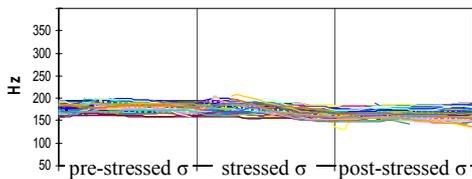
Pitch contours on pre-stressed, stressed and post-stressed syllables of the rightmost phrase within the Comment of ClLDed Topics (B. panel, 48 utterances) and within the background of fronted CF (A. panel, 101 utterances) in read Tuscan Italian (from Bocci & Avesani 2005). Contours normalized on the duration of each syllable (25 sampling points per σ).

In (14), after the fronted contrastive focus phrase, only L* can be assigned as required by the FDR. In (15), by contrast, the dislocated topics cannot trigger the L*-association. Moreover, if what is topic is not focus, focus must be expressed in the comment of topic and, hence, the comment will bear a focal pitch accent. So, as argued by Bocci & Avesani (2005), the background of a fronted focus phrase is always L*-accented, while the comment of topic must express a focal PA (unless a focus phrase precedes the topic-comment articulation as in (10)). In conclusion, it follows that the prosodic differences between sentences with left dislocated topics and left peripheral focus phrases are not restricted to the fronted phrase, but necessarily involve the prosodic structure of the whole sentence. This conclusion is supported by the findings in Bocci & Avesani (2005), which compare the intonational properties associated with the comment of left dislocated topics and the background of fronted focus phrases in minimal pairs analogous to (14)-(15). They observed that while what follows a fronted focus phrase is always realized as a flat and low contour (i.e. phonologically transcribed as L*), the

comment of left dislocated Topics bears always a focal pitch accent (H+L* in their corpus). See the pitch contours in (16) from Bocci & Avesani (2005).[16]

3.3. Focus and Prosodic Constituency in Italian

According to Bocci & Avesani (2008)'s proposal, postfocal material is visible both to the metrical and intonational subcomponent: material in postfocal position is phrased, stressed and L*-accented. Moreover, the main prominence in υ is consistently assigned to the focus phrase, independently of the position where focus surfaces. [17] If so, it is worthwhile considering how focus interacts with default mapping rules which assign prominences to the rightmost element in ι and υ. In approaches in which focus is encoded in syntax, it is plausible to assume that the focus feature triggers special feature-sensitive rules which ensure the alignment between focus and main prominence outranking the default rules.[18]

Frascarelli (2000) investigates the effects of focus on the metrical structure taking into account the application of prosodic rules such as *Raddoppiamento fonosintattico,* stress retraction and Tuscan "Gorgia" and proposes an articulated model. With regard to contrastive focus in the left periphery, she argues that left peripheral focus is phrased along with the verb in the same ι if they are adjacent. Conversely, if an element intervenes between the focus phrase and the verb (e.g. the subject), an intonational phrase boundary is inserted after focus. Revising Frascarelli's (2000) prosodic analysis, Szendröi (2001, 2002) proposes that in Italian any element occurring after focus is extrametrical in the sense that it is not included within the "core" ι. With respect to the prosodic constituency, cases of fronted focus, string-medial focus and sentence-final focus receive a uniform account: focus in any case occurs as the rightmost element within the "core" ι, which is the domain of assignment of the main prominence. In favor of her analysis, Szendröi claims that focus is systematically followed by an intonational phrase boundary. The same statement is also proposed by Samek-Lodovici (2006) who argues that any element following focus (regardless of the distinction between left peripheral and

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[16]   From a quantitative point of view, the coefficient of variation (and the standard deviation) of the pitch contour on the pre-stressed, stressed and post-stressed syllables of the rightmost element of the utterances was significantly different between the comment of topic and the background of fronted focus: the application of Mann-Whitney test gives U=360, p>0,001 (from Bocci & Avesani 2005).

[17]   Note that this claim does not contradict *a priori* Truckenbrodt's (1995) Contrastive focus Prominence Rule (CFPR) which requires that the level of prominence assigned to the focus phrase is relative to the domain of the focus interpretation operator: within the scope of a focus interpretation operator, the corresponding F-marked constituent is the most metrically prominent. As Italian uniqueness of focus applies to the utterance (cf. Calabrese 1982), it is plausible to speculate that the focus operator is always interpreted in the left periphery of the root clause. If that were the case, the assignment of the main utterance prominence to the focus phrase would follow on from the CFPR in itself.

[18]   Or, to put it in terms of the Optimality Theoretical model, there is top-ranked focus constraint requiring that focus bears the highest prominence with the relevant domain which is identified in υ in Italian (see Truckenbrodt 1995).

string-medial) is always right-dislocated and cites as evidence the systematic occurrence of an intonational phrase boundary after focus. (17) illustrates the prosodic phrasing proposed by Szendröi (2001: 245) for cases of left-hand focus in Italian.

(17) {[(   )φ]ι}υ   (   )φ   (   )φ
        LA PIZZA   Pietro   ha mangiato
        THE PIZZA   Pietro   has eaten   (from Szendröi 2001: 245)

Bocci & Avesani (2005) discuss the results of a case study on the metrical and intonational properties of utterances with left peripheral focus in Tuscan Italian. With regard to the metrical constituency, they analyzed and compared minimal pairs of sentences with broad focus and contrastive focus in the left periphery. The perceptual analysis indicated that a fronted focus phrase is phrased in the same ι along with the rest of the clause, independently of the adjacency with the main verb. This conclusion is fully supported by quantitative analyses on segmental durations, as well. Consider the minimal triplet in (18) (from Bocci & Avesani 2005).

(18)   {[(   )φ (   )φ]ι}υ
    a. Un urologo   vuole sposare   Veronica   (broad focus)
        A urologist   wants to marry Veronica

        {[(   )φ (   )φ]ι}υ
    b. UN VIROLOGO_CF   vuole sposare   Veronica
        A VIROLOGIST   wants to marry Veronica
         S(ubject)_CF   V(erb)   O(bject)

        {[(   )φ (   )φ]ι}υ
    c. UN VIROLOGO_CF   Veronica   vuole sposare
        A VIROLOGIST   Veronica   wants to marry
         O_CF   S   O

Bocci & Avesani (2005) independently argue that in their corpus the preverbal subject in broad focus was systematically phrased into an independent φ, as sketched in (18a). Therefore, they reason that if initial focus were followed by an intonational phrase boundary, the material at the end of focus should undergo a lengthening process due to the ι-boundary occurrence and therefore be significantly longer than the corresponding material at the end of the subject in broad focus which is followed by a φ-boundary. This prediction was not born out. The final syllable and vowel of the focus phrase were not significantly longer than the corresponding elements at the end of a preverbal subject in broad focus, independently of the focus-verb adjacency.[19] Bocci & Avesani (2005) hence conclude that an utterance divided in

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[19]   The comparison with ANOVA of the normalized length of syllables and vowels in pre-boundary position showed respectively $F(1,69)= 0,274$ $p=0,620$ and $F(1,69)= 0,274$ $p=0,602$ in case of adjacency with the verb and $F(1,45)= 0,007$ $p=0,9345$ and $F(1,45)= 0,525$ $p=0,4723$ in case of non-adjacency. I refer the reader to Bocci & Avesani 2005 for a detailed discussion of the analyses.

left peripheral focus and background is phrased as sketched in (18b-c): the left peripheral focus phrase is not followed by an ɩ-boundary, but is mapped into a φ contained into the same ɩ with the rest of the clause. Since postfocal material is phrased and stressed, they conclude that prominence alignment with focus can lead to intonational phrases whose head is not assigned to the rightmost element. This prosodic structure is indeed what is observed in European Portuguese. Frota (2000) convincingly show that in European Portuguese preverbal focus phrases along with the rest of the clause form an intonational phrase whose metrical ɩ-prominence is aligned to focus on the left-hand and followed by the φ-prominences associated with postfocal elements. Prominence alignment to focus can prevent the ɩ-prominence from being assigned to the rightmost element in ɩ.

Bocci & Avesani's (2005) experimental results are admittedly weakened by the fact they tested only one speaker. However, the perceptual analyses of Bocci & Avesani's (2008) corpus point to the same conclusion. Furthermore, convergent evidence against the extametricality of postfocal elements is provided by the analysis of wh-main questions. As discussed in Bocci (forthcoming), D-linked wh-elements in main questions behave as focus phrases with regard to many prosodic properties in Italian.[20] In unmarked questions, D-linked wh-elements call for the assignment of the main prominence and count as focus phrases for the FDR: they trigger L*-association on whatever element follows. Consider the example in (19) taken from a subset of Bocci and Avesani's (2008) corpus discussed in Bocci (forthcoming).

(19)

(20)   H* **H+L*** L-   L*   L*   L- H%
    {[(| |)φ⌐ (| |)φ]ɩ}υ
       Chi di loro   avrà votato il nostro emendamento?
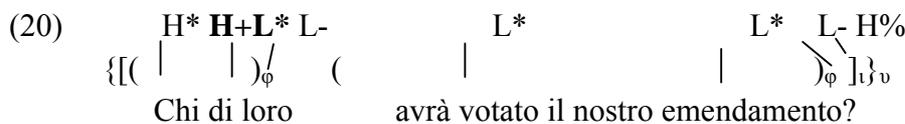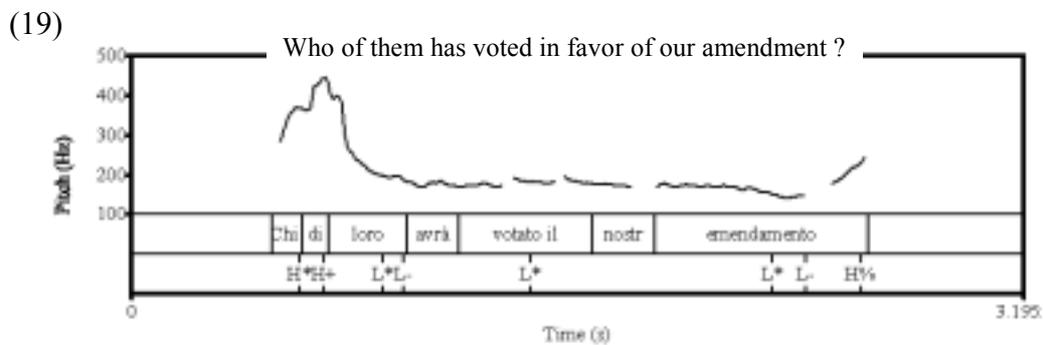
The pitch contour in (19) straightforwardly shows that the wh-element is associated with a H+L* PA and after that the pitch contour is low and flat until the final question rise. Notably no metrical break occurs after the wh-phrase and postfocal material is clearly endowed with phrasal metrical prominences. All evidence points to the conclusion that nothing is

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[20]   Modulo the role of the main verb, also non-D-linked wh-elements count as focus phrases with regard to the prominence assignment and the FDR. I refer the reader to Bocci (forthcoming) for a discussion of the prosody of wh main question in Italian.

extrametrical in (19), but rather that the entire utterance is phrased into a unique intonational phrase in which the main prominence is assigned to the focus phrase violating the unmarked prominence assignment to the rightmost element. In other words, the prosodic constituency of wh-questions as (19) fully parallels the one of declarative utterances with left peripheral focus (18b-c). Notably, however, the examples of wh-questions tell us something more about the prosodic constituency with respect to focus in declaratives. Building on Frascarelli (2000), Szendröi (2001) proposes that material following focus (and the main prominence) is extrametrical in the sense that it is not projected and included within a ɩ-constituent as sketched in (17). In wh-questions, nevertheless, we can observe the typical question rise at the end of the sentence: this means that there must be a high H% boundary tone assigned to a final intonational phrase boundary, as sketched in (20).[21] Indeed all evidence points to the conclusion that Italian allows marked prosodic structures as (24b-c) and (26), where the main prominence within ɩ is assigned to focus rather than to the rightmost φ-prominence.

3.4. Summary

Summing up this brief review of Bocci & Avesani's (2008) proposal, postfocal material in Tuscan Italian is not invisible to prosody. It is phrased, stressed and intonationally marked with a special PA: L*. In Tuscan Italian, L* is inserted neither as a correlate of Givenness or D-linking nor as a correlate of the background (nor of the tail, as discussed in section 4.). By contrast, L* is inserted just as a special marker exploited to define the right-side of the focus phrase by marking postfocal material as non-focal. They propose that the distribution of L* is ruled by a focus defining rule which identifies the focal pitch accent – the PA from which the focus projection must be computed and which defines the focus type – as the rightmost PA able to express focus, where L* in Tuscan Italian is unable to express focus. In this way, apparent differences across Romance languages on the intonational properties of postfocal material are traced back to a difference in the intonational inventory: in European Portuguese (Frota 2000), for instance, postfocal prominences associate with !H+L*, while Tuscan Italian exploits L* to mark them. As Italian allows just one focus per utterance (Calabrese 1982, Belletti 2004a, Bocci 2004), Bocci & Avesani argue that the focus defining rule applies at the utterance level, so that whatever element occurring after focus must associate with L*. The

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[21]   At first glance, an alternative account could be proposed adapting to Italian Gussenhoven's (2004: 291) analysis of prosodic encliticized intonational phrases, which is somehow reminiscent of Szendröi's account in (23). Gussenhoven proposes that question tags in English are extraposed and enclitized on preceding ɩs as sketched in (i). Such enclitic elements can receive a boundary tone, but just as the result of a tone-copy process from the preceding ɩ-boudary.

$$\text{H\%} \qquad\qquad \text{H\%}$$
(i)   [Shouldn't we discuss this]ₗ   the two of us ?]ₗ   (adapted from Gussenhoven 2004: 291)

The pitch contour of (24) straightforwardly shows that Gussenhoven's analysis cannot be extended to Italian questions. In Italian, indeed, there is no ɩ-boundary after the main prominence assigned to the wh-element and, above all, there is not H% boundary tone after the main prominence to be copied at the end of the clause.

FDR indeed outranks any other PA association rule and an element occurring in post focal position, even if it is endowed with a discourse feature which calls for a specific PA association, must comply with the FDR by associating with L*. Since L*-insertion is driven by focus, Bocci & Avesani conclude that PA association is not only locally driven, but it is also ruled by structural requirements on the intonational representation.

4. On the (Non-)isomorphism between the Intonational Representation and the Syntactic and Informational Structure

Let us now explore some implication of Bocci & Avesani's proposals. If their analysis of the L*-insertion is correct, it follows that the intonational structure cannot be isomorphic either to the syntactic representation or to the information structure. As previously discussed, right dislocated topics, for instance, are L*-accented if and only if they lineally follow the focus phrase, although their interpretative and syntactic properties are consistent and independent of the linear position in which focus surfaces. That there is not isomorphism between prosodic and syntactic constituency is indeed a current assumption in the prosodic phonology literature (Nespor & Vogel 1986, a.o.). By contrast, intonational structure and informational/pragmatic properties are currently assumed to be isomorphic. According to the model put forth by Hirschberg & Pierrehumbert (1990), for instance, PA association is a strictly local mechanism, exclusively driven by the informational properties of the element which a PA is associated with. Since an element endowed with a certain pragmatic property always surfaces with the PA corresponding to that property, the intonational representation in their model is isomorphic to the pragmatic/informational properties. By contrast, Bocci & Avesani's proposal leads to the opposite conclusion: L* in Italian is not inserted as a correlate of any informational property, but rather its association is non-locally triggered by focus and overrides any other PA association, even if called for by a discourse feature.

However, to the extent to which intonation is part of phonology, non-isomorphism between intonational representations and syntactic and informational representations is neither an unwelcome or unexpected conclusion. The phonological computation is in fact intrinsically different than the computation from the numeration to LF. As Chomsky (1995: 229) emphasizes, the Inclusiveness Condition applies to the latter, but not to the former.

As Chomsky points out, it is not plausible to have minimalist expectations with regard to phonology and, therefore, intonation. Let us assume, in compliance with the T-model of grammar, that at Spell-Out syntax hands over at to phonology representations in which all the relevant properties are explicitly contained. After Spell-Out, features in input to the morpho-phonological component undergo the rules intrinsic to that component, in which the Inclusiveness Condition does not apply. Given these assumptions, non-isomorphism of intonation is expected to the extent to which intonation is part of the morpho-phonological component. In principle, a certain element (e.g. a CILDed Topic) can be endowed with a discourse feature which can be interpreted by the morpho-phonologic component by means of certain prosodic properties, such as a specific PA, for instance. However, the morpho-

phonological system can prevent such a PA from surfacing because of its position in the prosodic structure and imposes a different PA (i.e. L*) on that element. Metaphorically, L*-association in Italian can be viewed as a phonological dissimilation or a final devoicing rule: an element present in the input cannot surface by virtue of its position in the phonological structure.

It is worthwhile observing that the claim that intonation is not isomorphic to the syntactic and informational structure is a conclusion partially independent of the account for L*-association proposed by Bocci end Avesani. As briefly discussed above, they show that in pairs of utterances with *in situ* and *ex situ* focus, the focus phrase bears the same PA, while the rest of the clause is characterized by radically different intonational properties between the two cases. Since they assume that focus *in situ* and focus *ex situ* share the focus-background structure, the association of L* observed in the latter case is traced back to the FDR, rather than to a special interpretative property characterizing postfocal material. Therefore, the difference in intonational properties associated with the background in case of focus *in situ* and focus *ex situ* constitutes an example of non-isomorphism between intonation, on the one hand, and syntax and informational structure on the other.

Nevertheless, a different approach could be pursued building on Kayne (1998) and Belletti (2004a). Belletti (2004a), in particular, proposes that contrastive focus always moves overtly to the left periphery. When the focus phrase appears to be *in situ,* an additional movement of the remnant IP to a higher projection such as TopicP or GroundP applies, so that the basic word order is superficially reestablished.[22] An analysis of (21) along these lines is sketched in (22).

(21)   Le mie sorelle   hanno presentato   MARINELLA$_{CFoc}$ a Michelangelo
        My sisters   have introduced   MARINELLA$_{CFoc}$ to Michelangelo

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[22]   Belletti (2004) originally proposes that the remnant constituent moves to a topic projection higher than focusP. However, a prosodic argument suggests that the target projection is GroundP. According to Bocci & Avesani (2005) and Bocci (forthcoming), focus projection results in the last analysis from the fact that prosody marks asymmetrically the focus phrase defining only its right-hand side (see also fn. 12). Consider now that left peripheral topics are generally phrased into independent intonational phrases as discussed by Gili Fivela (1999) and Frascarelli (2000). If the remnant movement targeted TopP, it would be phrased into an intonational phrase and its right-hand side would be marked by a ι-boundary. As a consequence, the left-hand side of the focus element would be signaled by the right-hand prosodic boundary of the remnant phrase. However, this cannot be the case since it would prevent the focus projection. A plausible solution is to assume that the target position is GroundP which would be not mandatorily phrased into an independent intonational phrase.

(22)   S   V   O$_{CFoc}$ PP
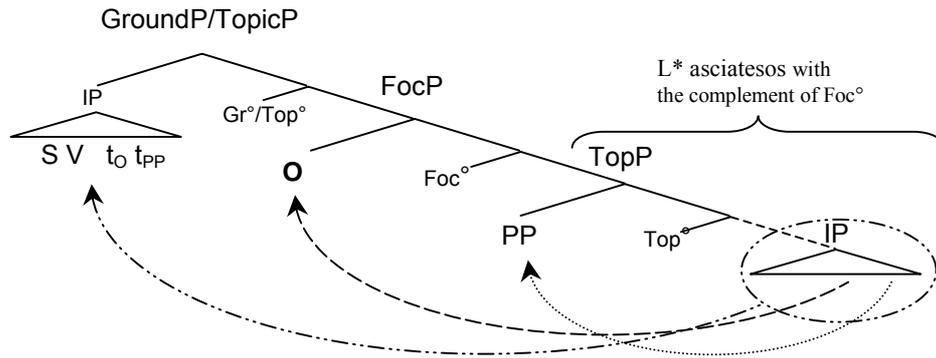
Given Belletti's proposal, it would be possible to conclude that the L*-association and consequently the FDR directly result from the syntactic configuration: L* exhaustively associates with any element in the domain of the focus head. Modulo a different focus feature, the same mechanism could be extended to the low new informational focus projection proposed by Belletti in the low area of IP. Note, however, that this approach, although elegant and independently possible, does not guarantee in itself full isomorphism between intonation and syntactic and informational structure. Consider once again a case in which RDed Topics follow/precede focus such as (12) and (13), repeated below as (23) and (24).

(23)

	H*	**L+H***	L-L%		L* L-L%	L*	L-L%
{[(			)$_φ$]$_ι$ [(		)$_φ$]$_ι$ [(		)$_φ$]$_ι$}$_υ$
	Quando arriva	PIERANGELO$_{CFoc}$		la dobbiamo avvisare,	Marianna$_{RDed\ TOP}$	
	When arrives	PIERANGELO		[we] her-must inform,	Marianna	

(24)

	H+L*	L-L% H+L*	L-H%		**L+H***	L-L%
{[(		)$_φ$]$_ι$ [(	)$_φ$]$_ι$ [(		)$_φ$]$_ι$}$_υ$
	La dobbiamo	avvisare,	Marianna$_{RDed\ TOP}$,	quando arriva	PIERANGELO$_{CFoc}$
	[We] her-must	inform,	Marianna,	when arrives	PIERANGELO

Adopting Belletti's proposal, it follows that "Marianna" must associate with L* by virtue of being within the domain of Foc° in (23), while it cannot in (24) because it is embedded within the remnant IP moved over FocP.[23] Nevertheless, in both cases, the RDed topic "Marianna"

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[23]   Note that in contrast to focus, topics are recursive in Italian, at least in the sense that a topic can be nested within another topic. Moreover, it is independently arguable that an inflected clause can be a syntactic topic in Italian. Consider for instance (i). In (i), the object clause is a clitic left dislocated topic as shown by the obligatory occurrence of the clitic pronoun, and it contains another ClLD topic: "Maria". See also fn. 24.

(i)   Che   Maria   (la)*   hanno premiata ieri,   me   (lo)*   ha   detto Luca
       That   Maria$_{Top}$ [they] (her -)* rewarded   yesterday, *pro* to me (it-)*   has   told   Luca

      'Luca has told me that they awarded Maria yesterday.'

occupies the same criterial position within the main clause and is indeed characterized by the same informational properties: it can be interpreted neither as an instance of aboutness topic nor of contrastive topic, but just as a tail in the sense of Vallduví (1992). Consequently, even though adopting Belletti's proposal can lead to a reformulation of the L*-association mechanism in terms of syntactic configuration, it is independently a valid conclusion that intonation is not isomorphic to the syntactic and informational structure.[24]

Finally, examples such as (23) and (24) also lead us to conclude that intonation cannot be isomorphic to informational properties, even if we assume the division of the (back)ground into the categories of link and tail as proposed by Vallduví (1992). According to Vallduví, right dislocation (right detachment, in his terminology) is to be conceived of as a device to mark the tail and to remove non-focal information from the core clause. Moreover, Vallduví notices that right dislocated topics are characterized by a flat contour (which Bocci & Avesani would transcribe with L* in Tuscan Italian). However, right dislocated topics in Italian are not in principle restricted to occur in postfocal contexts so that they can either precede or follow focus. In this respect, right dislocation seems to be a mechanism independent of focus (see Bocci forthcoming). In (23), the right dislocated topic "Marianna" must be interpreted as a tail as it must in (24), in which it linearly precedes focus.[25] However, while "Marianna" counts as

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[24] Assuming that prosody is not recursive (Selkirk 1984, Nespor & Vogel 1986), it is plausible to argue that there cannot be a bijective relation between prosodic and informational structures, to the extent to which informational structures allow recursion and nested configurations as syntax (cf. fn. 23).

[25] The examples (i) and (ii) further exemplify the uniformity of the properties of the right dislocation regardless of the focus position. In the example in (i), a right dislocated topic precedes focus and cannot be L*-accented. The example in (iib) shows that such right dislocated topic can only count as tail and not as a link (e.g. contrastive topic), unlike a clitic left dislocated topic (cf. (iic)).

(i)   a.   A: Ma   perché gli hanno   presentato Marina?
                  why to him-have [they] introduced Marina

      b.   B: Beh,   gliel'hanno   presentata,   Marina$_{RDed\ Top}$,
                  oh, well, [they] to-him her-have   introduced,   Marina
                  perché Leo ha   insìstito.
                  because Leo has   insisted

                  'Oh well, they have introduced Marina to him, because Leo insisted.'

(ii) a.   A: Ma   perché gli hanno   presentato Marina?
                  Why to him-have [they] introduced Marina

      b.   B: #Beh,   gliel'hanno   presentata,   Veronica$_{RDed\ Top}$,
                  oh well,   [they] to-him her-have   introduced   Veronica,
                  perché   Leo ha   insìstito. Per quanto riguarda Marina invece…
                  because   Leo has   insisted.   As for   Marina…

                  'Oh well, they have introduced Veronica to him, because Leo insisted.
                   As for Marina…'

a tail in both cases, it associates with L* only if it follows focus, as prescribed by the FDR. As a consequence, L* cannot be the prosodic correlate of the notion of tail, leading to conclude that there is not a direct isomorphism between informational and intonational properties.

5.   Conclusions

In this paper, I have discussed some properties of the prosodic system of Italian and some aspects of the syntax-prosody interface. Building on the cartographic approach, I have sketched a model in which prosody reads the relevant information off the syntactic representation, as required by the T-model of grammar. In such a view, mapping rules are sensitive both to the X-bar relations, as generally assumed (Selkirk 1984, 1995, Nespor & Vogel 1986), and to discourse-features syntactically encoded.

Evidence in favor of the existence of mapping rules sensitive to discourse features is provided by the intonational distinction between contrastive and new information focus shown by Avesani & Vayra (2003). Moreover, such distinction, which parallels the syntactic (positional) differences between types of focus (Belletti 2004a), leads to conclude that the notion of focus cannot be replaced by and derived from either Schwarzschild's (1999) notion of Givenness, as proposed by Bader (2001), or the notion of Presupposition, as argued for by Sauerland (2005).

Following Bocci & Avesani (2005, 2008), I have argued that postfocal material in Italian is not extrametrical, but fully prosodically represented: it is phrased, stressed and intonationally specified. I have argued that the occurrence of focus in non-final positions leads to intonational phrases (and utterances) whose metrical heads are not assigned to the rightmost element. I have thus proposed that the occurrence of a focus feature can trigger marked feature-sensitive rules which ensure the alignment between focus and the main prominence, outranking the default metrical rules.

Building on Bocci & Avesani (2008), I have argued that in Tuscan Italian the occurrence of focus forces prosody to associate L* to any element occurring after focus, overriding any other possible PA-association. L* in Tuscan Italian is not the prosodic correlate of any informational/pragmatic property (such as Schwartzchild's Givenness or (back)ground), but is uniquely inserted in the prosodic structure as a special marker to define the right-hand side of the focus phrase. L*-association in Tuscan Italian is ruled by the Focus Defining Rule which requires that the focal pitch accent is the rightmost accent able to convey focus, where L* is unable to express focus. Modulo the pitch accent inventory, this analysis allows to unify the analysis of the prosodic properties of postfocal material across romance languages (Frota 2000, Grice et al. 2005). As Italian allows only one focus phrase per utterance, the domain of

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c.	B:	Beh,	Veronica_CILDed Top	gliel'ho	presentata,
		Oh, well,	Veronica,	[I] to-him her have	introduced,
		perché	Leo ha insistito.	Per quanto riguarda	Marina invece…
		because	Leo has insisted.	As for	Marina…

application of the FDR is shown to be the utterance itself. Given the FDR, it follows a principled distinction between the intonational properties of sentences with fronted focus phrases and left dislocated topics: fronted focus phrases trigger L*-association on the remnant IP, i.e. the Presupposition/background, while topics cannot.

According to Bocci & Avesani's analysis, L* in Tuscan Italian is inserted in the prosodic structure just to comply with the FDR, that is a structural requirement on the prosodic representation. Even if an element is endowed with a discourse feature potentially calling for a specific pitch accent (PA), the FDR imposes L* on postfocal contexts overriding any other possible PA-association. From this analysis, it thus follows that PA-selection is not uniquely driven by the discourse properties of the element which the PA associates with, nor can be a strictly local mechanism, as proposed by Pierrehumbert and Hirschberg (1990).

Building on Bocci & Avesani's (2008) proposals, I have argued that as PA-association must comply with structural requirement intrinsic to the prosodic representation, the prosodic structure is isomorphic neither to the syntactic structure, nor to informational one. Although assuming that focus always associates overly (Kayne 1998, Belletti 2004a) can lead to reformulation of the domain of the L*-association in terms of syntactic configuration, such a reformulation does not guarantee the isomorphism with respect to the syntactic structure. Analogously, I have shown that the domain of the L*-association does not coincide with informational properties of tails in the sense of Vallduví (1992). Although lack of isomorphism between intonational properties and the syntactic and informational structure could *prima facie* appear an unwelcome conclusion, such a conclusion is expected to the extent to which intonation is part of the morpho-phonological component.

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