

Hierarchical Contrastive Focus Applied on the Romanian Discourse-Prosody Interface

Neculai Curteanu, Diana Trandabăț, Cecilia Bolea

Abstract: The paper presents an intonational contrastivity-oriented architecture: language-dependent, specifically weighted, pre-established hierarchies of contrastive and non-contrastive intonational foci and breaks are coupled on textual entities and structures, refining the classical approaches to Information Structure for an improved prosody prediction (of Romanian).

Keywords: prosody prediction; contrastive focus hierarchies; Communicative Dynamism degrees; Discourse-Prosody interface.

1 Explicit and Implicit Contrastive Focus

In this paper, we challenge the following *intuition*: behind discursive-clausal and *dislocated-marked phrase* structures stand actually *covert*, *implicit contrastive operators* whose intonational-prosodic behavior should be overtly revealed, along with their corresponding linguistic background.

The communicative model of *Common Ground* (CG) is the amount of shared knowledge between the speaker and hearer, at a certain moment [4]. Relying on the CG model, three key dimensions are considered in the *current* IS theory: **(1)** \pm *Givenness* (or *Discourse-Given* and *Discourse-New*, the latter called also *informational Focus*) IS dimension refers to the feature held by an entity present in CG database, at a certain time, within the speaker-hearer discourse. **(2)** The *second* IS dimension comprises the pair *Background-Focus* (distinct from the classical, non-contrastive *Topic-Focus* categories [3]): *Background* entities belong to CG, as opposed to the *Focus*, the entity pointed out contrastively. **(3)** The *third* IS dimension is *Topic-Comment* (also meant as the classical *Theme-Rheme* [3], [1]).

In the contrastive focus typology, the essential role is played by the *foculation markers* introducing the **explicit contrastive Focus**: the well-known “only” (Ro: *numai, doar, măcar*), “even” (Ro: *chiar, exact*), “also” (Ro: *și, la fel, deasemenea*), the *negation* (correlated or not) etc. defining prosodic patterns in textual discourse and speech intonation [5], [6], [2].

Lexical, overt markers of contrastive intonation introduce the category of *explicit contrastive Focus*, denoted also as *primary contrastive*

Focus or, hereafter, *First Occurrence Focus* (FOF) [6]. A second (or even third) contrastive marker involves the *Second Occurrence Focus* (SOF) [6].

1. *Chiar* [sotul ei]_{FOF} *doar* [o singură *dată*]_{SOF} a văzut tabloul]_F.

En: *¹*Even* her *husband* *only* *once* saw the picture.

We consider that written discourse is accompanied actually by covert, implicit prosodic features of the communication act, called *implicit contrastive Focus* (ICF), defined and analyzed in [2] as *SO-disordered² dislocation* of the semantic roles in the finite (and non-finite) clause.

2 Prosodic Inequalities on Intonational Focus Categories

The *Contrastive Focus Prominence Rule* (CFPR) principle confirms that the *explicit* (i.e. lexically-overt marker defined) *contrastive Focus* is more prominent against *any other* kind of intonational focus, in *any* context, be it either *informational Focus* or *contrastive SOF* [6]. Combining the consequences of CFPR (*Contrastive Focus Prominence Rule*) and *G-(Givenness)-marking Condition* [6], we propose to use for prosody prediction (of Romanian) the following prosodic inequalities system (of statistical, language-dependent nature; see [2] for details):

- 2.a. $\text{FOF} \geq_{\text{Phon}} \text{SOF} \geq_{\text{Phon}} \text{TOF}$; [6]
- b. $\text{iFOF} \geq_{\text{Phon}} \text{iSOF}$; (?) (between *implicit FOF* and *implicit SOF*); [2]
- c. $\text{SOF} \geq_{\text{Phon}} \text{TOF} \geq_{\text{Phon}} \text{Disc-GivenF}$; [6]
- d. $\text{FOF} \geq_{\text{Phon}} \text{Disc-NewF}$; [6]
- e. $\text{SOF} \geq_{\text{Phon}} \text{Disc-NewF}$; [2]
- f. $\text{TOF} \geq_{\text{Phon}} \text{Disc-NewF}$; [2]
- g. $\text{Disc-NewF} \geq_{\text{Phon}} \text{Disc-GivenF}$; [6], [4]
- h. $\text{F-Marked} \geq_{\text{Phon}} \text{G-Marked}$; [6]
- i. $\text{Comment-NarrowF} \geq_{\text{Phon}} \text{Topic-NarrowF} \geq_{\text{Phon}} \text{Disc-GivenF}$; [3], [4], [6]
- j. $\text{VG} \leq_{\alpha(\text{Focus})} \text{Arguments} \leq_{\beta(\text{Focus})} \text{Adjuncts}$; (SAAR) [2], [6]
- k. $\text{Head} \leq_{\varphi(\text{Focus})} \text{Modifier}$; (NSR) [2], [6]
- l. $\text{VG} \leq_{\phi(\text{Break})} \text{Arguments} \leq_{\gamma(\text{Break})} \text{Adjuncts}$ (SBAR) [2].

$\text{Foc1} \geq_{\text{Phon}} \text{Foc2}$ means that Foc1 has intonationally stronger phonetic features than Foc2, while $\text{C1} \leq_{\text{Focus}} \text{C2}$ holds when C1 is less intonationally stressed than C2.

Inequalities (2) and their *weights* should be established for a language *in advance*, by acquisition and learning, relying on thorough studies of the

¹ A * before the translation marks the sentence as being a order preserving translation in English of the Romanian sentence, rather than a correct English translation.

² The *systemic ordering* (SO) refers to a pre-established linear order, specific to each language, of the standard finite / non-finite clause constituents (i.e. semantic roles).

spoken language. A *general procedure* for hierarchical intonational Focus and break assignment on the discourse-prosody interface is exposed in [2].

3 Discursive-Prosodic Patterns of Contrastive Focus

An example of discourse-level *explicit contrastive focus* is the following:

3. *Ce era îngrozitor la cele Două Minute de Ură nu era faptul că fiecare trebuia să-și joace rolul ci dimpotrivă, că nimeni nu putea să nu intre în joc.*

En: The horrible thing about the Two Minutes Hate was not that one was obliged to act a part, **but, on the contrary, that it was impossible to avoid joining in.**

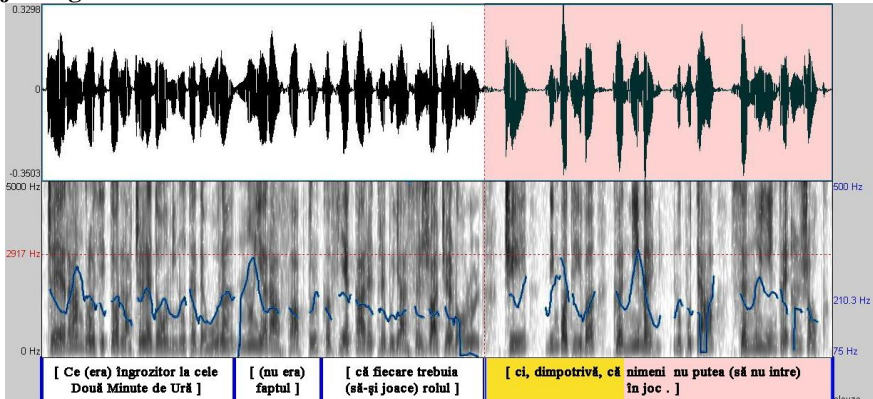


Figure 1. Inter-clausal explicit contrastive focus recording of (3)

Clause-level *prosodic patterns* for *implicit contrastive focus* (ICF) are:

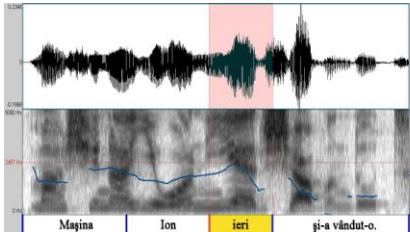


Figure 2. Analysis of (4.a)

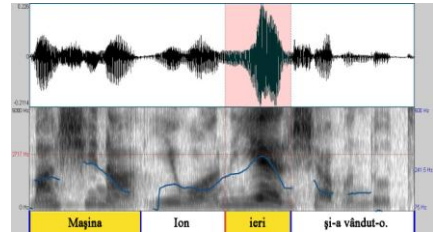


Figure 3. Analysis of (4.b)

4.a. *Mașina, Ion, ieri_F {și-}a vândut-o.*

En: * The car, Ion, *yesterday* sold it.

4.b. *{Până și} Mașina_{iFOF} Ion {chiar} ieri_{iSOF} și-a vândut-o.*

En: * *{Even} his car_{iFOF} Ion {just} yesterday_{iSOF} sold it.*

In (4b), the *two* ICFs are *mașina*_{IFO} and *ieri*_{ISO}. They behave as operated by *traces* of the corresponding (missing) focusing contrastive markers “*numai*” (*only*) and “*chiar*” (*even*). See text / speech patterns in [5], [2].

4 Conclusion

The proposed system (2) of prosodic inequalities: (a) identifies the explicit and ICF solutions for prosody prediction; (b) refines the IS dimensions and extends classical IS approaches [2]: Topic-Focus Articulation and Theme-Rheme algorithms [1], [3]; (c) should evaluate statistical measures of the intonational differences (weights) in (2) as Focus *dependency rules*, giving a new engine for Part-Of-Focus textual tagging and intonational parsing.

References

- [1] Curteanu, N., D. Trandabăț, A. Moruz. *Expanding Topic-Focus Articulation with Boundary and Accent Assignment Rules for Romanian Sentence*, In: Matousek, V., Mautner, P., et al.(Eds.), TSD 2009 Proc., Czech Republic, Springer-Verlag, LNCS vol. 5729, pp. 226-233 (2009).
- [2] Curteanu, N., D. Trandabăț, C. Bolea. *Integrating Contrastive Focus with Givenness and Topic-Comment: A Hierarchical Focus Architecture of the Romanian Discourse-Prosody Interface*, In: C. Burileanu, H.-N. Teodorescu (eds.) SpeD 2011 Proc., IEEE Xplore Digital Library, to appear, (2011).
- [3] Firbas, Jan. *Functional Sentence Perspective in Written and Spoken Communication*. Cambridge University Press (1992).
- [4] Krifka, M. *Basic Notions of Information Structure*. In Féry, C., G. Fanselow, M. Krifka (eds.) *The notions of information structure*, Univ. of Potsdam, Germany, pp. 13-55 (2006).
- [5] Onea, Edgar, Klaus von Heusinger: *Grammatical and Contextual Restrictions on Focal Alternatives*. In Dufter, A., D. Jacob (eds.) *Focus and Background in Romance Languages*, John Benjamins Publ., pp. 281-308 (2009).
- [6] Selkirk, E. *Contrastive Focus, Givenness and the Unmarked Status of Discourse-New*. In: Féry, C., G. Fanselow, M. Krifka (eds.) *The notions of information structure*, Univ. of Potsdam, pp. 124-146 (2006).

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