

SENTENTIAL SUBJECTS AND THE MINIMAL LABELING

ALGORITHM

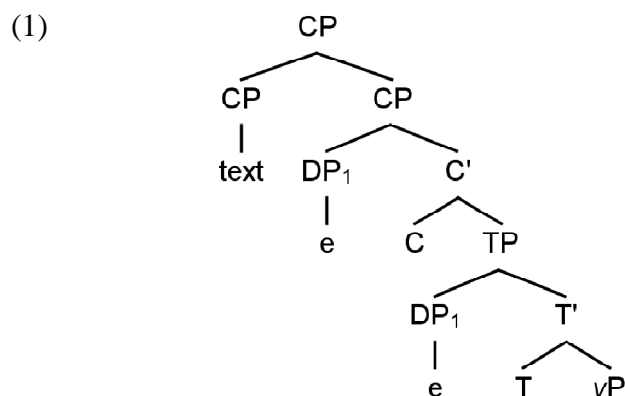
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Abstract. This paper adopts Chomsky's (2013, 2014a, 2014b) latest formulation of the *Minimal Labeling Algorithm*, so as to derive the specific aspects of the distribution of sentential subjects. I will argue that besides sentential subjects that qualify as topicalized elements (cf. Koster 1978), there exist contexts where they are part of the main syntactic derivation (cf. Davies & Dubinsky 2009). Moreover, I will try to show how the categorical nature of sentential subjects interacts with their position in the clausal spine, paying particular attention on how labels are assigned in narrow syntax. As will be shown, such an approach is superior to previous ones in that it covers not only the standard cases but also some new and unnoticed facts.

Keywords: Sentential subjects, Minimal Labeling Algorithm, ϕ -features, {XP, YP} structure.

1. Introduction

Sentential subjects have not had a happy history in the syntactic literature. It all started¹ with Koster's (1978) 'ontological' observation that "subject sentences don't exist". He proposed that sentential subjects are topic phrases, linked to a phonetically null DP in spec-TP:



(adapted from Alrenga 2005: 180)

Delahunty (1983) 'responded' to Koster "that sentential subjects do exist" and the 'dialogue' continues until today. All those years, the research into sentential subjects has spawned a wealth of new discoveries in diverse languages². These discoveries have led to important

¹ Even before Koster, Ross (1967) observed that sentential subjects have some peculiar properties. He gave the following examples:

- i. ?* [That [that John showed up] pleased her] was obvious
- ii. ? [That [the fact that John showed up] pleased her] was obvious.
- ii. [That it pleased her [that John showed up]] was obvious

[Ross (1967:57)]

² See Hartman (2012) who brings together cross-linguistic data to support his claim that supports the claim that clausal subjects, but not clausal complements, must be DPs. I will validate this claim but from a different line of argumentation.

generalizations that delineate not only the "to be or not to be" question that Koster tried to answer, but also the nature of sentential subjects.

But subject sentences are not an easy topic to handle. They are obscure, always complex and as such, they present a daunting challenge for syntacticians. Thus more than often, almost identical structures are given different grammaticality judgments amongst scholars. Koster (1978: 53) provides the following data in the context of *subject-auxiliary inversion*³:

- (2) a. *Did [that John showed up] please you?
- b. *Who did [that John left early] disappoint?

On the other hand Davies & Dubinsky (2009: 115) claim that the examples in (3a-b) (their 19a-b), "are not nearly as bad as (2a-b)" (their 6a-7a):

- (3) a. To whom is [that pigs can fly] most surprising?
- b. Is [that I am done with this homework] really amazing?

More recently Hartman (2012: 77), presents the following mildly deviant structures (his judgments):

- (4) a. ?Does [that your brother earns more than you] bother you?
- b. ?Is [that I like you] so obvious?

As the above examples show, the judgments are far from uniform. This has led many researchers to argue that a processing account might give a better explanation of the

³ See also Delahunty (1983: 387) who claims that aux-inversion is compatible with sentential subjects basing his argument on examples like these:

- i. Does [that quarks have wings] explain their odd behavior?
- ii. Does [that quarks have wings] explain anything at all?

distribution of sentential subjects. So Dryer (1980: 161) for example⁴, speculates that if sentence processing is always clause-bound, then "[...] clause-internal sentential NPs will interrupt the processing of the main clause".

How processing factors might interfere with the distribution of sentential subjects is far from clear. But all processing accounts face a serious (and actually a trivial) challenge: the fact that sentential subjects do not consistently incur a processing cost. So the finding that sentential subjects are not consistently difficult undermines such a view⁵.

Lohndal (in press: 9), considering the variability of the data, arrives at an analogous conclusion and he speculates that (emphasis mine):

"We might, then, be dealing with two different grammars among native speakers of English: *one that allows sentential subjects in Spec-IP, and one that treats them as topics*. The fact that there are speakers who conform to the patterns established for each of the analyses demonstrates that both analyses exist".

In this paper I will argue that Lohndal is basically right in claiming that sentential subjects have a dual status. But because English doesn't provide us with safe tests for determining what their structural position might be, I will draw data from other languages that can give us more conclusive tools to diagnose their derivation.

The cornerstone of my argumentation is Chomsky's (2013, 2014a, 2014b) labeling algorithm. I will show that the status of sentential subjects can be derived in a simple and elegant way from this primitive of the theory.

This paper is organized as follows: section 2 introduces Chomsky's framework of the *Minimal Labeling Algorithm*; section 3 gives a short review of the different approaches to sentential subjects; section 4 states two problems that have a bearing on both the structural position and the nature of sentential subjects; in section 5 I test (and validate) the claim that

⁴ See Grosu & Thompson (1977). See Davies & Dubinsky (2009) and Hawkins (2014) for a recent implementation of this line of thinking.

⁵ See Phillips (2013: ch.4) for arguments against processing accounts in the realm of islands.

all sentential subjects are "born" inside the VP; section 6 concludes the discussion and examines the possibility of extending the MLA to the realm of the Sentential Subject Constraint (Ross 1967).

2. The Minimal Labeling Algorithm (MLA)

But first thing is first. In this section I will lay down the basic tenets of Chomsky's (2013, 2014a, 2014b) recent formulation of the (MLA) *Minimal Labeling Algorithm* (a term due to N. Hornstein 2014). This is because the MLA and its workings will be the basic keys that will 'unlock' the seemingly strange behavior of sentential subjects.

Chomsky in his latest series of lectures tries to reduce projection/labeling as the result of minimal computation. Given that labels are necessary for the C-I interface so as to correctly interpretate the structured linguistic objects it receives, the computational system must have some way to assign them. This is done via the MLA which indentifies the nature of a linguistic object by minimal search (a 3rd factor principle). In that way, minimal search inspects a given set and tries to find the most 'prominent element' within it, that will serve as the label. Universally there are two⁶ basic cases where the MLA is put to work: (I) head-phrase merge {X, YP}. In this case labeling is trivial. The MLA will simply immediately pick up the head as the label, since this is the most simple and swallow element in the set; (II) phrase-phrase merge {XP, YP}. Here things are trickier because both members of the set are complex. So, inspection by the MLA, will give ambiguous results. In this case there are two ways for successful labeling of the structure: (a) by raising of either XP, or YP. Here

⁶ Actually there is a third one, namely an {X, Y} structure where two atomic elements merge. But this structure will not concern us here. See Jayaseelan (2008), Kayne (2010) and Adger (2013) for discussion.

Chomsky assumes (basing his argument on intervention facts from Icelandic⁷) that copies are invisible to the MLA. In that way, the MLA will look at the structure and will single out the head of the unmoved phrase as the label unambiguously. The other possibility (b) is that XP and YP share the most prominent features relevant for labeling (e.g. ϕ -features, Q-features, Top-features, etc.)⁸. In this case, the MLA will choose the common "most prominent features" to label the created set.

It is important to note here that Chomsky makes the following ancillary assumptions so as to cover a wide range of empirical facts. The first one concerns the atomic elements that are called roots. In frameworks such as *Distributed Morphology* (Marantz 1997, Embick & Marantz 2008) and *exoskeletal* approaches (e.g. Borer 2013), roots enter the syntactic derivation category-neutral and categorized by functional heads. Chomsky speculates that roots are universally inherently unable to provide a label. He doesn't clarify his claim, but I suspect that roots are 'too weak' to count as labels because there is literally nothing in them that could be picked up by the MLA.⁹

The second one is that the ability of T(ense) to provide a label is a matter of parametric variation. This variation is related to an old and well-studied (although not uncontroversial¹⁰)

⁷ See Holmberg & Hróarsdóttir (2003) for dative-intervention effects in Icelandic. However the matter is still open, as Broekhuis (2007) and Bobaljik (2008) show.

⁸ "Those cannot be any features. There must be features that actually agree" Chomsky (2014a). See Boeckx 2010 for arguments against the idea of evoking features in linguistic theory.

⁹ Chomsky's empirical arguments for the inability of roots to provide a label come from *raising to object* constructions. He refers to the works of Postal (1974), Koizumi (1995) and Lasnik & Saito (1991) for the properties of this phenomenon.

¹⁰ I consider this to be the 'Achilles' heel' of Chomsky's (and mine) argumentation. There is ample evidence, that rich morphological agreement is neither necessary nor sufficient to license EPP effects (Sheehan 2006), Holmberg 2010). If so, the argument that the MLA can resort to rich agreement features is weakened. I hope to address this weak spot of the MLA in future work.

observation, namely the richness of inflection (cf. Taraldsen 1980, Rizzi 1982). So, in non-Null Subject Languages (non-NSLs), T is "poor" and probably doesn't have any features at all. As such it can't function as a label, so it needs something to merge (internally or externally with it)¹¹. In that way T and the phrase in its specifier¹² can Agree and the MLA will choose the most prominent feature of the two (the ϕ -feature) to serve as the label. Notice that the MLA derives also the "*halting problem* of subjects" (Rizzi 2014). Movement of the subject to spec-TP and subsequent labeling results in a criterial configuration. If the subject is moved higher up, T will be the only head in the configuration due to the invisibility of traces for the purposes of labeling. But as we said T does not suffice to be a label in non-NSLs and the structure will be unlabelable. In that way, the MLA gives a strong version of the *Empty Category Principle* (cf. Chomsky 1981).

On the other hand, in NSLs T is 'rich' and so it has enough ϕ -features to provide a label without needing something to merge as its sister. Correspondingly, those languages can violate the ECP because the subject can be extracted from its first merge position (c.f. Rizzi 1982). So, the EPP and the ECP go hand in hand¹³: either a language has both, or it has neither.

¹¹ It is very interesting to note that Chomsky (2014a) starts discussing the EPP, by using unaccusative/passive constructions. It is worth quoting him in full: "Notice that the issue [of EPP] arises specifically for unaccusatives or passives where nothing internally is driving the subject to raise. So why in English don't you normally have sentences like *There arrived a man*?

The analysis of unaccusative structures within the MLA framework will become relevant in section 5.

¹² I must point out (as Chomsky does in his lectures) that specifiers do not exist in this system. I am using the term only as a shortcut for the sake of simplicity.

¹³ See also Landau (2007) for an attempt to derive some of the effects of the EPP and ECP as instantiations of the same underlying generalization.

This was a sketchy description of how the MLA works based mainly on Chomsky's lectures. Although many of his proposals are taken for granted and must be sharpened, I believe that the MLA can provide a firm ground to build my arguments. With the MLA 'toolkit' in mind, I would like to turn to sentential subjects that are the main topic of this paper.

3. Sentential Subjects: What art ye?

The status of sentential subjects is a much debated one. The disagreement between scholars revolves around two (related) questions: (i) whether the phrasal nature of these subjects is clausal (CP) or nominal (DP) and (ii) whether their syntactic position is in the TP or higher up in the Topic-area. When combined, these two questions yield four logical possibilities and indeed all of them have their proponents as the following table illustrates:

Table 1. Sentential subjects can be:

	True CPs	Actually DPs
True subjects	Consistent with the analyses in Holmberg (2000), Bailyn (2004)	<u>Rosenbaum (1967), Miller (2001, Davies & Dubinsky (1998, 2009), Han (2005), Hartman (2012), Kastner (2014)</u>
Actually topics	<u>Koster (1978), Adger (2002), Alrenga (2005)</u>	Takahashi (2010), Moulton (2013), Roussou (1994)

(adapted from Lohndal in press and enriched)

To review all of the above proposals in the confined space of an article would be impossible. Instead my purpose here is to 'reconcile'¹⁴ the two ends of the spectrum that are underlined and italicized in the table above, by arguing that the diversity concerning sentential subjects is due to the fact that they are 'Janus-like' phrases: they are 'true' DPs when they are in spec-TP position and CPs when they are dislocated to the left periphery. So my argument takes sides both with Rosenbaum (1967) and the ones after him who claim that sentential subjects are true DPs that merge in TP, and with Koster (1978)/Alrenga (2005) who endorse the view that they are CPs dislocated to the Topic-field.

Consider first the line of argumentation since Koster (1978), where sentential subjects are 'satellites' of the clause, always located in the left periphery. Koster's analysis is based on the claim that there is a sharp contrast between sentential subjects and 'prototypical' nominal subjects in that the former have a more restricted distribution than the latter (cf. Ross 1967, Hooper & Thompson 1973) in a variety of contexts. To my mind the most convincing evidence they give, comes from the context of topicalization. Compare the following pair:

- (5) a. *John, that the Giants lost the World Series shouldn't have bothered.
b. John, the story shouldn't have bothered.

(Alrenga 2005: 177)

As (5b) shows, nominal subjects can appear after the sentence-initial topic. Sentential subjects on the other hand are ungrammatical in the presence of a topicalized element (5a). This correlation in the distribution of topics and sentential subjects is taken as evidence of the peripheral status of the latter.

¹⁴ See also Haegeman (2014:172) for a similar (though not fully articulated) proposal:

"[...] *reconcile the claims that sentential subjects do not exist at all* (Koster 1978) with proposals *that they do exist* (Davies & Dubinsky 1999, 2001; Miller 2001). To the extent that sentential subjects can occupy the canonical subject position, my proposal is that they have a reduced CP (without Force). Sentential subjects with a full CP (with Force) could then be argued to occupy a peripheral position (Koster 1978; cf. Meinunger 2004). I hope to elaborate this conjecture in later work."

(emphasis mine)

But this argument seems not to be conclusive. Since Koster, a lot of evidence has been provided to support or to refute the topichood of sentential subjects¹⁵. Unfortunately I cannot present them as this would take us too far afield. Instead I would like to provide some unnoticed evidence that will give a new twist to the overall problem. In the following examples I have translated Alrenga's examples above, into Modern Greek:

- (6) a. ? Ton Giani, **to** oti i Giants exasan to protathlima den
 the John the that the Giants loose.3pl. the championship not
 tha eprepe na enoxli.
 should.FUT.3sg worry.3sg.

‘John, that the Giants lost the World Series shouldn’t have bothered.’

- b. ??? Ton Giani, oti i Giants exasan to protathlima den
 the John that the Giants loose.3pl. the championship not
 tha eprepe na enoxli.
 should.FUT.3sg worry.3sg.

‘John, that the Giants lost the World Series shouldn’t have bothered.’

- c. ? Ton Giani, i istoria den tha eprepe na enoxli.
 The John the story not should.FUT.3sg worry.3sg.
 ‘John, the story shouldn’t have bothered.’

¹⁵ For example Davies & Dubinsky (2009) attribute the degradation of (a) to possessing effects. They argue that if we regulate the relative weight of the predicate and the subject, then sentential subjects become compatible with topics:

- (i) Ted, that John’s a fool bothers to no end, not Horatio.
 (ii) The instructor, that John’s a fool bothers to no end, not the TA.

(Davies & Dubinsky 2010: 123)

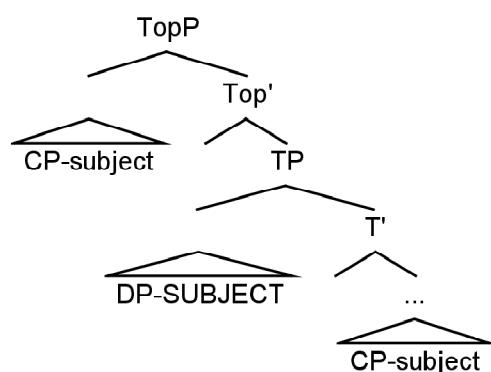
Miller (2001) arrives at the same conclusion based on considerations of information structure.

In (6a) the sentential subject is nominalized with the definite article *to* 'the', and is compatible (although mildly deviant¹⁶) with the clause initial topic. In that way it parallels (6c). (6a) minimally differs with (6b) where omission of the nominalizer leads to ungrammaticality indicating that the topic and the sentential subject are competing for the same position.

What those examples reveal is that it is not always the case that topics and sentential subjects are incompatible. If the latter are nominalized, they are merged in the TP-specifier and can be preceded by the sentence topic. Otherwise they are genuine CPs that cannot co-occur with clause peripheral elements.

In this short excursus I have argued that the unstable status of sentential subjects is a corollary of two factors (i) their position in the clause and (ii) their phrasal type. The following tree-diagram gives a rough outline of my view of how the sentential subjects can occupy different positions in the clause with a respective variation of their phrasal status:

(7)



¹⁶ Possibly due to a violation of Richards (2010:5) *Distinctness Condition* on linearization:

"If a linearization statement <a, a> is generated, the derivation crashes"

Distinctness is meant to filter-out structures in which two phrases of the same type are to be linearized in the same Spell-Out domain.

Notice that if we accept Richards Distinctness Condition, then we have a backwards argument for the DP-status of the sentential subject in (6a). If both the topic and the sentential subject are DPs, the Distinctness Condition should apply. The fact that (6a) is not fully ungrammatical can be accounted for if we endorse the view that the rich case system of Greek, can make the adjacent DPs sufficiently different (see Richards 2010:43).

Fortunately, independent evidence that support the above conclusion, are provided from Lohndal (in press: 1). He applies a range of tests to diagnose the status of sentential subjects in English and he concludes "[...] that there is variation among English speakers and that the sentential subject sits in the canonical subject position for some speakers whereas it sits in a topic position in the left periphery of the clause for other speakers". This is a welcome result for my analysis, as the variation reported by Lohndal reflects the different derivational status of sentential subjects and parallels the Greek data I have given above.

My claims about the double nature of sentential subjects will become clearer through the discussion of two problems that will ultimately converge.

4. Minimal Labeling Algorithm and spec-TP: two problems

In what follows I lay down two problems that will be the starting point of my analysis. The first one is more general and conceptual; the second focuses on sentential subjects and draws mainly from empirical facts.

4.1. Spec-TP: réservé pour DPs

In this section I would like to consider EPP, namely the requirement of the spec-TP to be filled by a DP. The literature on this topic is vast, and my plan is not to review it. My purpose is a more modest one: to address the close and exclusive D-T connection.

The idea that only DPs are allowed to raise to spec-TP is not new. Chomsky (1995: 232) states that "the Extended Projection Principle can be reduced to a strong D (nominal)

feature of T (tense)¹⁷. This implies not only that the spec-TP must be filled, but the filler must be a DP. This seems to be generally the case, but there appear to be counterexamples. Consider (8a-c), where it looks like some other phrases occupy the subject position:

- (8) a. [_{CP} that Shelby lost it] is t
 b. [_{PP} under the bed] is a good place to hide]
 c. [_{AP} very tall] is just how he likes his bodyguards]

(Davies & Dubinsky 1999)

Davies & Dubinsky in a series of papers (1998, 2009) argue (convincingly to my mind) that appearances can be deceptive. They present evidence from raising, subject agreement, emphatic reflexives and plural adverbs that prove that what appears as a non-DP subject, is actually a DP-shelled structure:

- (9) a. [DP [D \emptyset] [CP that Shelby lost it]] is true.
 b. [DP [D \emptyset] [PP under the bed]] is a good place to hide.
 c. [DP [D \emptyset] [AP very tall]] is just how he likes his bodyguards.

Hartman (2012), focusing on clausal subjects (as we will do here), reaches the conclusion that "DPs but not CPs can be promoted to subject position". He dubs this as *The DP Subject Requirement* (2012:31). The evidence he presents, strongly suggest that indeed a requirement of this kind is operative in the computational system¹⁸.

¹⁷ According to Alexiadou & Anagnostopoulou (1998) the EPP can be satisfied by head movement of the verb to T. But note that in their account also this movement is connected with the nominal features that the verb carries to T.

¹⁸ That clausal subjects are actually DPs is a proposal that goes back to Lees (1960) and Rosenbaum (1967). See also Han (2005).

A basic question that arises from the above discussion is why only DPs are allowed to be sisters of TP. There is no principled reason for why the spec-TP position should be restricted in that way. This question is even more pressing in light of the current conceptions of the most fundamental operation of narrow syntax, *merge*. Narrow syntax “has one operation that comes ‘free’, in that it is required in some form for any recursive system: the operation Merge [...]” (Chomsky 2004: 110). Given that merge is an unconstrained/wild-type operation (Boeckx 2009, 2010) that ought to apply freely, then the simplest assumption would be that literally anything could be merged with anything, irrespective its phrasal status. If so, what is the reason that forces the spec-TP to be filled by DPs and DPs only?

Note here that this problem has an impact on both non-NSL and NSL. For the former the issue is clear because something must raise to spec-T as it is unable to serve as a label. So the obvious question is why the phrase that moves there must be nominal. For NLS the concern is a more complex one. If T alone can provide a label, why should it care about the nature of the category that raises to be its sister?

In this paper I will try to defend the claim that the specifier of TP is reserved exclusively for nominal phrases, albeit from a different (and I believe more substantive) route. Namely I will give an account for it, in terms of the MLA without extra machinery. But before we proceed to answering this question, we will consider another related problem that emerges from the behavior of clausal subjects which are the main concern of this paper.

4.2. Clausal subjects and det(erminer)-insertion

Consider the examples (10a-b) from Persian:

- (10) a. [*('in) ke 'ahmad 'az ' in film ta'rif mikonad] jâleb 'ast.

This that Ahmad from this film admire do interesting is.

‘That Ahmad admires this film is interesting.’

- b. jâleb 'ast [ke 'ahmad 'az 'in film ta'rif mikonad].

Interesting is that Ahmad from this film admire do.

‘It is interesting that Ahmad admires this film.’

Mahand (2011: 2)

In (10a), where the sentential subject is preverbal, is introduced with the definite determiner *in* 'this'. Omission of *in* leads to ungrammaticality. On the other hand, when it is postverbal (10b), the nominalizer is obligatorily missing. We find the same pattern in numerous other languages like Spanish (Picallo 2002), Portuguese (Quicoli 1982), Russian (Kolesnikof 1980), Hebrew (Berman 198), Armenian (Megerdumian & Ganjavi 2000) and Greek (Roussou 1994):

(11) Modern Greek

- a. Anakinoθike apo tin kavernisi (*to) oti tha yinun ekloyes.

was announced.3sg. by the.ACC. government the that FUT hold.3pl. elections.ACC.

‘It was announced by the government that elections will be held’

- b. To/*ø oti tha yinun ekloyes anakinoθike apo tin kavernisi

the that FUT hold.3pl. elections.ACC. was announced.3sg. by the.ACC. government

‘It was announced by the government that elections will be held’

(Roussou 1994: 95)

(12) Russian

- a. To/*ø čto Nadju uvolili udivilo Vanju.

that.N.SG that Nadya.ACC fired.3PL surprised.N.SG Vanya.ACC

‘That they fired Nadya surprised Vanya.’

b. Vanju udivilo (??to) čto Nadju uvolili.

Vanya.ACC surprised.N.SG that.N.SG that Nadya.ACC fired.3pl

‘That they fired Nadya surprised Vanya.’

(Hartman 2012: 37)

(13) Spanish

a. El que Juan haya llegado temprano sugiere que las cosas estan malas

It that John has arrived early suggests that things are bad

‘That John has arrived early suggests that things are bad.’

b. * Que Juan haya llegado temprano sugiere que las cosas estan malas.

that John has arrived early suggests that things are bad

‘That John has arrived early suggests that things are bad.’

(Quicoli¹⁹ 1982: 28)

Examples like the above are often taken as evidence that subject clauses are dominated by a DP. But that is an incomplete view of the facts. What those examples reveal is that when postverbal, the clausal subject doesn't (actually it cannot) have the determiner preceding it. On the other hand, when promoted to the preverbal position, there is a general requirement for the determiner to be present.

But why should this be so? In fact there is no obvious reason that insertion of a DP-shell should facilitate the internal merge of the clausal subject. Hartman (2012: 63) speculates that nominalization and raising go hand in hand, otherwise we could simply allow the clausal

¹⁹ Quicoli (1982: 28-29) claims that in those cases "the *que*-clause cannot appear in subject position. The sentences are grammatical only if the *que*-clause is embedded under a noun phrase headed by the neuter pronoun *el* 'it'." However Ruggeberg (1987: 87) disagrees and finds both (13a-b) grammatical. He attributes the presence of the determiner to stylistic reasons.

argument to be nominalized in situ and find its connection with T via (long distance) agreement. But this doesn't happen as we saw in the aforementioned examples, even though it is a logical possibility. Hartman doesn't provide a convincing reason for why nominalization and raising are tied in this way.

I believe that we can give a principled account of this peculiar phenomenon in terms of the specific demand of minimal search(ing) for a label. As such the absence/presence of the DP-shell can be reduced as a by-product of the MLA. By adding extra structure (a DP-shell), the MLA manages to 'save'²⁰ an otherwise unlabelable structure.

Because my account will be based mainly on the categorical features of DPs and CPs, we must first examine the relation between ϕ -features and CP-clauses. This will serve as a launch-pad for the investigation of the environments that determine the label of sentential subjects.

4.3. ϕ -features and CPs

In this section I will endorse the view that sentential subjects can be the bearers of ϕ -features, but this can only happen when they are located at spec-TP. If they stay in their position where they are externally merged, they are plain CPs.

²⁰ Interestingly, adding extra structure is one of the methods to avoid Distinctness violations in the framework of Richards 2010 (see footnote 9). The following contrast is one case in point:

- (i) *the destruction the city
- (ii) the destruction **of** the city

Here a PP-shell is added so as to avoid a linearization statement $\langle DP, DP \rangle$.

Yet more interesting is that another method of avoiding Distinctness violations, is movement of the offending nodes apart. This is, as we saw in section 2., one of the two ways $\{XP, YP\}$ structures can be labeled according to the MLA. An intriguing field to explore is how a narrow syntax operation (the MLA) is so closely related to a syntax-phonology interface condition (Distinctness).

Iatridou & Embick (1997), exploring the restrictions on the reference of *pro* in Null Subject Languages, argue that CP's lack phi-features. That is why they cannot serve as antecedents of a thematic *pro*. If we assume that *pro* is licensed by the ϕ -features of its linguistic antecedent, and CPs lack those features, then the ungrammaticality of (13) follows:

(13) Modern Greek:

A: O Kostas ine panda aryoporimenos.

the Kostas.NOM. is always delayed

‘Kostas is always delayed.’

B: *Praymatika. Ke *pro* epise ton patera tu na tu

Indeed. And *pro* convinced.3sg. the.ACC. father his him

ayorasi aftokinito.

buy.3sg. a car.

‘Indeed. And it convinced his father to buy him a car.’

(Iatridou and Embick 1997: 58)

However, this is not the correct empirical generalization (Picallo 2002, Quer 2008, Zamparelli 2008). In fact Iatridou & Embick explicitly state in the footnote.13 of their article, that nominalized sentential subjects (marked by the determiner *to*) are able to perform this function, and thus antecede *pro*, as (14) shows:

(14) An [to oti o Kostas paratise to sxolio]_i pisi. tin Maria oti den ine

if the that the Kostas abandoned the school convinces the Maria that not is

sovaros, *pro*_i tha pisi ke tin Dina, i opia ine poli pio sindiritiki

serious FUT convince and the Dina who is much more conservative

apo tin Maria

than the Maria

‘If that Kostas quit school convinces Mary that he’s not serious, it will also convince Dina.’

(Iatridou & Embick 1997: 67)

We can observe the same effect in Spanish (Zamparelli 2008) where it minimally differs from Greek in that the DP-shell is not visible:

(14) [Que Bill y Nancy hubieran cometido perjurio]_i favorecía a los republicanos

[that Bill and Nancy had committed perjury]_i favored the Republicans

porque *pro*_i/ello_i perjudicaba a los demócratas.

because *pro*_i/it_i damaged the Democrats.

‘That Bill and Nancy committed perjury favored the Republicans because it damaged the Democrats’

Now that we have established that sentential subjects (and only them) have ϕ -features that can serve as *pro*-antecedents, we must check whether they bear them inherently or acquire them during the derivation. As will become clear I will go for the second option.

An interesting field to test the how ϕ -agreement and the position of sentential subjects interact, is conjunction. Indeed since McCloskey (1991) the connection between clausal subject conjunction and plural agreement is a matter of debate, mainly because of the delicate

grammaticality judgments²¹. He provides the following example to support his claim (I have added the bracketing and emphasized the plural agreement on the predicate):

- (15) a. [That the march should go ahead] and [that it should be canceled] **have**
been argued by the same people at different times.
- b. It has/*have been argued by the same people at different times [that the march should
go ahead] and [that it should be canceled].

(McCloskey 1991:564-565)

As the above minimal pair shows, conjoined clausal subjects in preverbal position trigger plural agreement, whereas when they are placed after the verb as associates of the expletive *it* they don't.

We can reinforce McCloskey's claim by taking data from Modern Greek. In this language, as we saw, the ϕ -features of the sentential subject become visible as a DP-shell when it raises. The clausal subject can stay in situ, albeit without a DP-shell. So if the presence/absence of the DP-shell correlates with agreement, then Greek postverbal sentential subjects should not show DP-properties. This prediction is borne out as the following examples show:

- (16) a. [To/* \emptyset oti θ a ginun afxisis misθon] kai [* \emptyset (to) oti θ a pesun
The that be.FUT.3pl. raise.ACC. salary.GEN.pl. and the that fall.FUT.3pl.
i times] anakinoθikan apo tin kivernisi.
price.NOM.pl declare.3pl. by the government

²¹ The matter of conjunction is complicated even for 'proto-typical' DPs because different semantic factors come to play. See Heycock & Zamparelli (2005) and Zamparelli (2008) for the 'joint-readings' for conjoined nominal subjects.

‘That there will be salary raises and that the prices will fall, were declared by the government.’

b. Anakinoθike/*Anakinoθikan apo tin kivernisi [(to) oti tha ginun

declare.3sg./ declare.3pl. by the government the that FUT be.FUT.3pl.

afxisis misθon] kai [(to) oti tha pesun i times.]

raise.ACC salary.GEN.pl. and the that FUT fall.FUT.3pl. the price.NOM.pl.

‘That there will be salary raises and that the prices will fall, were declared by the government.’

We can even translate McCloskey's examples above (17a=15a, 17b=15b)) where we find the same effect²²:

(17) a. [To oti i poria tha prepi na prochorisi] kai [to oti tha prepi na akiroθi] **exun**
ipostiriθi kata kerus apo tus iθius anθropus.

²² The same effects are observed by Quer (2008:106) for Spanish, a language that resembles Greek except the fact that the DP-shell is not always visible. Quer gives the following examples:

i. Que perdiera y que fuera reelegido tenían la misma

that lose.3SG and that be.3SG reelected had.3PL the same

importancia para él.

importance for him

‘To lose and to be reelected were equally important to him.’

ii. ?*Tenían la misma importancia para él que perdiera y que fuera reelegido.

had.3PL the same importance for him that lose.3SG and that be.3SG reelected

‘It was equally important to him to lose and to be reelected.’

He concludes that “if possible at all, plural agreement on the verb with conjoined clausal subjects is only an option if the conjoined constituent is in preverbal position (for English, McCloskey, 1991): if the conjoined subject appears postverbally, plural on the verb becomes actually marginal”.

‘That the march should go ahead and that it should be canceled have been argued by the same people at different times.’

- b. *Exi/*exun ipostirizēi kata kerus apo tus idius anōropus [oti i poria tha prepi na prochorisi] kai [oti tha prepi na akirothi.]*

‘It has/*have been argued by the same people at different times [that the march should go ahead] and [that it should be canceled. ’

Thus we have a clear cut distinction between raised and in situ sentential subjects. Only the former have the ϕ -features to trigger plural agreement on the verb. The patterns of agreement, provide further support to the claim made in section 4.2., i.e. that sentential subjects are nominal only when they are merged in the spec-TP position.

4.4. Addressing the problems

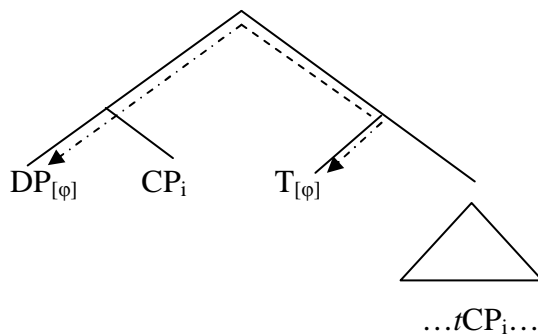
With these facts in mind, we can address the problems we encountered in sections 4.1. and 4.2. above: (i) why spec-TP can be filled by DPs and CPs only (Lasnik 1999, Haeblerli 2003, Chomsky 1995, Stowell 2013) and (ii) how the presence/absence of a DP-shell in sentential subjects covaries with their position in the clause. Although those two questions overlap, I will deal with them separately.

Consider the first one. Why T attracts only DPs and not CPs? An obvious option to cope with this kind of contrast within the framework of the MLA is to resort to the featural content of the two categories²³. As we saw, DPs and CPs differ in one crucial aspect. The

²³ See Haeblerli (2003) for an analogous approach. His arguments though go in the opposite direction. For him DPs lack (T, V) features, while CPs have them and thus resist attraction. For me DPs have something that CPs lack, namely ϕ -features.

latter lack φ -features and this has a significant impact on their distribution. If a CP raises to spec-TP, an unstable {XP, YP} structure will be created. In this case the MLA cannot find a single designated element within set because there isn't one. On the other hand, if a DP raises, the MLA will pick up the most prominent element via agreement with TP. The resulting structure will be labeled φ :

(18)



As I hinted in section 2., the exclusive requirement of T's sister to be a nominal is implemented differently in NSLs and non-NSLs. So in the latter, the 'weakness' of T dictates that something must be merged to its specifier. Due to the MLA, there is only one option: the element that merges to it must be nominal.

In NSLs the issue presents itself in a different manner. T, as we said, can function as a label due to its rich inflection even if nothing merges to it. But is this obligatory? Does spec-TP *must* be empty? At this point I think it would be very interesting to transcribe a short dialogue with David Pesetsky that Noam Chomsky had during his (2014b) lectures:

David Pesetsky (D.P.): *Generally is there no EPP in the sense that nothing ever becomes a sister of T [in NSLs]?*

Noam Chomsky (N.C.): *It can be empty.*

D.P.: *But does it have to be empty?*

N.C.: *No, of course it doesn't have to be. You can have something there.*

D.P.: *Optionally?*

N.C.: *Yes. What you don't have is expletive pro...*

As Chomsky says, that something can be merged as a sister of T is an option²⁴ for NSLs. But he doesn't clarify that this 'something' might be. I propose that due to MLA, what is optional for NSLs is the 'filling' of spec-TP, not the quality of the filler. So the "labeling liberty" of T is not without limitations. It has the following bi-conditional rule:

(19) *Iff* something merges as sister of T, it must have ϕ -features²⁵.

This I argue is the result of the MLA not being totally bland in the case of T in NSLs. When it encounters an {XP, YP} structure it will immediately opt for the labeling through prominent features approach. This will happen regardless whether or not a head of one of the phrases can function as a label²⁶. This rule, might also explain a fact that Chomsky (2014a)

²⁴ It would be very interesting to examine Chomsky's proposal that the 'filling' of spec-TP in NLSs is optional, in the context of Biberauer's & Richard's (2006) proposal that "true optionality" can indeed fall out on principled narrow syntax grounds. So we could say that as long the MLA is satisfied in NSLs either by internal merge to spec-TP, or by allowing this position to be empty, then the grammar simply "doesn't mind" which of the two operations will be evoked to satisfy it. In that way the optionality of this operation would be compatible with MLA.

²⁵ If we accept the argument given by Jimenez Fernandez (2010) that in languages like Spanish T inherits from C both discourse and agreement features, then we expect to find different kind of phrases landing at spec-TP. This would comply with Zubizarreta's (1998) claim that T is a multifunctional category in Spanish. I will leave this matter for future research.

²⁶ Note here that the sentential subject can be moved further:

- i. [To oti $\delta\epsilon\nu$ perase tis eksetasis]_i nomizo oti _{ti} ton stenahorise
the that no pass.3sg. the exams.ACC. think.1sg that him sadden.3sg.
'The fact that he didn't pass the exams I think that it distressed him'
- ii. That he didn't passed the exams, I thing that *(it) saddened him

In (i) we have an ECP violation which is tolerated (see section 2.) because the 'strong T' can provide a label. In English (ii) the expletive it must be inserted because T is to 'weak' to serve as a label.

marks as "kind of strange", namely the patterns found in some varieties of Arabic (Ouhalla 1988) and Italian (Brandi & Cordin 1989). In those dialects the verb carries 'weak' agreement when the subject is postverbal, while it manifests full specified agreement with preverbal subjects. Stated in MLA terms, the weak agreement is an indication that nothing is merged to T but nonetheless it labels the structure. But when the subject is preverbal the set $\{DP_{\text{subj}}, TP\}$ is labeled φ and this is materialized as rich agreement.

By now the answer to the second question should be evident. The DP-shell for the sentential subjects sitting in spec-TP is a way to 'rescue' an ambiguous $\{XP, YP\}$ structure. Now remember, that the MLA when confronted with those types of structures, resorts to two strategies: either internal merge of one of them, or sharing a common feature between the two. Unfortunately, CP and the TP don't have a shared prominent feature so as to be picked up by the MLA and the resulting structure cannot be interpreted properly. The only way this could happen is by a DP-shell insertion which 'enriches' the CP-argument with φ -features.

If the subject stays in situ, there is no need for a DP-shell. Where sentential subjects are first merged will be the topic of the next section. There I will give a thorough examination of the context that sentential subjects are merged (internally or externally).

5. MLA and the context of sentential subjects

Clauses that function as subjects have an intrinsic property that is not so often stated²⁷: they are very 'picky' about their contexts. Prototypically they cannot occur with verbal predicates that require a [+human] agent/volitional causer (i.e. 'true' transitives). That is not an accident

²⁷ The only exception I could find is Zimmerling (2010: 710) who in his discussion of Russian data says:

"Sentential complements in Russian and other languages with a nominative accusative sentence patterns *in most cases are internal arguments* that can be raised to surface subject position where they alternate with oblique or expletive subjects, if a language has these kinds of sentence categories."

(emphasis mine)

as we shall see. Below I will examine one by one the verbal environments that allow sentential subjects, and provide an explanation of their DP/non-DP status in terms of the MLA.

The basic picture that will emerge is that sentential subjects appear in a variety of different constructions. But those constructions do have one thing in common: their 'would be' subject starts its derivational life deep inside the VP²⁸.

5.1. Sentential subjects with copular constructions

Consider the following examples:

(20) Modern Greek

a. To/* \emptyset oti lei psemata ine fanero.

the that tell.3SG lies-ACC is obvious

'That she tells lies is obvious.'

b. Ine fanero oti lei psemata.

is obvious that tell.3SG lies-ACC

'That she tells lies is obvious.'

(21) Persian

a. In/* \emptyset ke Maryam raft ma'alum- e

this that Maryam left. 3SG clear- is

'That Maryam left is clear.'

b. Ma'alum- e (*in) ke Maryam raft.

clear- is this that Maryam left.3sg

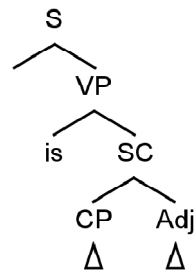
²⁸ See Moro (1997), where the first three cases discussed in the main text, involve subjects that are externally merged inside the VP.

‘It is clear that Maryam left.’

(Hartman 2012:36)

Since Moro (1997), those structures have been analyzed as cases where the copula selects a *Small Clause* (SC) containing a clausal subject and a predicate (in the case of the above examples the Adjective *obvious*):

(22)



Adapted from Moro (1997: 182)

The CP and the adjectival phrase merged inside the SC constitute and {XP, YP} structure that is unlabelable (Chomsky 2013, Moro 2000²⁹) is created. Given that there is no feature that the two phrases can share, the only option is to move one of them. This way the MLA, due to the invisibility of traces, will select the head of the unmoved phrase as the label.

In (20a-21a), the CP is raised to the subject position. There, det-insertion takes place, and the MLA can determine that the most prominent features between T and (by now) the DP-shelled CP are the ϕ -features. Notice that without the DP-shell, the (20a-21a) sentences are ungrammatical because the CP has moved from its original position, due to labeling conflicts, only to create another ambiguous labeling structure higher up in the TP.

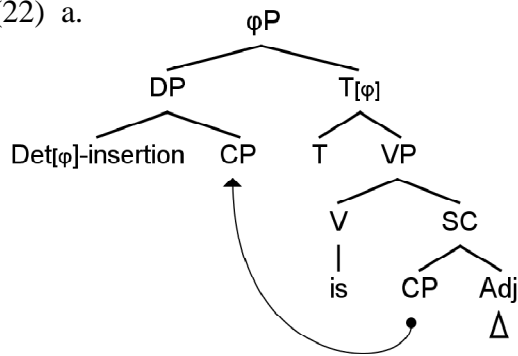
On the other side the (20b-21b) examples, seem to be more problematic, as the predicate and the finite clause appear to be in their base positions. This, as we have already mentioned, cannot be tolerated by the MLA. But here the labeling conflict is only apparent,

²⁹ For Moro (2000), small clauses constitute a point of symmetry. Movement of one of the two phrases contained in the small clause is dictated by linearization. See Lohndal (2006) for a different approach on the derivation of copulas.

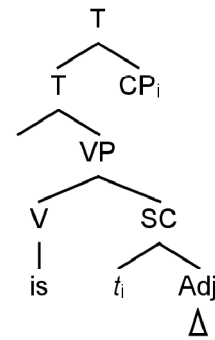
since the finite CP is extraposed³⁰ (Rosenbaum 1967) as an adjunct to the right of the clause³¹, leaving (again) the Adjective to label the SC.

The structures of the (20a-21a) and (20b-21b), are given in (22a) and (22b) respectively:

(22) a.



b.



5.2. Sentential subjects with psychological predicate constructions

Sentential subjects with psych-verbs are by far the most common³² and this is suggestive of their properties. Here are some examples:

(23) Hebrew

- a. Margiz oti še hu kolkax satum.
 annoys.3sg. me that he's so dumd

³⁰ See Stroik (1996) and Miller (2001) for a relevant discussion.

³¹ I will remain agnostic to whether this adjunction structure is created by base generation (Koster 1978, Culicover & Rochemont 1990), or by A-bar movement (Reinhart 1980).

³² See Salkoff (2002:132) who lists 700 psych-verbs in English that allow sentential subjects. See also Engelberg (2012).

‘It annoys me that he is so dumb’

b. *(ze) še hu kolkax satum margiz oti.

This that he's so dumb annoy.3sg. me

‘It annoys me that he is so dumb’

(Berman 1980: 767)

(24) Modern Greek

a. To/*ø oti ehi Ferrari den me endiposiazī.

the that own.3SG Ferrari not me impress.3sg

‘That he owns a Ferrari doesn't impress me.’

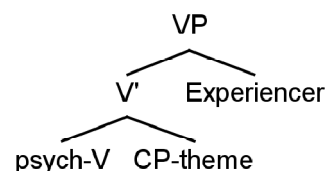
b. den me endiposiazī oti ehi Ferrari.

not me impress.3sg that own.3SG Ferrari

‘That he owns a Ferrari doesn't impress me.’

The predominant view³³ of these kinds of structures is that of Belletti & Rizzi (1988), who treat them as basically unaccusative:

(25)



As is obvious, the CP is base generated as a complement of the verb resulting in an {X, YP} structure (23b-24b), which as we already saw, is the most trivial labeling case. That is why it can stay there without producing any conflicts for the MLA.

³³ Of course this is not the only one. Arad (2002), provides counterexamples to the analysis of Belletti and Rizzi.

In the cases where the CP-theme is raised (23a-24a), we find once again the familiar pattern: det-insertion takes place and the corresponding structure is labeled by the most prominent feature (the ϕ -feature).

5.3. Sentential subjects with impersonal/passive constructions

The situation with passives is even more straightforward, as the general consensus is that the 'would be' subject is selected as a complement of the lexical V (Radford 1988, 1997):

(26) Hebrew

- a. Sukam al yadam še dan yesaper la.
 was-agreed.3sg. by them that Dan would tell her
 'It was agreed by them that Dan would tell her.'
- b. *(ze) še dan yesaper la sukam al yadam
 this that Dan would tell her was-agreed.3sg. by them
 'It was agreed by them that Dan would tell her.'

(Berman 1980: 768)

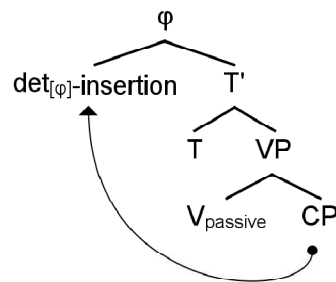
(27) Modern Greek

- a. sxoliastike apo tus sigenis oti den forese mavra.
 comment.3sg. by the relatives.ACC that not wear.3sg. black
 'That he didn't wear black commented by the relatives'
- b. *(To) oti den forese mavra, sxoliastike apo tus sigenis
 the that not wear.3sg. black comment.esg. by the relatives
 'That he didn't wear black commented by the relatives'

In (26a-27a), the CP doesn't have to move as the MLA picks up the lexical verb as the label.

But if the CP raises to spec-TP (26b-27b), the det-insertion will be evoked:

(27)



5.4 Sentential subjects with causative constructions

Sentential subjects as causers are more complicated. Consider the following minimal pairs:

(28) Modern Greek

- a. To/* \emptyset oti epese apo to δ edro mas ekane na γ elasume.
 The that fall.3sg. from the tree us made.3sg. MOD. laugh.1pl.
 ‘That he fell from the tree made us laugh’
- b. * Mas ekane na γ elasume oti epese apo to δ edro.
 us made.3sg. MOD. laugh.1pl. that fall.3sg. from the tree
 ‘That he fell from the tree made us laugh’

(29) Russian

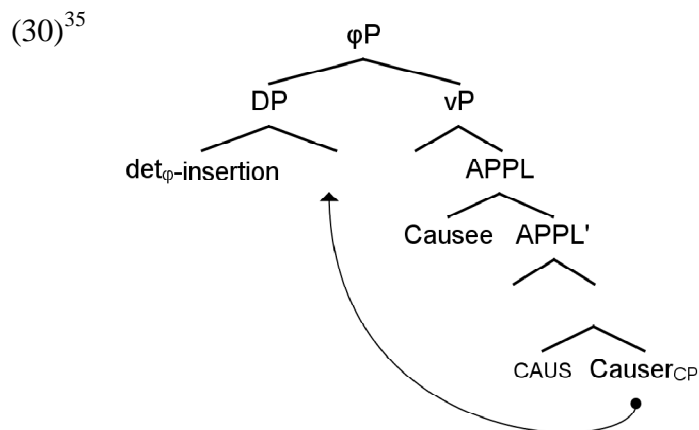
- a. To čto boss srezal emu zarplatu]] vynudilo.3SG. ego uvolit’saInf s raboty.
 ‘that the boss cut down his salary forced him to quit his position’
- b. *čto boss srezal emu zarplatu vynudilo uvolit’saInf s raboty.
 ‘that the boss cut down his salary forced him to quit his position’

(Zimmerling 2014: 764)

The case of causatives seems to be tricky as long as we take for granted that agents and causers overlap, i.e. are merged as external arguments to spec- ν P. But this doesn't have to be

so. As Kupula (2010: 199) observes: " Non-intentional Subjects (here: Causers) are not introduced by semantically different *vs* [verbs]; they are not introduced by *vs* at all, but rather VP-internally. In other words [...] Causers are not external arguments, but derived Subjects of configurationally unaccusative predicates." Indeed the syntactic derivation of causatives has been extensively studied by Pesetsky (1995), who proposes that causers are externally merged low in the structure. We can adapt his proposal by claiming that the causer is projected as a complement of an acategorial root CAUS. Under this view, the case of causatives converges strikingly with all the above constructions that have been analyzed essentially as unaccusatives³⁴. The convergence is striking because yet again what ends up being a subject, is born inside the VP.

If we adopt Pesetsky's (1995: 202-212) hypothesis for causatives, then an immediate explanation for the grammaticality judgments of the (28a-29a) examples above arises. In those cases the familiar picture emerges. The sentential subject is raised to spec-TP and det-insertion obligatorily (29b) applies. The MLA successfully labels the set as ϕ :



³⁴ See Alsina (1992) for arguments that causers are derived subjects of unaccusative predicates subcategorizing for a Small Clause complement.

³⁵ Here I have adapted the structure given in Kupula (2010: 212) who following Marantz (1993) and Pylkkänen (2002), assumes that causatives are applicative constructions. Since nothing crucial hinges on the details of this argumentation for the MLA, I won't give the details of it and I present it as such for expository purposes.

There is still one problem though. I haven't provided an explanation for the ungrammatical example (28b). Why the CP-causer is obligatory raised and can't stay in its first merged position? An answer can be given if we resort to Chomsky's (2014a, b) analysis of *raising to object* constructions. As we said in section 2., Chomsky gave an account of those constructions by assuming that raising is forced because the object is merged as sister to a root and roots are inherently incapable to function as labels. We can adapt this approach to the domain that we are considering here. If, as we argued following Pesetsky (and Kupala), the causer is merged as a sister to the root CAUS, then it follows that it must raise³⁶. Staying in this position would create an unlabelable and consequently an un-interpretable object.

Having explained the environments that sentential subjects originate, as well as their derived positions and their respective labeling, I now turn to an unnoticed fact that will give further credence to my overall approach.

6. An unnoticed fact

Once we start exploiting things in terms of the MLA, other interesting properties of sentential subjects emerge. Properties that might seem paradoxical, but nevertheless can be incorporated in a simple and elegant way to the general framework.

Consider the following examples from Modern Greek that have gone unnoticed (to my knowledge) in the literature:

- (31) a. Me enoxli oti apelisan ti Nadia.
 me bother.3sg. that fire.3pl. the.ACC. Nadia
 'It bothers me that they fired Nadia.'

³⁶ Pesetsky (1995: 203) claims that the causer must raise but for a different reason, namely for case assignment.

b. To/*Ø oti apelisan ti Nadia me enoxli.

the that fire.3pl. the.ACC. Nadia me bother.3sg

‘It bothers me that they fired Nadia.’

c. FOC[OTI APELISAN TI NADIA] me enoxli, oxi oti tin kseyelasan.

that fire.3pl. the.ACC. Nadia me bother.3sg not that her trick.3pl.

‘That they fired Nadia it bothers me, not that they tricked her’

(32) a. Ine fanero oti diavazi.

Is obvious that read.3sg.

‘It is obvious that he reads.’

b. To oti diavazi ine fanero.

the that read.3sg. is obvious

‘It is obvious that he reads.’

c. FOC[OTI ΔΙΑΒΑΖΙ] ine fanero, ohi oti pezi.

that read.3sg. is obvious not that play.3sg.

‘That he reads is obvious, not that he plays’

(33) a. Anakinoθike apo tin kivernisi oti tha yinun ekloyes.

was announced.3sg. by the.ACC. government the that hold.3pl. elections.ACC.

‘It was announced by the government that elections will be held’

b. To/*Ø oti tha yinun ekloyes anakinoθike apo tin kivernisi

the that hold.3pl. elections.ACC. was announced.3sg. by the.ACC. government

‘It was announced by the government that elections will be held’

c. FOC[OTI ΘΑ ΓΙΝΟΥΝ ΕΚΛΟΓΕΣ] anakinoθike apo tin kivernisi,

that hold.3pl. elections.ACC. was announced.3sg. by the.ACC. government

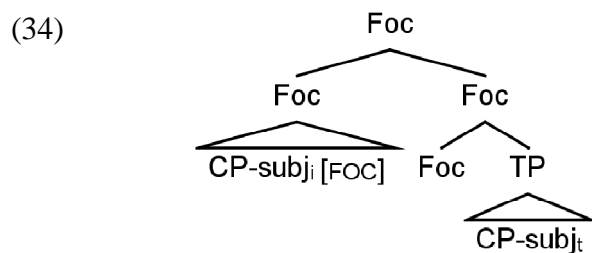
oxi oti tha pesun i times.

not that FUT drop the price.NOM.pl.

‘that elections will be held was announced by the government, not that the prices will fall.’

The (a-b) examples of (31-33) are (by now) the familiar constructions where the postverbal CP-subj. can be labeled in situ, whereas the preverbal 'needs' the DP-shell. The interesting cases are (31-33c) where the sentential subject is contrastively focused³⁷ as indicated by the capital letters. The crucial thing to note is that the DP-shell is missing from the focalized sentential subject. Why is that?

Following Rizzi (1997) we can assume that the sentential subject in the (31-33c) is A-bar moved to the specifier of the FOCUS head in the initial periphery of the sentence, where it receives its appropriate scope-discourse focal property. Here once again we have an {XP, YP} structure. The MLA will search if both heads share a major interpretable feature. In this case this feature is FOC and the set is successfully labeled:



This scenario resembles the cases of A-movement of the subject to spec-TP. Both involve creation of a set where the shared feature projects. But the two cannot be entirely equated as

³⁷ For the nature and the structure of contrastive focus, see Trunckenbrodt (1995), Rooth (1996), Selkirk (2008).

"there is ample evidence that the A/A' distinction exists" (Chomsky 2008: 144). The difference has to do with the different nature of the features involved³⁸:

A-movement is IM (internal merge) contingent on probe by uninterpretable inflectional features, while A'-movement is IM driven by EF (edge features)
(Chomsky 2007: 24)

The interdependence of A-movement and ϕ -features can explain the sensitivity of this kind of movement to the category involved. As we saw it must be nominal³⁹.

On the other hand, in A-bar movement, the features involved are discourse/scopal and the MLA is insensible to the phrasal status of the moved constituent. All it 'sees' is that they share a prominent interpretive feature. So with MLA we have an explanation for the absence of the DP-shell of sentential subjects when they are A-bar moved.

Notice that the phenomenon we observed is not limited to Greek and can be duplicated for other kinds of dislocation. I take this as evidence supporting my argument. In the following examples we can observe the same pattern in Russian:

(35) a. Zametno čto emu skučno.

Is noticeable that he's lonely

‘It is noticeable that he is lonely.’

b. To čto emu skučno Zametno.

³⁸ Alternatively one could follow Obata (2012: 181), who claims that the A/A' distinction is based on the features on the goal, not the probe:

"A category at an A-position is reanalyzed as a category bearing ϕ -features
A category at an A'-position is reanalyzed as a category lacking ϕ -Features"

My analysis is compatible with either formulation of the A/A' movement.

³⁹ As Rizzi (2012: 134) puts it:

[...] Spec-Subj. does not express, per se, a particular informational property (given or new information), it only expresses pure aboutness. As such, the notion has no specific scope-discourse featural content to operate on, it just exerts an attraction of any nominal.

that that he's lonely is noticeable

‘It is noticeable that he is lonely.’

c. *čto* *emu* *skučno*, ***eto*** *zamento*

that he's lonely, that is noticeable

‘that he's lonely that is noticeable.’

d. ***eto*** *zamento*, *čto* *emu* *skučno*

that is noticeable, that he's lonely

‘that he's lonely that is noticeable.’

(Kolesnikoff 1980: 148)

In (35a) the CP-subj. is postverbal and can be labeled. In (35b) is raised to spec-TP where det-insertion takes place in accordance to the MLA. Last, but not least, in (35c) the sentential subject is left dislocated in the left periphery doubled by the anaphor *eto* ‘that’. In that case, det-insertion is not obligatory, as the MLA can label the set {CP_{TOP}, TOP} as TOP. We can observe the same effect with the right dislocation of the CP-subj (35d).

6. Conclusion - A pending investigation

This paper has reviewed the behavior of sentential subjects in the context of Chomsky's (2013, 2014a-b) recent formulation of the Minimal Labeling algorithm. More specifically, I concluded that a number of dubious properties of clauses functioning as subjects can be given a principled account if one takes seriously the theory of labeling. Based on a series of empirical evidence, I tried to show that the structural position of sentential subjects in the clause, reflects their phrasal status. Thus, the main findings of this paper are as follows: (i) sentential subjects sitting in their first-merge position (VP-internal), are CPs; (ii) sentential

subjects that raise to spec-TP, are DPs; (iii) sentential subjects that are dislocated to the left periphery can be DPs or CPs. Crucially, the MLA dictates what the category will be in each of the three cases.

This is perhaps the major advantage of the hypothesis developed here. It highlights that the generalizations (i-iii) above, can be derived from the primitives of the theory. I suggested that one of those primitives is a specific theory of labeling in syntax.

One (of the forsooth many⁴⁰) issues that I haven't touched, is how the MLA interacts with islands and more specifically with the *Sentential Subject Constraint* (Ross 1967). Chomsky in his lectures suggests that the MLA can provide us with the right machinery for the investigation of islands⁴¹. The following examples indicate that he is (once more) correct (I have added the bracketings and indicated the trace of movement):

(36) Spanish

- a. Quines ulleres_i et sorprend [que porti t_i]?

which glasses you surprise that wear.1sg.

‘Which glasses does it surprise you that I wear?’

- b. *Quines ulleres_i [que porti t_i] et sorprend?

which glasses that wear you surprise.1sg

‘Which glasses does it surprise you that I wear?’

⁴⁰ There are indeed many loose ends that need to be tied up, but reasons of space precluded me from addressing. One of them is that det-insertion violates the *Inclusiveness Condition* (Chomsky 1995, 2000), that states that "No new features are introduced in the course of linguistic derivation". Maybe we can overcome this problem if we speculate that det-insertion takes place post-cyclically. I will leave this matter open for future research.

⁴¹ See section 2., on how Chomsky suggests that we can derive the *Empty Category Principle* effects from the MLA. See also Rizzi (2014) for suggestions that the "halting point" of movement goes hand in hand with labeling.

(Falk 2009: 273)

(37) Modern Greek

a. ? Pjes eksetasis se enoxlise [oti perase t_i]?

which exams.ACC you disturb.3sg that pass.3sg

‘Which exams did it disturbed you that he passed?’

b. * Pjes eksetasis [to oti perase t_i] se enoxlise?

which exams.ACC the that pass.3sg you disturb.3sg

‘Which exams did it disturbed you that he passed?’

In (36-37a), we have a grammatical subextraction from a post-verbal sentential subject of a psych-predicate. Raising of the subject and subsequent subextraction results in ungrammaticality (36-37b). Note here that the DP-shell, which is visible in Greek (37b), is an indication that the subject is raised to spec-TP.

We might speculate that in those cases, we can sub-extract from the VP-internal sentential subject before it is labeled. On the other side, raising of the subject will result in a criterial φ -configuration and therefore we cannot manipulate it further⁴². As Uriagereka insightfully notes (2012: 97), the matter can be illustrated even with English examples:

(38) a. ??? Syntax_i is what [that my kids could study t_i] would worry me.

b. ? Syntax_i is what it would worry me [that my kids could study t_i].

⁴² See Donati & Cecchetto (2011) on how some islands can be reduced to labeling. See also Uriagereka (2012: 93-104) for an excellent overview on how complex it is to conduct authentic subextraction from subject experiments.

This is a promising result and it would be of great importance to reduce island effects to the MLA. Obviously it remains to be seen how far this idea can be stretched.

References

- Adger, D. 2013. *A syntax of substance*. Cambridge: MIT Press.
- Alrenga, P. 2005. A sentential subject asymmetry in English and its implications for complement selection. *Syntax* 8: 175-207.
- Alsina, A. 1992. On the Argument Structure of Causatives. *Linguistic Inquiry* 23.4:517-555.
- Arad, M. 2002. Universal features and language-particular morphemes. In *Theoretical Approaches to Universals*, ed. A. Alexiadou, 15-40. Amsterdam, John Benjamins.
- Belletti, A. and L. Rizzi. 1988. Psych-Verbs and θ -Theory. *Natural Language and Linguistic Theory* 6. 291-352.
- Berman, R. A. 1980. The case of an (S) VO language: Subjectless constructions in Modern Hebrew. *Language*. 759-776.
- Biberauer, T. and M. Richards. 2006. True Optionality: when the grammar doesn't mind. In *Minimalist Essays*, ed. by Cedric Boeckx, 35-67. Amsterdam: John Benjamins.
- Bobaljik, J. 2008. Where's Phi? Agreement as a Post-syntactic Operation. In *Phi Theory: Phi Features Across Interfaces and Modules*, ed. D. Adger, D. Harbour, & S. Béjar, 295-328. Oxford: Oxford University Press.
- Boeckx, C. 2009. *Aspects of a theory of phases*. Ms, Harvard University/CLT-UAB.
- Boeckx, C. 2010. *Elementary syntactic structures*. Ms., ICREA-UAB. [Part A, "Defeating lexiconcentrism" available at <http://ling.auf.net/lingBuzz/001130>].
- Borer, H. 2013. *Structuring Sense: Taking Form*. Oxford: Oxford University Press.
- Brandi, L. and Cordin, P. 1989. Two Italian dialects and the null subject parameter. In *The Null Subject Parameter*, ed. O. Jaeggli and K. Safir, 111-142. Dordrecht: Kluwer.
- Broekhuis, H. 2007. Does defective intervention exist? *Linguistics in the Netherlands*, 49-61.
- Chomsky, N. 1995. *The minimalist program*. Cambridge, MA: MIT Press.

- Chomsky, N. 2000. Minimalist inquiries: the framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. R. Martin, D. Michaels, and J. Uriagereka, 89–155. Cambridge, MA: MIT Press.
- Chomsky, N. 2004. Beyond Explanatory Adequacy. In *Structures and Beyond*, ed. A. Belletti, 104-132. Oxford: Oxford University Press.
- Chomsky, N. 2007 Approaching UG from Below. In *Interfaces + Recursion = Language?*, ed. by U. Sauerland and H-M. Gärtner , 1-29. New York: Mouton de Gruyter.
- Chomsky, N. 2008 On Phases. In *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud.*, ed. R. Freidin et al., 133-166. Cambridge: MIT Press.
- Chomsky, N. 2013 Problems of projection. *Lingua* 130. 33-49.
- Chomsky, N. 2014a. Talk given at the Keio Linguistic Colloquium, March 8. Retrieved online from <http://www.youtube.com/watch?v=u0t34c3W8d0>
- Chomsky, N. 2014b. Lecture series at the Massachusetts Institute of Technology, March 3, April 2, April 11, May 19. Retrieved online from <http://techtv.mit.edu/videos/9dbb107580486df7fad25f7d2f22700df6eda01e/private>.
- Culicover, P.W. & M. S. Rochemont. 1990. Extraposition and the Complement Principle. *Linguistic Inquiry* 21, 23–47.
- Davies, W. D. and S. Dubinsky. 1998. Sentential Subjects as Complex NPs: New Reasons for an Old Account of Subjacency. In *Proceedings of the Chicago Linguistic Society 34. Part 1: Papers from the Main Session*, ed. M.C. Gruber, D. Higgins, K. S. Olson, and T. Wysocki, 83-94. Chicago: Chicago Linguistics Society, University of Chicago.
- Davies, W. D. and S. Dubinsky. 2009. On the Existence (and Distribution) of Sentential Subjects. In *Hypothesis A/Hypothesis B. Linguistic explorations in Honor of David M. Perlmutter*, ed. D.B. Gerdts, J. C. Moore and M. Polinsky, 111-128. Cambridge, MA: The MIT Press.

- Delahunty, G. P. 1983. But Sentential Subjects Do Exist. *Linguistic Analysis* 12: 379-398.
- Donati, C. and C. Cecchetto. 2011. Relabeling Heads: A Unified Account for Relativization Structures. *Linguistic Inquiry* 42: 519-560.
- Dryer, M. S. 1980. The positional tendencies of sentential noun phrases in universal grammar. *Canadian Journal of Linguistics* 25:123–195.
- Embick, D. and A. Marantz. 2008. Architecture and Blocking. *Linguistic Inquiry* 29: 1-53.
- Engelberg, S. 2012. Argument structure and text genre: cross-corpus evaluation of the distributional characteristics of argument structure realizations. *Lexicographica* 28, 13-48.
- Falk, Y. N. 2009. Islands: A Mixed Analysis. In *Proceedings of LFG09*, ed. M. Butt and T. H. King, 261-281. CSLI Publications.
- Farudi, A. 2007. *An antisymmetric approach to Persian clausal complements*. Ms., University of Massachusetts.
- Grosu, A. and S. A. Thompson. 1977. Constraints on the distribution of NP clauses. *Language*: 104-151.
- Haeberli, E. 2003. Categorical features as the source of EPP and abstract case phenomena. In *New perspectives on case theory*, ed. Brandner, E. and Zinsmeister, H., 89-126. CSLI, Stanford.
- Haegeman, L. 2004. Topicalization, CLLD and the left periphery. *ZAS Papers in Linguistics* 35.1: 157-192.
- Han, H. J. 2005. A DP/NP-shell for subject CPs. In *Proceedings of the 31st annual meeting of the Berkeley Linguistics Society: general session and parasession on prosodic variation and change*, ed. Rebecca T. Cover and Yuni Kim, 133-143. Berkeley: Berkeley Linguistics Society, University of California.
- Hartman, J. 2012. Varieties of clausal complementation. Doctoral dissertation, MIT.

- Hawkins, J. A. 2014. *Cross-linguistic Variation and Efficiency*. Oxford University Press.
- Heycock, C. and R. Zamparelli. 2005. Friends and colleagues: Coordination, plurality, and the structure of DP. *Natural Language Semantics* 13: 201-270.
- Hornstein N. 2014. The Minimal Labeling Algorithm. Retrieved online from http://facultyoflanguage.blogspot.gr/2014_07_01_archive.html.
- Holmberg, A. 2010. Null subject parameters. In *Parametric Variation: Null Subjects in Minimalist Theory*, ed. T. Biberauer, I. Roberts, A. Holmberg, & M. Sheehan, 88–124. Cambridge: Cambridge University Press.
- Holmberg, A. & Þ Hróarsdóttir. 2003. Agreement and movement in Icelandic raising constructions. *Lingua* 113:997–1019
- Iatridou, S. and D. Embick. 1997. Apropos *pro*. *Language* 73: 58-78.
- Jayaseelan, K. 2008. Bare phrase structure and specifier-less syntax. *Biolinguistics* 2:87–106.
- Jiménez-Fernández, Á.L. 2010. Discourse-agreement features, phasal C and the edge: A minimalist approach. *Diacrítica–Language Sciences Series* 24.1: 25-49.
- Kastner, I. 2013. Selection: Factivity and Interpretation. Ms., New York University.
- Kayne, R. S. 2010. Antisymmetry and the Lexicon. In *The Biolinguistic Enterprise: New Perspectives on the Evolution and Nature of the Human Language Faculty*, ed. A.M. Di Sciullo, and C. Boeckx, 329-254. Oxford: Oxford University Press.
- Kolesnikoff, J.D. 1980. Focus placement and éCTO-subject complementation in Russian. Doctoral dissertation, Simon Fraser University.
- Koster, J. 1978. Why subject sentences don't exist. In *Recent transformational studies in European languages*, ed. Samuel Jay Keyser, 53-64. Cambridge, MA: The MIT Press.
- Kupula, M. 2010. Causers as derived Subjects-An unaccusative view from Finnish. *Working Papers in Scandinavian Syntax*, 86, 199-219.
- Landau, I. 2007. EPP Extensions. *Linguistic Inquiry* 38: 485-523.

- Lasnik, H and M. Saito. 1991. On the subject of infinitives. In *Papers from the 27th Regional Meeting of the Chicago Linguistic Society Part One: The General Session*, ed. L. M. Dobrin, L. Nichols and R. M. Rodriguez, 324-343. University of Chicago.
- Lohndal, T. 2006. The phrase structure of the copula. *Working Papers in Scandinavian Syntax* 78: 37-75.
- Lohndal, T. In press. Sentential subjects in English and Norwegian. *Syntaxe et Sémantique*.
- Mahand M. R. 2011. Word order in Persian; a processing-based explanation. Paper presented at the Conference in Iranian Languages, Hamburg University, 7-22 August.
- Marantz, A. 1997. No escape from Syntax: Don't try morphological analysis in the privacy of your own lexicon. In *University of Pennsylvania Working Papers in Linguistics*, ed. A. Dimitriadis, L. Siegel, C. Surek-Clark & A. Williams, 201-225. Philadelphia: University of Philadelphia.
- Megerdooimian, K. and S. Ganjavi. 2000. Against optional wh-movement. In *Proceedings of WECOL*. Vol. 12.
- McCloskey, J. 1991. *There, it*, and agreement. *Linguistic Inquiry* 22: 563-567.
- McCloskey, J. 1997. Subjecthood and Subject Positions. In *Elements of Grammar*, ed. Liliane Haegeman, 197-235. Dordrecht: Kluwer.
- Miller, P.H. 2001. Discourse constraints on (non)extraposition from subject in English. *Linguistics* 39: 683-701.
- Moro, A. 1997. *The raising of predicates: Predicative noun phrases and the theory of clause structure*. Cambridge University Press.
- Moro, A. 2000. *Dynamic antisymmetry*. Cambridge. MA: MIT Press.
- Moulton, K. 2013. Not Moving Clauses: Connectivity in Clausal Arguments. *Syntax* 16: 250-291.

- Obata, M. 2012. Feature-splitting Internal Merge and its implications for the elimination of A/A'-position types. In *Phases: Developing the Framework*, ed. A. Gallego, 109: 173. Berlin: Mouton de Gruyter.
- Ouhalla, J. 1988. The syntax of head movement: A study of Berber. Doctoral dissertation. University of London.
- Pesetsky, D. 1995. *Zero Syntax*. Cambridge, MA: MIT Press.
- Phillips, C. 2013. On the nature of island constraints I: language processing and reductionist accounts. In *Experimental syntax and island effects* ed. J. Sprouse & N. Hornstein, 64-109. Cambridge University Press.
- Picallo, M.C. 2002. Abstract Agreement and Clausal Arguments. *Syntax* 5: 116- 147.
- Postal, P.M. 1974. *On Raising: One Rule of English Grammar and its Theoretical Implications*. MIT Press.
- Quer, J. 2008. Argument clauses and nominal features. *Lingue e linguaggio* 7.1: 93-110.
- Quicoli, A.C. 1982. *The structure of complementation*. Vol. 3. John Benjamins Publishing.
- Radford, A. 1988. *Transformational grammar: A first course*. Cambridge University Press.
- Radford, A. 1997. *Syntax: A minimalist introduction*. Cambridge University Press.
- Reinhart, T. 1980. On the position of extraposed Clauses. *Linguistic Inquiry* 11. 621-624.
- Richards, N. 2010. *Uttering trees*. Cambridge, MA: MIT Press.
- Rizzi, L. 1982. *Issues in Italian syntax*. Dordrecht: Foris.
- Rizzi, L. 1997. The Fine Structure of the Left Periphery. In *Elements of Grammar*, ed. L. Haegeman, 281-337. Dordrecht: Kluwer.
- Rizzi, L. 2012. Delimitation Effects and the Cartography of the Left Periphery. In *Discourse and Grammar: From Sentence Types to Lexical Categories*, ed. G. Grewendorf & E. Zimmerman, 115-147. Berlin: Mouton de Gruyter.

- Rizzi, L. 2014. *Cartography, Criteria, and Labeling*, Ms., University of Geneva, University of Siena.
- Rooth, M. 1996. On the interface principles for intonational focus. In *Proceedings of SALT VI*, ed. by T. Galloway and J. Spence, 202-226. Ithaca, NY: CLC.
- Rosenbaum, P.S. 1967. *The grammar of English predicate complement constructions*. Cambridge, MA: The MIT Press.
- Rosenbaum, P.S. 1970. A principle governing deletion in English sentential complementation. In *Readings in English transformational grammar*, ed. R.A. Jacobs and P.S. Rosenbaum, 220–9. Waltham, MA: Ginn.
- Ross, J.R. 1967. Constraints on variables in syntax. Doctoral dissertation, MIT.
- Roussou, A. 1991. Nominalized clauses in the syntax of Modern Greek. In Vol. 3 of *UCL working papers in linguistics*, ed. Hans van de Koot, 77-100. London: University College London, Department of Phonetics and Linguistics.
- Rüggeberg, C. 1987. *Sentential Complementation in Spanish: A lexico-grammatical study of three classes of verbs*. John Benjamins Publishing,
- Salkoff, M. 2002. Verbs with a Sentential Subject. A Lexical Examination of a Sub-Set of Psych Verbs. *Lingvisticae Investigationes* 25(1). 97-147.
- Selkirk, E.O. 2008. Contrastive focus, givenness and the unmarked status of “discourse-new”. *Acta Linguistica Hungarica* 55.3: 331-346.
- Sheehan, M. 2006. The EPP and null subjects in Romance. PhD dissertation: Newcastle University.
- Stowell, T. 2013. Changing the Subject: Shifting Notions about Subjecthood in Generative Grammar. In *The Bloomsbury Companion to Syntax*, ed. S. Luraghi and C. Parodi, 194-217. London: Bloomsbury.

- Stroik, T.S. 1996. Extraposition and expletive-movement: A minimalist account. *Lingua* 99: 237-251.
- Takahashi, S. 2011. The hidden side of clausal complements. *Natural Language and Linguistic Theory* 28: 343-380.
- Taraldsen, K.T. 1980. *On the nominative island condition, vacuous application and the that-trace filter*. Indiana university Linguistics club, Bloomington, Ind.
- Truckenbrodt, H. 1995. Phonological phrases: their relation to syntax, focus and prominence. Doctoral dissertation, MIT.
- Uriagereka, J. 2011. *Spell-Out and the Minimalist Program*. Oxford: Oxford University Press.
- Zamparelli, R. 2008. Features, facts and clausal agreement. *Lingue e linguaggio* 7.1: 111-0.
- Zimmerling, A. 2014. Sentential Arguments and Event Structure. *Dialogue*, 710-727.
- Zubizarreta, M.L (1998), *Prosody, focus and word order*, Cambridge, MA: MIT Press.