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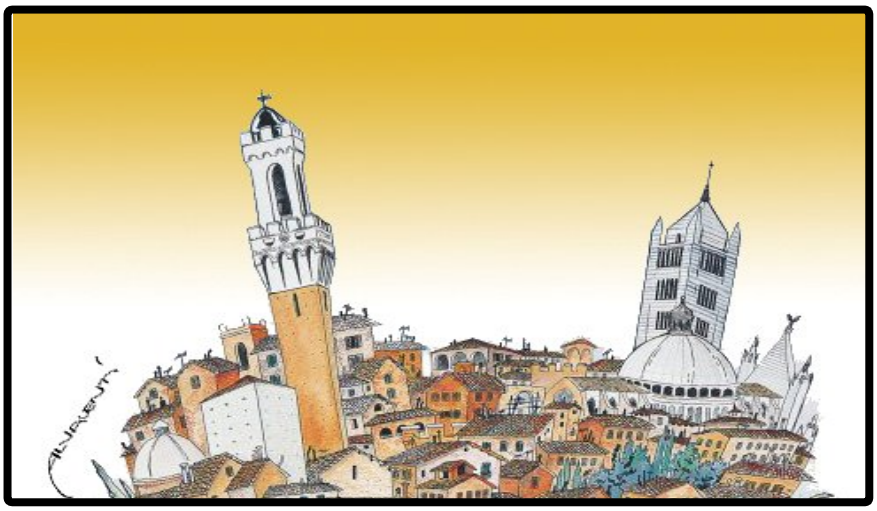

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STiL
Studies in Linguistics

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Contents

Maria Teresa Guasti, Chiara Branchini, Fabrizio Arosio
Agreement in the production of Italian subject and object wh-questions 6

Liliane Haegeman
The syntax of conditional clauses 28

Maria Rita Manzini & Leonardo Savoia
Mesoclisis in the Imperative: Phonology, Morphology or Syntax? 51

Theresa Biberauer, Anders Holmberg & Ian Roberts
Linearization and the Architecture of Grammar: A view from the Final-over-Final Constraint 77

Gloria Cocchi
Bantu verbal extensions: a cartographic approach 90

Federica Cognola
TopicPs and Relativised Minimality in Mòcheno left periphery 104

Silvio Cruschina & Eva-Maria Remberger
Focus Fronting in Sardinian and Sicilian 118

Maria Teresa Espinal & Jaume Mateu
On bare nominals and argument structure 131

Irene Franco
Stylistic Fronting: a comparative analysis 144

Hanako Fujino
The Adnominal Form in Japanese as a Relativization Strategy 158

Ion Giurgea
Romanian null objects and gender 167

Guenther Grewendorf & Cecilia Poletto
The hybrid complementizer system of Cimbrian 181

Alexander Grosu
Head-internal relatives in Japanese/Korean 195

Dalina Kallulli
Why and how to distinguish between *pro* and trace 206

Daniele Panizza
The processing of N-words in Italian 219

Michelle Sheehan
Labelling, Multiple Spell-Out and the Final-over-Final Constraint 231

Elena Soare
Epistemic Modality in Romanian: the role of BE 244

Balazs Suranyi
Identificational Focusing: Focus Raising and Stress–Focus Correspondence 258

Francesca Volpato & Flavia Adani
The subject/object relative clause asymmetry in Italian hearing-impaired children: evidence from a comprehension task 269

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Agreement in the production of Italian subject and object wh-questions

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1. Introduction

A marked crosslinguistic preference for subject over object wh-questions emerges in a variety of populations. Adults read and process faster subject than object questions (e.g., De Vincenzi, 1991; Fiebach, Schlesewsky & Friederici, 2002; Frazier & Flores D'Arcais, 1989; Penolazzi, De Vincenzi, Angrilli & Job, 2005; Schlesewsky, Fanselow, Kliegl & Krems ,2000; see also Stowe, 1986 for contrasting findings). Similarly, adult agrammatic patients find subject questions easier to handle than object questions (Dickey, Choy, Thompson, 2007; Garaffa and Grillo, 2008; Neuhaus and Penke, 2008; Salis and Edwards, 2008). Children, generally, produce and comprehend subject questions earlier and better than object questions and for children affected by specific language impairments (SLI) object questions are more challenging than subject questions. Subject questions are more frequently produced than object questions in English (Stromswold 1995). In elicited production studies, children are more accurate on subject than on object questions from an early age (Ervin-Tripp, 1970). O'Grady (2005), citing Yoshinaga (1996), reports that English learners have no problem in producing subject *who* -questions by age 2 (100%) while they have many difficulties with object *who*-questions (8% of correct responses). It is only at age 4 that the production of object questions almost equals that of subject questions with respectively 80% and 89% of correct questions produced. Van der Lely and Battell (2003), by comparing the production of WH-questions in typically developing (TD) children and in children with SLI, also report a subject over object preference for *who* questions in 6 year old TD English-speaking children. These findings are extended to Greek by Stavrakaki (2006), who reports a very mild advantage in subject questions over object questions (subject *who* =100%; object *who* =92%; subject *which*=93%; object *which*=81%) by 4;1 years old Greek speaking children. Beyond production, also the comprehension of wh-questions is problematic and, in this case, the difficulty is modulated by the type of WH-element (Ervin Tripp, 1970; Tyack & Ingram, 1977). Avrutin (2000) found that 3;5 to 5;2 year old English-speaking children (mean age 4;3) comprehend object *which*-questions less well than subject *which*-questions (48% correct versus 86% correct responses), while such an asymmetry was not attested for *who*-questions (80% correct responses in both cases) (this last finding is also replicated by Hirsch and Hartman, 2006). More recently, similar results were found by Friedmann, Belletti & Rizzi (2009) with Hebrew-speaking children aged 3;7-4;10 years (mean age 4;3). These children scored significantly lower in the comprehension of object *which*-questions, 58%, than in that of

subject *which*-questions 78%, but they were equally good in the comprehension of subject and object *who*-questions (around 80% correct responses). Finally, carrying out a comprehension experiment on WH-questions in Italian learners, De Vincenzi, Arduino, Ciccarelli & Job (1999) found out that while at age 3-4 children do not show any significant asymmetry in the comprehension of subject versus object questions (scoring respectively 64% and 53%), by age 4 they experience difficulties with object questions, while rapidly improving in subject questions, an asymmetry lasting until age 10. In contrast to previous studies on comprehension, this asymmetry was evident both in *who*- and in *which*-questions, but in the last case it was more marked, at least until age 7. Another notable aspect of De Vincenzi et al. is that the asymmetry detected in the Italian learners lasted longer than in the English or Greek ones, given that an adult-like performance was reached at about 10-11 years. In sum, although, across languages, an asymmetry between subject and object questions is evident both in production and in comprehension, there are intriguing divergences: some studies find this asymmetry both in *who*- and in *which*-questions; others only in *which*-questions. But notice that, while both *who* and *which*-questions were investigated in comprehension, generally only *who*-questions were examined in production. In addition, the developmental pattern seems to differ across languages: in some languages the asymmetry is evident for a shorter time than in others.[1] In this paper, we investigate the production of WH-questions in early learners of Italian, comparing it to the production of adults, by employing an elicited production experiment. Our study will complement the comprehension study carried out by De Vincenzi et al. and from these two angles we will try to better characterize the nature of the subject/object asymmetry. By focusing on this issue, we attempt to gain insight into the way the acquisition process unfolds and which processes are readily available during acquisition and relatively efficient in the adult system. Putting it in a crosslinguistic perspective, we will argue that the specific processes involved in the formation of WH-questions across languages are to be held responsible for the different developmental patterns.

First, we discuss questions in Italian (§ 2); then, we present some accounts of the subject/object asymmetry (§ 3). We finally describe our experiment (§ 4), analyze the results and discuss them (§5).

2. Italian WH-questions

Italian WH-questions are peculiar in that subject and object questions display the same order of elements: WH V NP, an order often found in languages with VS order, such as Arabic languages, Irish, Malagashy. It is only through agreement on the verb that the sentence is disambiguated: a subject question (1), if the verb agrees with the copy of the WH-operator, an object question (2), if it agrees with the postverbal NP subject.

(1) Chi colpisce i bambini?
Who hit-3SG the children?
Who hits the children?

[1] We do not claim that the asymmetry completely disappears, but it is likely that it is manifested in other ways, i.e., in terms of the reaction times in adults (see De Vincenzi, 1991).

(2) Chi colpiscono i bambini?
Who hit-3PL the children?
Who do the children hit?

It follows that a WH-question displaying a singular overt NP (as in (3)) is potentially ambiguous between a subject or an object interpretation since the singular verb agreeseither with the WH-operator or with the overt singular NP.

(3) Chi colpisce il bambino?
Who hit-SG the child?

The surface word order WH V NP displayed by both subject and object questions is made possible by the fact that subjects can occur in a postverbal position. This latter may, however, also be found sitting in the left periphery of the question as in (4), where we have an object question with a topicalized subject in front of the WH-element. Obviously, being Italian a null subject language, the subject can remain phonologically null, as in (5), if the context makes this option pragmatically felicitous (i.e., if it is clear who the referent is; this is always the case for the 1st and the 2nd person, but not for the 3rd person).

(4) I bambini, chi colpiscono?
The children, who hit-PL?
The children, who do (they) hit?

(5) Chi colpiscono?
Who hit-PL?
Who do (they) hit?

4. An elicited production experiment

One group of 35 children aged from 3;11 to 5;11 (M=4;10, SD=0;6) and one group of adult controls (N=20) participated in the experiment. Five more children were discarded because they did not complete the experiment or did not understand the task. Children were tested in school and parent consent forms were previously collected.

First, children were familiarized with a male puppet to which they had to ask questions. Then, they were tested individually in a quiet room and were invited to ask questions to the puppet. The questions produced by the child were transcribed by the experimenter on a score sheet and were tape recorded for further check. Adults were tested with the same procedure except that they were expected to ask questions to an imaginary person. The experiment was presented using a portable computer and stimuli were displayed through a powerpoint presentation. The technique used is an adaptation of that used by Yoshinaga (1996) and reported in O'Grady (2005). Subjects were shown a picture displaying some character(s) doing or participating as patients in an action. The agent or the patient was hidden depending on whether a subject or an object question was aimed. As the picture was shown, a pre-recorded voice delivered through loudspeakers connected to the portable computer described what was happening. For example, the voice said: "*Someone is chasing the elephants*

(pointing to the character hidden under an ellipsis). The puppet knows who. Ask him who". The action or its results was clearly depicted on the picture. After hearing the voice, the child was expected to ask the puppet a question, that in this case was: "*Who is chasing the elephants?*". The puppet, manipulated by the experimenter, had to guess who was hidden, and the mysterious character then appeared from underneath the ellipsis. The child would finally judge the correctness of the puppet's guess. We elicited subject and object questions introduced by who or by which NP. In the latter case, in order to make the context felicitous for the use of a which-question, we had to use two pictures. In the first picture, the relevant characters were presented and then a picture for eliciting the questions was shown. Before starting the experimental session, children were exposed to 2 practice trials eliciting questions introduced by what. During the practise children received feedback to make sure they understood that a question was expected from them. We manipulated two factors, each one comprising two levels: question type (Subject, Object); WH-element (*who, which NP*). There were 6 trials for each condition, for a total of 24 questions. Eighteen different transitive verbs, all reversible, were used (*bite, chase, caress, catch, dip, dirty, dream, follow, frighten, greet, hit, leak, pull, push, run after, tie, wash, wake up*) with different nouns. The verbs *dip*, *pull*, *run after*, *tie*, *wash* were used twice, but with different nouns. Some of the pictures were taken from De Vincenzi (1996) and adapted to the task. We may notice that *who*–subject questions always feature a singular verb, while *who*-object questions invariably employ a plural verb. This was inevitable given the grammar of Italian WH-questions (see above), if one wants to elicit unambiguous questions. We counterbalanced for this bias in *which*-questions, where we had 3 subject questions with singular verbs (*which cook is greeting the football players?*) and 3 with plural verbs (*which children are pulling the fairy?*) as well as 3 object questions with singular verbs (*which horses is the lion chasing?*) and 3 with plural ones (*which child are the smurfs dreaming of?*). From the first list of stimuli a second list was created by using pictures with the same characters and actions, but reversing the direction of the actions. For example in one list we used the picture displaying a hidden animal chasing the elephants and we elicited a subject question (*who is chasing the elephants?*). In the other list the corresponding picture displayed two elephants chasing some other character in order to elicit an object question (*who are the elephants chasing?*). In this way, all children viewed the same actions and characters, with only the direction of the action changing. The presentation order was randomised and the same order set was used for each participant. Children and adults were randomly assigned to one of the two lists. All stimuli were pre-recorded by a native speaker of Italian.

5. Results

Children and adults' responses were first scored for correctness and correct responses were then categorized into different types. Responses were considered correct when they matched the target question. Responses substituting *which NP* with *who* were scored as *who* questions, responses substituting *which NP* with *which* (corresponding to English *which one*) were score as *which*-questions and responses substituting *who* with *what* were scored as *who*-questions (in these questions *what* stands for an animate entity being questioned; this change occurred only in object questions). Errors included subject questions produced

when an object question was targeted or viceversa, production of the WH element alone (i.e., *who*?), transformation of the WH-question into a yes/no question, irrelevant responses.

To analyze our data we used a repeated measures logistic regression analysis, as the dependent variable (Response) is categorical (and not continuous as required by the ANOVA). In the logit model, the dependent variable is rescaled "in terms of a logit (or log odd) response-strength measure" (Dixon, 2008:1), i.e., the logarithm of the ratio between the event probability (e.g., producing a correct response) and the non-event probability (producing an incorrect response).

As the response accuracy between the two lists did not differ ($\chi^2(1)=2.60$, $p=0.10$),- we collapsed the data together for all further analyses. First, we contrasted all correct responses (656 for children and 434 for adults) versus all incorrect ones (183 for children and 46 for adults). This analysis revealed that adults were generally more accurate than children in producing all questions, except for subject which-questions (where no difference was observed between children and adults), that the rate of correct subject questions was higher than that of correct object questions but only for *who*-questions (no difference being observed for *which*-questions), that *who*-questions were easier to produce than *which*-questions for adults, but this held only for subject questions in children. These findings are supported by the statistical analysis calculating the change of probability of producing an error rather than a correct question, for each factor (Sentence and Type of WH-element) and for each age group. A main effect of age ($\chi^2(1)= 13.60$, $p=0.0002$), of sentence ($\chi^2(1)= 7.80$, $p=0.005$) and of type of WH-element ($\chi^2(1)=11.79$, $p=0.0006$) was found. In addition, two interactions were found: one between sentence and type of WH-element ($\chi^2(1)=5.05$, $p=0.02$) and another one between age and type of WH-element ($\chi^2(1)=9.05$, $p=0.002$). As for the first interaction (Sentence by Type of WH-element), *who*-questions systematically elicited higher correct responses (Subject=92%, Object=79%) than *which*-questions (Subject=81%, Object=77%). Concerning the second interaction (Age by Type of WH-element), we observe that *who*-questions systematically elicit higher correct responses (children=79%, adults=96%) than *which*-questions (children=76%, adults=84%). Thus, the two interactions do not affect the interpretation of the three main effects (age, sentence and type of WH-element). To unpack these interactions we carried out separate analyses. We found a main effect of age for subject *who* -questions ($\chi^2(1)=11.35$, $p=0.008$), for object *who*-questions ($\chi^2(1)=16.72$, $p<0.0001$) and for object *which* -questions ($\chi^2(1)=4.05$, $p=0.04$), but not for subject *which*-questions ($\chi^2(1)=0.34$, n.s.). Thus, the main effect of age is due to *who*-questions (subject and object) and to object *which*-questions. Then, for children, we found a main effect of type of WH-element for subject questions ($\chi^2(1)=5.23$, $p=0.02$), but not for object questions ($\chi^2(1)=0.27$, n.s). For adults, we found a main effect of type of WH-element both for subject ($\chi^2(1)=6.05$, $p=0.01$) and object questions ($\chi^2(1)=5.81$, $p=0.01$). Thus, the main effect of type of WH-element is due to subject questions for children and to both subject and object questions for adults. Finally, we found a main effect of sentence for *who*-questions in children ($\chi^2(1)=19.62$, $p<0.0001$) and in adults ($\chi^2(1)=4.16$, $p=0.04$). Thus, the effect of sentence is due to *who*-questions. Table 1 summarizes the main results.

Main effects	Due to	Findings
Age	Subject *who* -questions Object *who*-/ *which*-questions	Adults better than children
Sentence	*who* -questions (children and adults)	Subject vs. object asymmetry only in *who* –questions
Type of WH	Subject-questions (children) Subject and object-questions (adults)	*who*- better than *which*-questions

Table 1. Results from the analysis correct/incorrect

Correct questions displayed different kinds of structures, especially in children's production. The different structures produced reveal which strategies speakers use when they have to produce a question. Table 2 reports the possible strategies and exemplifies them for subject and object questions.

Strategy/Structure	Subject questions	Object question
NP-final: WHVNP	Chi lava gli orsi? *Who washes the bears?*	Chi lavano gli orsi? *Who wash-3PL the bears?* *Who are the bears washing?*
NP-topicalization: NPWHV	Gli orsi, chi (li) lava? *The bears, who washes (them)?*	Gli orsi, chi lavano? *The bears, who (they) wash-3PL?* *The bears, who do they wash?*
Cleft	Chi è che lava gli orsi? *Who is it that washes the bears?*	Chi è che lavano gli orsi? *Who is it that wash-PL the bears?* *Who is it that the bears are washing?*
Argument drop	Chi (li) lava? *Who washes (them)?*	Chi lavano? *Who(they) wash-3PL?* *Who do they wash?*
Passivization	Da chi sono lavati gli orsi? *By whom are washed the bears?* *By whom are the bears washed?*	Chi è lavato dagli orsi? *Who is washed by the bears?*

Table 2. Type of correct questions produced.

Figure 1 reports the percentages of use of these different structures employed by children and by adults, as a function of the type of question and of WH-element.

These percentages are calculated by considering only correct questions.

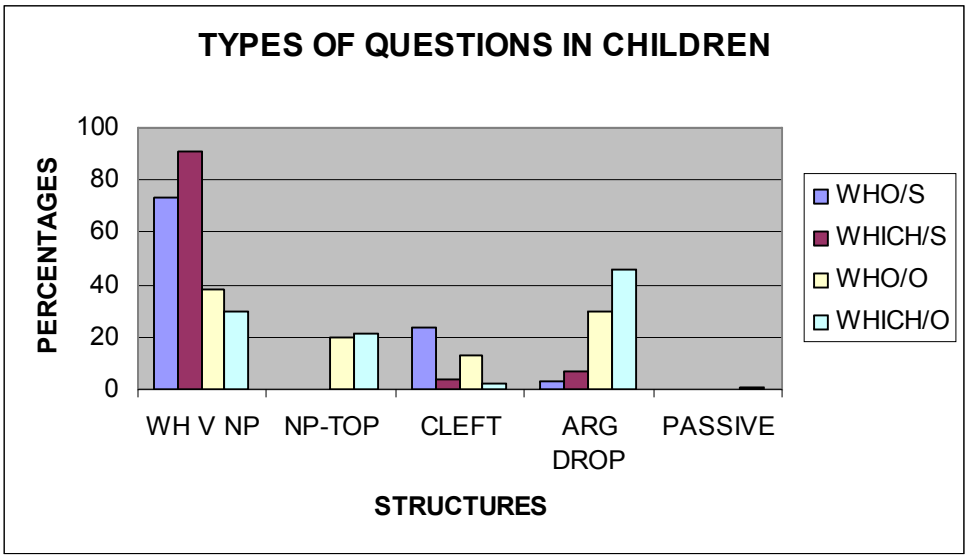


Figure 1a. Structures produced by children as a function of type of questions and of wh-element

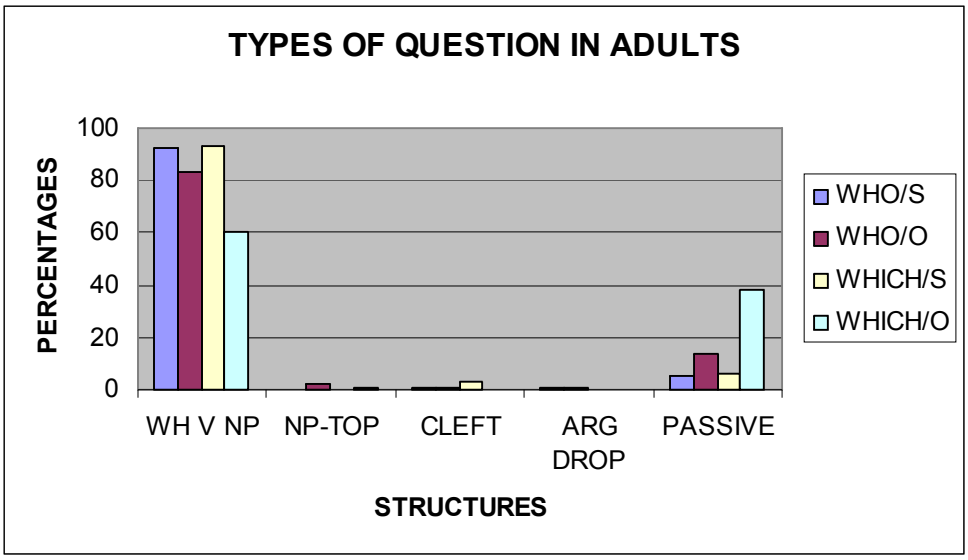


Figure 1b. Structures produced by children as a function of type of questions and of wh-element

These strategies/structures were generally or, in most cases, exclusively employed to produce object questions, except for the first one. They can be classified into two main categories: those in which the subject occupies a postverbal position (WH V NP and clefts) and those in which it occupies a preverbal position (NP-topicalization, null arguments and passivization). Let us examine each strategy in detail. NP-final is a strategy which results in the order WH V NP, with NP being the postverbal subject or the object. This is the common order in Italian WH-questions, but if one employs reversible verbs such order is potentially ambiguous (see (3)). This structure is more commonly used by adults than by children. Its use was more frequent in subject than in object questions, in both adults and children and for both types of WH-element.

NP-topicalization results in a structure in which the subject or the object is preposed to a preverbal dislocated position. When the preposed NP is an object (in subject questions), a resumptive clitic must be used within the question. In fact, this structure was never used to form subject questions. Children often produced object questions with the NP subject preposed or topicalized to a left peripheral position, before the WH-element and they did so equally often for both *who*- and *which*- questions. Adults also used NP-topicalization and did so only in object questions, but their frequency is very low (between 1% and 2% of the target structures).

The third structure is the cleft, a structure commonly used in the spoken variety of our subjects (but that sounds somehow substandard). Both adults and children produced subject and object cleft questions, but adults did so much less frequently than children. This happened more frequently in the case of *who*-questions than in the case of *which*-questions.

Argument drop yielded object questions with a phonologically null subject, an option that is legitimate in Italian and that, given the experimental context, was appropriate as the subject was mentioned in the lead in (The *bears are washing someone. Ask the puppet who*). For the same reason, omission of the lexical object NP is an option, but in this case the question should include a clitic pronoun (*Chi lo lava?* Lit. Who him washes? Who washes him?). Interestingly, the option of expressing the object through a clitic pronoun in subject questions is rare. Thus, generally only the subject was dropped (in object questions) and this option was only exercised by children.

Finally, passivization consists in the transformation of an active into a passive question. We considered it as a strategy whereby the subject is preverbal in that, being the grammatical subject (or the underlying internal argument) a WH-element, it moves to a preverbal position. In the case of subject questions, applying passivization gives rise to a subject question introduced by the by-phrase. In both cases, the thematic roles are assigned correctly. Passivization was mostly used when the target was an object question and when the operator was *which NP* rather than *who*.In addition, this strategy was exclusively used by adults.

6. Discussion

As in other studies we found a subject/object asymmetry in the production of questions. In the literature, such subject/object asymmetry in WH-questions hasbeen explained as an effect of the length between the WH-element and its copy, an intuition, known as the Minimal Chain Principle (MCP)[2] (De Vincenzi, 1991; see also the Active filler Hypothesis, Frazier and Flores D'Arcais, 1989) which states that the preference for subject over object questions derives from a shorter chain in the former case than in the latter and this results in a reduction of the parser's memory load. While this account fares well with the main finding presented in section 1 and our results, it fails to explain why object questions are particularly delayed in Italian and an adult-like performance is reached much later than it is in English or in Greek.

[2] *Minimal Chain Principle (MCP)*: Avoid postulating unnecessary chain members at Surface-structure, but do not delay required chain members. (De Vincenzi, 1991)

Recently, a different approach has been proposed by Friedemann et al. based on the acquisition of Hebrew WH-questions. Emphasizing on the similarity between the configuration created by object extraction in Hebrew WH-questions in (6) and the one created by extraction of an adjunct out of an indirect question in (7), Friedemann, et al. have proposed an account of the subject/object asymmetry in terms of intervention. These authors point out that (6) and (7) share the same abstract configuration in (8), where the dependencies between X and Y (Y being the original position marked by the underline) cannot be created when a candidate for the same local relation intervenes between them, yielding a well-known relativized minimality violation (Rizzi, 1990).

(6) **et** **eize kelev** **ha-xatul** noshex ----?
ACC which dog the-cat bites?

(7) **How** do you wonder **Who** behaved ---?

(8) X Z Y

In (7) *who*, the intervener, blocks the local relation between *how* and its copy in the embedded clause and gives rise to an ungrammatical sentence. In (6), the sentence is not ungrammatical, but its comprehension is ruled by the same principle in (8): essentially the intervention of a DP (the cat) impacts on the possibility of establishing a connection between *which dog* and its copy and this is particularly taxing for children, causing their poor comprehension of questions such as (6). Following Rizzi (2004), Friedemann et al. assume that relativized minimality is expressed in terms of features belonging to different classes, as shown in (9) (see also Starke, 2001).

(9) Argumental (A): person, number, gender, case…
Quantificational (Q): WH-, Neg, measure, focus . . .
Modifiers (M): evaluative, epistemic, Neg, frequentative, measure, manner

A Z, in (8), with features belonging to the same class as X and Y intervenes and blocks the relation between the two. This is the case in (7), where *who* and *how* have the same feature +Q. The same holds in (6), as what matters is not merely the presence of an intervener, but the fact that the intervener and the WH-expression share a subset of the features. In (6), the relevant feature is +NP, i.e. lexically restricted. The wh-expression (+Q, +NP) and the subject (NP) share the +NP feature and this makes the dependency between *which NP* and its copy in the merged position difficult to be instantiated. These authors also show that in Hebrew at age 4 no subject/object asymmetry is found in *who*-question as the WH-element (+Q) and the intervener, the subject (+NP), do not share any feature. This account does not anticipate any difficulty in *who*-questions, which are indeed found in Italian, both in production and comprehension, and also in English. Thus, this account does not explain the crosslinguistic differences that seem to emerge in the course of the acquisition of wh-questions.

To overcome these weaknesses, we need to recognize that the subject/object asymmetry is modulated by the specific processes that are employed in a given language to form questions. Toward this end, we offer a new proposal that

builds on research by Guasti & Rizzi (2002) and by Franck, Lassi, Frauenfelder, & Rizzi (2006). In this proposal, a central role is attributed to the subject-verb agreement relation, as it is agreement with the verb that tells one whether a subject or an object question will ensue in Italian (see examples 3 and 4).

Let us then turn to experimental work on the production of subject-verb agreement by adults showing that attraction errors occur more frequently in VS than in SV configurations. Let us illustrate this finding. With the term *attraction* we refer to a phenomenon whereby speakers produce sentences like in (10), where the verb erroneously agrees with the more local noun *neighbours* (a modifier of the subject), rather than with its subject *son*. Essentially, attraction errors originate when some NP intervenes between the subject and the inflected verb.

(10) *The son of the neighbours always come back late

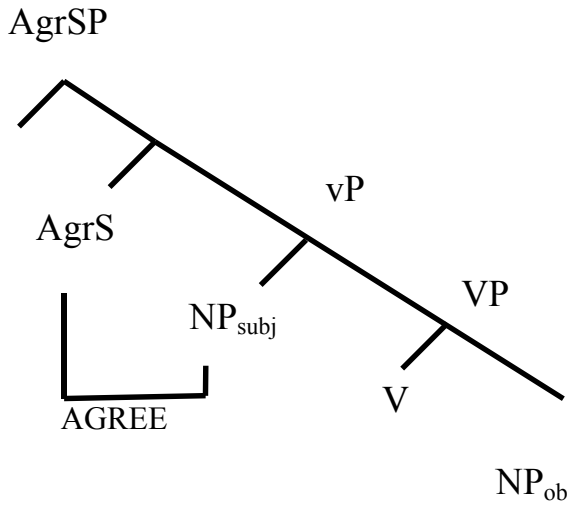
Through a series of experiments, Franck et al. have shown that attraction errors come about at different rates depending on the structural configuration (e.g., linear precedence, c-command) entertained by the elements involved. In particular, in one experiment they tested French object cleft sentences such as in (11) with the embedded subject in the preverbal or in the postverbal position. In both kinds of configurations, attraction errors were found, i.e., in both cases, participants produced the verb *seduce* with a singular rather than a plural inflection and thus agreeing with the object, the singular noun *the adolescent*, rather than with its plural subject*, the boxers*. Interestingly, the rate was significantly higher in the VS configuration in (11b) totalling to 29% than in the SV configuration in (11a) totalling to 15%.

(11) a. C'est l'adolescent que les boxeurs seduisent
It is the adolescent that the boxers seduce

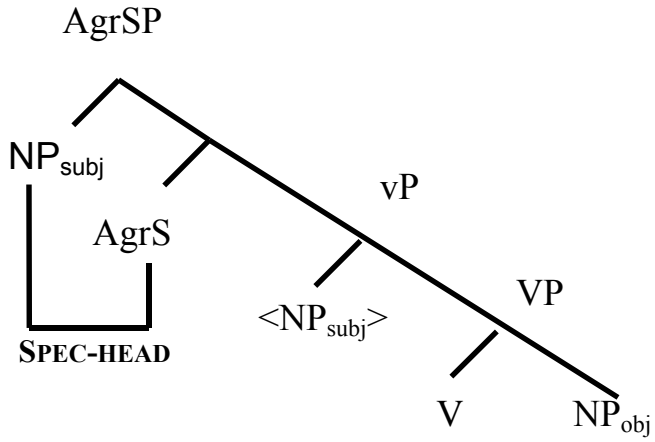
b. C'est l'adolescent que seduisent les boxeurs
It is the adolescent that seduce the boxers

In order to explain this asymmetry, Franck et al. proposed that agreement consists of two subprocesses: AGREE and Spec-HEAD agreement. AGREE is the operation whereby the subject initially merged as the specifier of the lexical verb in the vP (see Koopman and Sportiche, 1991) and endowed with person and number features values the feature of the inflectional node AgrS above it, i.e., it copies its features onto the AgrS node under c-command and in a local configuration, as displayed in the lower portion of (12a). Spec-Head agreement is the additional operation that originates when the subject moves out of vP (and leaves a copy there) to Spec AgrS and enters in a local Spec-head relation with the AgrS head, where the verb may have previously moved to receive its morphological specification, as displayed in the upper part of (12b). Broadly speaking, in sentences with the SV order agreement is obtained by AGREE, MOVE, and Spec Head while in VS sentences it results solely from AGREE.

(12a)

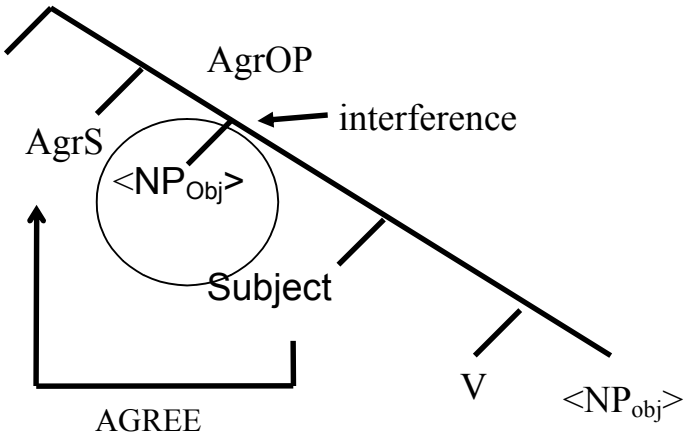


(12b)



This two step conception of morphological agreement is the key to understand the different rate of attraction errors occurring during spontaneous speech production as a function of the configuration between the subject and the inflected verb. It is assumed that object movement to the left periphery, as in cleft sentences and in similar constructions, is stepwise and involves a preliminary movement to an intermediate projection, AgrOP (Kayne, 1989; Chomsky, 1995) immediately dominating the vP, plus a final movement to the left periphery, as in (13). Hence, when AgrS, the probe, looks for a goal in its c-commanding domain, it first finds the object (or the object copy) in Spec AgrOP. Thus, the object interferes on the AGREE relation between the thematic subject in Spec vP and AgrS and induces attraction errors, whereby the object, rather than the subject, may sometimes value AgrS and induce attraction errors.

(13)

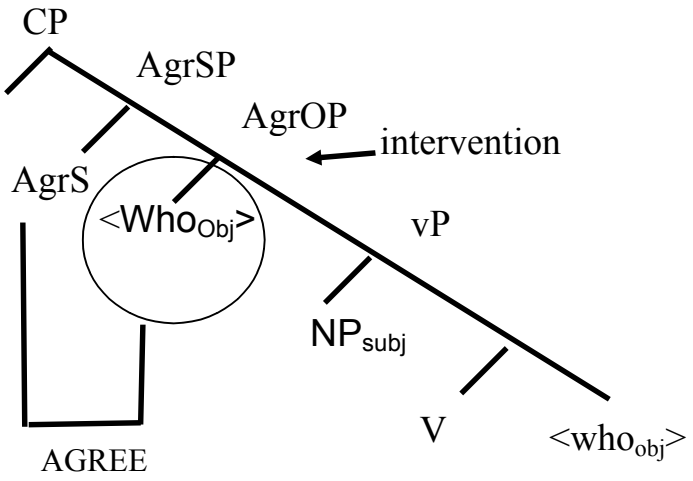


In object clefts with postverbal subjects (OVS clefts henceforth), nothing else happens. In cleft sentences with preverbal subjects (OSV clefts henceforth), instead, the subject moves out of vP to Spec AgrSP and agreement is further checked in the Spec-head configuration. This further step makes the agreement relation stronger and purges (most of) the attraction errors originated during the AGREE operation, by verifying the match in agreement feature between the subject in Spec AgrS and AgrS itself.[3] Thus, although the object (or the object copy) intervenes in both OVS and OSV clefts on the AGREE relation, the different rate of attraction errors in the two constructions depends on the fact that agreement is checked only once in the former case and twice in the latter, with the second step essentially correcting the effects of the interference on the former relation.

Extending this account to our data, we claim that the locus of the difficulties that children (and adults) experience in the production of WH-questions is the interference of the object copy on the AGREE relation between the postverbal subject in Spec VP and AgrS. Furthermore, we argue that the different strategies adopted to form object questions represent various attempts to correct the attraction errors originated during the AGREE relation. Let us explicit this proposal further. When children (and adults) have to produce an object question, they plan a hierarchical structure such as the one in (14) (similar to the one reported in (13) for object clefts).

[3] By adopting the two step computation of agreement, we maintain Spec head in our system in contrast to recent version of minimalism (Chomsky, 2004).

(14)



In the structure in (14), AgrS, the probe, looks for a goal, the thematic subject in Spec vP. However, it first finds the WH-object that, on its way to Spec CP, moves through Spec AgrOP. Thus, in this position, the object (or its copy) interferes on the AGREE relationship between the thematic subject in Spec vP and AgrS. Usually, through AGREE, the person and number features of the subject are copied into AgrS, an operation that may fail when the object copy intervenes and transfers its own features into AgrS, giving rise to an attraction error. When this happens, the verb ends up agreeing with the copy of the logical object, which is then coindexed with the fronted WH-element and the question turns out to be a subject rather than an object question. This is precisely one of the errors that participants in our experiment made when an object question was targeted. Alternatively, due to the interfering object, participants may get stuck and be unable to produce a relevant response. In that case, they may not answer at all or they may repeat the sentence heard during the lead in. Franck et al. showed that attraction errors in object cleft sentences are reduced when the subject is preverbal, essentially because the Spec Head relationship established through movement of the subject to the preverbal position (and of the verb to AgrS) purges the errors ensuing through the previously established operation AGREE. In Italian WH-questions, Spec AgrSP is banned to lexical subjects, i.e., the question in (15) is out in Italian (see Rizzi, 1996 for an explanation).

(15) *Chi i cavalli mordono?
Who the horses bite?

However, Spec AgrS is not banned to phonologically null subjects. We argue that questions featuring null subjects or NP-topicalization represent various types of attempts to correct the attraction errors created during the AGREE relation that make the agreement relation stronger. Let us consider first the null subject question illustrated in (16).

(16) Chi [$_{AgrSP}$ pro mordono] ?
Who pro bite-PL?
Who do they bite?

Null subjects, although generated in Spec vP, have to move to Spec AgrSP in order to be licensed (evidence for the claim that null subjects are located in Spec AgrSP comes from Cardinaletti,1997). In that position, the null subject enters in a Spec-Head relation with AgrS and checks agreement for a second time, thus allowing the correction of attraction errors created during AGREE. Questions with NP-topicalization, exemplified in (17), are like those with null subjects and, in addition, they include a lexical NP dislocated in the left periphery (see also Cardinaletti, 2007).

(17) I cavalli, chi [pro mordono]?
The horses, who pro bite?
The horses, who do they bite?

The lexical subject in this structure is left dislocated and placed in the left periphery via movement. In other words, we are treating (17) on a par with the more familiar case of left dislocation of the object in (18) (Cinque, 1977, 1990):

(18) I libri, chi li ha letti?
The book, who them has read?
The book, who has read them?

While the dislocated object is resumed by a clitic in (18), there is no clitic resuming the dislocated subject in (17), as Italian does not have subject clitics. However, in (17), the dislocated subject is resumed by a null pronominal subject in Spec AgrSP. More specifically, inspired by Cecchetto's analysis (2000) (see also Belletti, 2008), we assume that the structure of (17) includes a big DP1, which contains the DP2 *i cavalli* in its Spec and a *pro* in its head. This *big DP1* is originated in the thematic subject position and is the goal of AGREE. Being headed by a null subject, the *big DP1* moves to the Spec of AgrSP and checks agreement for the second time. Then, the double DP2 *i cavalli* is moved to the left peripheral position that, following Rizzi (1997), we assume to be the Spec of a Topic Phrase (TP) leaving a copy in the Spec position of the *big DP1,* as illustrated in (17). Attraction errors arise during AGREE between AgrS and the thematic subject in the vP, the *big DP1,* due to the intervention of the object copy. As before, these errors are corrected, thank to the second step of agreement checking occurring when the *big DP1* headed by *pro* moves to Spec AgrSP. Thus, object questions with null subjects or with NP-topicalization are the expression of the same strategy: agreement is checked for a second time through *pro* in order to remove the attraction errors generated during AGREE.

Even though adults performed better than children and produced more target questions, they too were more accurate in producing subject than object questions. The most parsimonious account of this asymmetry is that adults too experience the same problems that children do, but to a lesser extent and that the difference is quantitative. This is plausible given that various studies, included the one by Franck et al. discussed above, have shown that adults are prone to attraction errors in various contexts. Thus, adults sometimes failed to produce object questions, because of the interference of the object (copy) on the AGREE relation. Like children, adults too attempted to remove the problems caused by the interference of the object copy, but they did so through a different strategy

than those employed by children. They turned an object into a subject question through passivization as shown in (19).

(19) Chi è rincorso dai cavalli?
Who is chased by the horses?

Passive is a radical way of getting rid of the interference effect on the AGREE relation, under any theory of passive (Jaeggli, 1986; Baker et al., 1989), as the object becomes the subject. We conjecture that passivization was not used by our children, as it is known that young children (4-5 years) have troubles with passive (Borer & Wexler, 1992). We expect that older children, who have passed the period in which passive is problematic, will use passive in the production of object questions. Indirect confirmation for this conjecture comes from the production of object relative clauses in Italian, whose structure shares similarities with object WH-questions. Indeed, Belletti (2008) found that passivization is used by 6 year olds Italian speaking children when an object relative clause is targeted.

At first sight, our results stand in contrast with the wisdom from the literature showing that children have no particular problems in forming WH-questions. Guasti (1996) showed that 4-5 year old Italian speaking children did not experience any problem in the formation of subject and object WH-questions. Interestingly, in this last study, the object WH-questions elicited featured non-reversible verbs with the two arguments differing in terms of animacy and the object being introduced by *che cosa* (what), as in (20). In the hierarchical structure of the question in (20), reported in (21), the object copy intervenes on the AGREE relation between AgrS and the thematic subject, but apparently it does not disrupt the production of the target questions, as this kind of questions are routinely produced by children.

(20) Cosa compera il bambino?
What buys the child?
What does the child buy?

(21) [CP Cosa$_i$ [AgrSP compera [AgrOP <cosa>$_i$ [vP il bambino?]
What buys <what> the child

To explain this fact, we have to notice that, in a number of languages, agreement relations between the verb and its subject are modulated by animacy (e.g., in Georgian). Thus, it is plausible to assume that animacy is a grammatical feature specified on AgrS on a par with number and person. This implies that when looking for a goal with matching features in (28) AgrS first finds the object copy in Spec AgrOP. Although the object copy intervenes on the AGREE relation, it does not carry the animacy feature and thus it does not qualify as an eligible goal and does not count as a potential intervener. This means that an intervention effect arises when the intervener and the goal share the same animacy features.

In summary, we argued for an account of the subject/object asymmetry in the production of WH-questions that capitalizes on the role of agreement relationships. Object questions are more difficult to produce because in the hierarchical structure planned during production, the object copy interferes on

the AGREE relation between the probe, AgrS, and the goal, the subject in the thematic position and this interference may induce attraction errors that result in the production of subject rather than object questions or may block the production of object questions altogether. The interference effect is observed both in children and in adults, but to a different extent and is resolved in different ways.

6.2. Questions formation in other early languages

In this section, we shall evaluate our approach against the results found for other early languages. In Greek the order of words in subject and object questions is the same, as in Italian, as shown in (22) (Example from Stavrakaki, 2006).

(22) a. Pios kinigise ton elefanta? (Subject Who-question)
Who-nom-chased-3s-the-elephant-acc
Who chased the elephant?
b. Pion kinigise o elefantas? (Object Who-question)
Who-acc-chased-3s-the-elephant-nom
Who did the elephant chase?

Yet, Greek speaking children produce more correct object questions than Italian speaking children and at a younger age (4 years). We conjecture that these remarkable differences between Italian and Greek stem from the fact that in Greek the WH-expressions and the NPs are morphologically case marked, as the glosses above show. When looking for a goal, AgrS does not see the object copy as a possible candidate for the AGREE relation, when this has accusative case marked, as in Greek. Therefore, attraction errors are rare and, in our terms, errors in the production of object questions arise less frequently in Greek than in Italian.

We move now to languages in which both steps of the agreement process take place. In this case, the subject/object asymmetry should be evident for a shorter period than in languages in which only AGREE can occur and this seems to be the case. In the production of English *who*-questions, a subject/object asymmetry is found from 2 to 3 years, but not at age 4 (data from Yoshinaga). In English sentences, an independent principle requires the subject to occur in the preverbal position and this means that it can check agreement through Spec Head. This is so also in object questions. Therefore, the attraction errors, ensuing from the first step of the agreement process (AGREE), can be corrected during the second step. Given this scenario, we conjecture that in English and in Italian difficulties in forming object questions arise from the interference of the object copy during AGREE. Up to the age of 4, the interference is so disruptive that no additional Spec Head checking occurs and children transform almost all target object questions into subject questions. At age 3 and then 4, fewer attraction errors should occur during AGREE, as the child system develops and is less prone to interference; thus, both in Italian and English the rate of object questions should increase, just as a consequence of less interference during AGREE. In addition, in English, the additional Spec Head checking should become more effective and it should contribute to the removal of the attraction errors ensuing during AGREE. Thus, at the age of 3, we would expect an improvement both in Italian and in English, but this improvement should be more consistent in English than in Italian. We do not know what happens at 3

years in Italian, but certainly an improvement is observed in English. Finally, at the age of 4, a further improvement is observed in English and should be observed in Italian as well, but in this last case, we still expect problems, as solely AGREE can occur. And this is exactly what seems to happen. Thus, in English the effect of AGREE are removed more rapidly, as a consequence of the presence of an independent principle (subject in Spec AgrSP) that forces the second step of the agreement process to occur.

6.4. Avoidance strategies in languages

Our proposal capitalizes on the role of AGREE in formation of object wh-questions and on the exploitation of various avoidance strategies that get around the interference of the object copy originating during AGREE by performing the second step of the agreement process. Avoidance strategies are not uncommon in languages. In Maroccan Arabic a question like in (23a) is ambiguous between a subject and an object question (like Italian (3) above), but the first reading is by far preferred. To form object questions a cleft structure with a resumptive pronoun is used, as in (23b) (thank to Jamal Ouhalla for bringing my attention to these facts):

(23) a. shkun shaf Omar?
who saw Omar?
Who saw Omar? (subject reading the default reading)
Who did Omar see? (object reading possible, but much less accessible)
b. shkun (huwwa) lli shaf-u Omar?
who (is) that saw-him Omar
Who was it that Omar saw?

In our framework, the object reading in (23a) is highly dispreferred, because the object copy intervenes on AGREE relation and no Spec Head checking occurs, as in Maroccan Arabic the subject must stay in the postverbal position in questions. Under the assumption that the presence of a resumptive pronoun is a sign that no movement occurs, then *who* in (23b) does not come from the embedded clause, but is likely to be connected to the resumptive pronoun through a chain. No element intervenes on this chain and thus no interference effect is observed.[4] In (23b) the resumptive accusative pronoun intervenes between AgrS and the postverbal subject *Omar*, but being case marked it does not qualify as an intervener on the AGREE relation, as the object copy does not in Greek.

Another language in which an avoidance strategy is used to form object questions is Malagasy. In theory neutral terms, we can say that the grammatical function of the wh-extracted element is encoded in the morphology on the verb. The example in (24a) illustrates a question on the subject with the verb bearing

[4] In Maroccan Arabic object *which*-questions feature the presence of a resumptive pronoun, as in (i) (an option that is not available for *who*-questions, as in (ii)). The cleft cannot be used to express which-questions, a restriction present in Italian as well.
i) shmen rajl shaf-u Omar?
which man saw-him Omar
Which man did Omar see?
ii) *shkun shaf-u Omar
who saw-him Omar
Who did Omar see?

the actor morphology and on (24b) a question on the object with the verb displaying the Theme morphology.

(24) a. Iza no mamono ny akoho amin'ny antsy?
Who Foc AT.kill det chicken with-Det knife?
'Who is killing the chickens with the knife?'
b. Inona no vonoin' ny mpamboly amin'ny antsy?
What Foc TT.kill Det farmer with-Der knife?
'What is being killed by the farmer with the knife?'

On one analysis (e.g., Keenan, 1976; Paul, 2002) only subjects can be wh-extracted. To extract an object, as in (24b) first this must be promoted to the subject function through a sort of passive and then it can be wh-extracted. Thus, the TT morphology is the passive voice and the question is a passive question on the surface subject (but see Pearson, 2005 for an alternative analysis). Under this view, passivization is a radical way to avoid the interference of the object on the AGREE relation, similar to the one adopted by Italian speaking adults. While in Italian passivization is not obligatory in Malagasy it is, because an independent constraint requires only subject to be wh-extracted.

The facts reviewed here show that the behaviour of children in the formation of object questions is not unique and it is the manifestation of a broader phenomenon present in languages, especially those with a VS order (such as Maroccan Arabic and Malagasy). What these languages have in common is the use of strategies to enhance the AGREE relation, some way or another. This means that the source of what children do while they attempt to produce object questions has its root in the architecture of language; locality seems to be a key property of language and interference by some element on a local relation is disruptive. Different degrees of disruption can be observed across languages and in early systems going from the impossibility to form object questions to the possibility to do so through various strategies. This raises the question of why there are such different degrees. In this paper, a partial answer is offered through the behaviour of children acquiring different languages. Essentially, the idea is that there is some independent property in the language that is responsible for repairing the results of the interference on AGREE. In English and Hebrew such property is the requirement that subject be in Spec AgrS to force the occurrence of both steps of the agreement process, also in questions. Other languages may have other properties that may be more or less effective than the one operative in English and Hebrew and may, thus, determine different courses of acquisition.

7. Conclusions

In this study, we investigated the production of Italian wh-questions. While we found a subject/object asymmetry as in other studies, we were able to gather different kinds of information that have shed light on the crosslinguistic differences in the acquisition of wh-questions and on the differences between comprehension and production. Starting from this last point, our study shows that limiting the investigation to a single modality may offer an incomplete picture. While Italian speaking children are at chance in the comprehension of object questions at the age of 4-5, their production is far ahead. This asymmetry

is spurious. In production, children invoke different avoidance strategies that can simply not be invoked during comprehension, where only one structure was tested and where only one structure at a time can be tested.

Our study, as other similar ones, established that object questions elicit more errors; but it also showed that the shape of object questions is more varied than that of subject questions, although a common feature characterizes this variation: the attempt to have the subject in a preverbal position. We accounted for these facts by assuming a two steps theory of agreement: agreement results from AGREE and an optional Spec Head process. Based on this, we proposed that difficulties with the formation of object questions arise from an interference of the object copy on the AGREE relation between AgrS and the thematic subject in SpecvP. The avoidance strategies (questions with null subject or NP-topicalization) represent attempts to accomplish both steps of the agreement process: AGREE and Spec Head. Putting our approach in a crosslinguistic perspective, we have seen that in languages in which agreement results solely from AGREE the production of object questions is problematic for a longer period than in language in which also Spec Head must occur for independent reasons (modulo the presence of morphological case): Hence Italian-speaking children still display a subject/object asymmetry where such an asymmetry is overcome in English and Hebrew (at least for *who*-questions), where the additional Spec Head step must occur. This conclusion is in line with a generalization based on child language and on comparative data proposed by Guasti and Rizzi (2002) according to which morphological agreement is more stable when it is realized in a spec head configuration (SV) than when it results from a VS configuration (involving AGREE only).

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The syntax of conditional clauses

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This paper shows that the movement derivation of conditional clauses (Bhatt and Pancheva 2002, 2006, Arsenijević 2006, Lecarme 2008) allows us to account for the fact that Main Clause Phenomena are excluded in conditional clauses because this follows from intervention effects. Moreover, the cartographic implementation of the analysis proposed predicts the incompatibility of conditional clauses with the speaker oriented modal expressions as well as the fact that conditional clauses lack the low construal reading which is found in (some) temporal adverbial clauses (cf. Bhatt and Pancheva 2002, 2006). The paper thus reinterprets one of the potential objections against the movement account of conditional clauses into an argument in favour.

1. Introduction

By analogy with the proposals for the derivation of temporal clauses, some authors have proposed that conditional clauses be derived by leftward operator movement (Lycan 2001, Bhatt and Pancheva 2002, 2006, Arsenijević 2006). This paper provides supporting evidence for this analysis. On the one hand, the movement analysis of conditional clauses immediately accounts for the fact that Main Clause Phenomena are excluded in conditional clauses, whereas sentence initial circumstantial adjuncts are allowed. Moreover, the cartographic implementation of the analysis elaborated here also predicts that high modals (in the sense of Cinque 1999) are excluded in conditional clauses and that conditional clauses lack the low construal reading which is found in (some) temporal adverbial clauses. The latter point means that the paper removes one of the original obstacles for the movement account of conditional clauses.

The paper is organized as follows: Section 2 summarizes the arguments in favour of the hypothesis that temporal *when* clauses are derived by *wh*-movement of a temporal operator to the left periphery and argues that the adjunct-argument asymmetry with respect to fronting operations, discussed in Haegeman (2007, to appear a,b) offers further support for this analysis. Section 3 discusses the extension of the movement analysis to conditional clauses and discusses the lack of low construal readings, which has sometimes been taken as an argument against the movement derivation of conditional clauses. Section 4 discusses the absence of high modal expressions in conditional clauses, a phenomenon often noted in the literature, and

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shows how it can be made to follow from a particular implementation of the movement analysis of conditional clauses. It is also shown that this particular implementation accounts for the absence of low construal readings. Section 5 discusses comparative evidence with respect to the extent to which emphasis markers may or may not be present in conditional clauses. Section 6 is a brief summary.

2. Background: adverbial clauses as free relatives

2.1. Starting point: the movement derivation of temporal adverbial clauses

In the literature it has been proposed at various points (Geis 1970, 1975; Enç 1987: 655; Larson 1987, 1990; Dubinsky & Williams 1995; Declerck 1997; Demirdache & Uribe-Etxebarria 2004: 165-170, Lecarme 2008) that temporal adverbial clauses (1) are derived by *wh*-movement of a temporal operator (e.g. *when*) to the left periphery. One prime argument for this hypothesis is the observation that the *when*-clause in (1) is ambiguous between a high construal and a low construal of the temporal operator:

(1) I saw Mary in New York when [$_{IP}$ she claimed [$_{CP}$ that [$_{IP}$ she would leave]]]
  (i) high construal: at the time that she made that claim
  (ii) low construal: at the time of her presumed departure

Adopting the movement analysis, high and low construal can be represented as (2a) and (2b) respectively (Larson 1987, 1990). There are a number of different implementations, but these are not relevant for the present discussion.

(2) a. I saw Mary in New York [$_{CP}$ when$_i$ [$_{IP}$ she claimed [$_{CP}$ t_i that [$_{IP}$ she would leave]] t_i]]
  b. I saw Mary in New York [CP when$_i$ [IP she claimed [CP t_i that [IP she would leave t_i]]]]

As shown by Larson (1990: 170), going back to Geis (1970, 1975), the temporal operator *when* can be extracted from the complement clause of *claimed* in (1/2b), giving rise to the low construal reading. Extraction of the same operator from the complement of the N *claim* in (3), an island for extraction, will give rise to a violation of the Complex Noun Phrase Constraint (i.e. the ban on extraction from complex NPs) and hence lead to ungrammaticality (cf. Demirdache and Uribe-Etxebarria (2004: 165-176)). Thus the low construal reading is not available in (3).[6]

(3) I saw Mary in New York
  when [$_{IP}$ she made [$_{DP}$ the claim [$_{CP}$ that [$_{IP}$ she would leave]]]]
  (i) high construal: at the time that she made that claim
  (ii) low construal: *at the time of her presumed departure

2.2. Additional support for the movement analysis

In my own work (Haegeman 2007a, to appear a,b) I have offered additional syntactic evidence for the movement analysis of temporal adverbial clauses. Such an analysis,

[6] High/low construal is also available with *before, until,* (temporal) *since* (Larson 1990: 170). Low construal is unavailable with *while:*
(i) I didn't see Mary in New York while she said she was there. (Geis 1970, Stump 1985, Larson 1990: 174, (11a))
See also Citko (2000), Liptàk (2005), Stephens (2006). I refer to Haegeman (to appear) for discussion.

coupled with a theory of locality on movement, allows us to predict that adverbial clauses are incompatible with syntactic phenomena usually referred to as Main Clause Phenomena (MCP) in the literature. One instance of such MCP, which I have discussed in some detail, concerns argument fronting. English adverbial clauses are incompatible with argument fronting (cf. Maki et al 1999). The ungrammaticality of (4a) follows directly from the movement account: operator movement of *when* would be blocked by the fronted argument *this song*. [7]

(4) a. *When this song I heard, I remembered my first love.

Furthermore, I have shown that there is an argument/adjunct asymmetry with respect to the left periphery of temporal adverbial clauses: while argument fronting is ungrammatical in English temporal adverbial clauses (4a), circumstantial adjuncts may precede the subject:

(4) b. When last year she started to write this column, I thought she would be fine.

This contrast also follows from the movement analysis, because it is independently known that operator movement may cross a circumstantial adjunct while it may not cross an argument in the left periphery. (5) illustrates this contrast for relative clauses (see Browning 1996, Rizzi 1997 for discussion).

(5) a. These are the students who in the next semester will study these texts.
b. *These are the students who these texts will study in the next semester.
c. There was a time when at university level they did not teach these courses.
d.*There was a time when these courses they did not teach at university level.

While argument fronting is ungrammatical in temporal adverbial clauses in English, clitic left dislocation (CLLD) is not excluded in Romance. For instance in French (6) the CLLD constituent *cette chanson* ('this song') is found in the left periphery of the temporal clause. The French example (6) contrasts with English (4a):[8]

(6) Quand cette chanson je l'ai entendue, j'ai pensé à mon premier amour.
when this song I it have heard-FSG, I have thought of my first love
'When I heard this song, I thought of my first love.'

Once again under the movement analysis of temporal adverbial clauses the contrast between English topicalisation and French CLLD is not surprising, since CLLD is independently known to give rise to fewer intervention effects than English argument fronting. For instance, while English argument fronting is ungrammatical in an embedded interrogative *when* clause, CLLD is grammatical in the same environment in French:[9]

[7] For comparative data see Abels and Muriungi (2008).
[8] Not all French speakers accept this example.
[9] Observe that CLLD does block subject extraction in French. I will not dwell on this point here, which is tangential to the discussion. See Rizzi (1997) and Delfitto (2002) for discussion.

(7) a. *I wonder when this song I heard before.
b. Je me demande quand cette chanson je l'ai entendue.[10] (French)
I myself ask when this song I it have heard-FSG
'I wonder when I heard this song before.'

These data also show that adverbial clauses must allow at least some left peripheral projections. In addition it has been observed that in French stylistic inversion is allowed in temporal clauses, at least for some speakers. If, as argued by Kayne and Pollock (2001), stylistic inversion involves an important chunk of the left periphery, these data too demonstrate that the left periphery is available in temporal clauses.

(7) c. %Je voulais partir quand sont arrivés les enfants.
I want-PAST-1SG leave when be-3PL arrive-PART-PL the children
'I wanted to leave when the children arrived.' (Lahousse 2003 : 280, (1))

Hence, accounting for the lack of argument fronting in temporal clauses by claiming that the left periphery in general or the topic projection in particular is not available will not be an option.

As mentioned, so-called Main Clause Phenomena in general (Hooper & Thompson 1973, Green 1976, 1996, Emonds 1976, 2004) are barred from temporal adverbial clauses: (8a) illustrates Locative Inversion (for recent discussion see among others, Culicover & Levine 2003 , Rizzi & Shlonsky 2006 and reference cited there), (8b) illustrates preposing around *be* (Hooper & Thompson 1973: 467; Emonds 1976), (8c) illustrates VP preposing (Hooper & Thompson 1973:466; Emonds 2004: 78).

(8) a. *We were all much happier when upstairs lived the Browns.
(Hooper & Thompson 1973: 496 (their (253))
b. *When present at the meeting were the company directors, nothing of substance was ever said.
c. * When passed these exams you have, you'll get the degree.

As the MCP illustrated in (8) are usually also taken to implicate movement to the left periphery, their incompatibility with adverbial clauses follows from the movement account: the movement required to derive the MCP in (8) will interfere with the operator movement which derives the temporal clause. I will not pursue the discussion of the intervention effects in temporal adverbial clauses in this paper and refer to my own work (Haegeman 2007a, to appear a/b).

3. Conditional clauses as free relatives (Bhatt & Pancheva 2002, 2006, Arsenijević 2006, Lecarme 2008, Tomaszewicz to appear)

3.1. Conditional clauses are derived by movement

The argument/adjunct asymmetry observed in relation to fronting operations in temporal adverbial clauses is also found in conditional *if* clauses, as shown in (9):

[10] Not all speakers accept this example. Thanks to Amélie Rocquet for judgement.

(9) a. *If these exams you don't pass, you won't get the degree.
b. If on Monday the share price is still at the current level then clearly their defence doesn't hold much water. (*Observer*, 11.7.4, Business, p. 22 col 5)

In addition to argument fronting (9a), the other MCP illustrated in (8) above are also illicit in conditional clauses: (10a) illustrates Locative Inversion, (10b) illustrates preposing around *be*, (10c) illustrates VP- preposing.

(10) a. *If upstairs live his parents things will be much simpler.
b. *If present at the party are under age children, they won't be able to show the X-rated films.
c. *If passed these exams you had, you would have had the degree.

If, like temporal adverbial clauses, conditional clauses are derived by operator movement, then the adjunct/argument asymmetry in (9) and the fact that MCP are ungrammatical (10) follows. A movement analysis of conditional clauses has been proposed by Bhatt and Pancheva (2002, 2006), Arsenijevic (2006), Lecarme (2008) and Tomaszewicz (to appear).[11]

Bhatt and Pancheva (2002, 2006) argue for the derivation of conditional clauses in terms of movement of a World operator to SpecCP. They say: 'Our proposal that [conditional clauses] are interpreted as free relatives amounts to the claim that they are definite descriptions of possible worlds.'(Bhatt & Pancheva 2006: 655). (11a) would be derived by the leftward movement of a World operator, as shown in representation (11b):

(11) a. If John arrives late
b. [$_{CP}$ OP$_{w}$ C° [John arrives late in w]]

As was the case with temporal clauses, the intervention effects illustrated in (9) and in (10) thus offer empirical support for Bhatt & Pancheva's proposal.

The movement analysis of conditional clauses finds cross-linguistic support. I provide some illustrations here. For Italian conditional clauses, Cardinaletti (2008) contrasts the distribution of 'resumptive preposing', a leftward movement without clitic resumption whose syntactic properties Cardinaletti shows are similar to English topicalisation, and CLLD. Resumptive preposing is not, and CLLD is, compatible with conditional clauses:

(12) a. *Se <u>la stessa proposta</u> fa anche l'altro candidato, non otterrai quel posto
If the same proposal makes also the other candidate, *non* obtain-FUT-2SG that position (Cardinaletti 2008: (19a))
b. Se <u>la stessa proposta</u> la fa anche l'altro candidato, non otterrai quel posto
If the same proposal it makes also the other candidate, *non* obtain-FUT-2SG that position (Cardinaletti 2008: (22a))

Following the movement account elaborated here, the ungrammaticality of (12a) can be ascribed to an intervention effect. On the other hand, (12b) remains grammatical because in general CLLD does not lead to the same type of intervention effects (cf. Haegeman 2008).

[11] For discussion of the semantics see also von Fintel and Iatridou (2002, 2003).

Similarly, in his discussion of Italian conditional clauses, Bocci (2007: 15, his (32)) provides the following contrast: while CLLD is possible (as we have seen), focalization is degraded.

(13) a. Se l'esame scritto non lo supera, non otterrà il diploma.
If the written exam [s/he] does not it-pass, [s/he] will not get the diploma.
. b. ??Se LA PROVA ORALE non supera, non otterrà il diploma!
If THE ORAL EXAM [s/he] does not pass, [s/he] will not get the diploma!

Once again, adopting a movement account of conditional clauses, the ungrammaticality of (13b) follows from an intervention effect.[12]

3.2. Additional support
3.2.1. Temporal adverbial clauses and conditional clauses
The movement analysis proposed here aligns conditional clauses with temporal adverbial clauses. Anecdotal support for this comes from the observation that in many languages the prototypical 'conjunction' to introduce a temporal adverbial clause is isomorphic with that which introduces a conditional. This is the case, for instance, in German: Bhatt and Pancheva (2006) give (14), their (7a). The conjunction *wenn* introduces both conditional (14a) and temporal (14b) clauses:

(14) a. Wenn Steffi gewinnt, wird gefeiert. (German)
if Steffi wins AUX- PASSIVE celebrate-PART
'If Steffi wins, there is a celebration.'
b. Wenn Steffi kommt, fangen wir an zu spielen. [13]
'when Steffi arrive-3SG, begin-1PL we to play
'When Steffi arrives, we begin to play.'

Bhatt and Pancheva (2006: 657) comment: 'There seems to be no evidence suggesting that the syntactic behavior of *wenn* is different in conditional and in temporal clauses, i.e., it does undergo A′-movement in both cases. (Bhatt & Pancheva 2006: 657).

In West Flemish (WF) too, the conjunction *oa* serves to introduce both a temporal clause and a conditional clause:

(14) c. Kgoan kommen oa-j doa zyt.
I go-1SG come if-you there be-2SG
'I'll come if/when you are there'.

[12] Observe that conditional clauses may be a testing ground for syntactic analyses. For instance, in Italian, prepositional complements of verbs in the left periphery may appear with (ia) or without (ib) an IP-internal resumptive clitic:
(i) a. Col capo non ci parla. (Garzonio 2008 : 7)
With-the boss not clitic speak
'He doesn't speak with the boss.'
b. Col capo non parla.
Garzonio (2008) shows that in conditional clauses, when prepositional complements are dislocated only the variant with the clitic is available.
(ii) ?Se, col capo, non *(ci) parli, non puoi capire il problema.
If with-the boss not *(clitic) speak-2sg, not can-2sg understand the problem.
'If you don't talk to the boss, you cannot understand the problem.'
Garzonio concludes that the clitic-less construction is analogous to English argument fronting.
[13] Thanks to Amelie Roquet for help with the German examples.

In line with Bhatt and Pancheva (2002, 2006), Lecarme (2008) also assumes that conditionals are 'modalized free relatives' (2008: 210).

3.2.2. Yes no questions and conditionals

Further support for postulating an operator in the left periphery of conditional clauses may be derived from their formal parallelism with *yes/no* questions. Consider the data in (15):

(15) a. I asked him if he had said that he would leave.
b. If he had said that he would leave…
c. Had he said that he would leave?
d. Had he said that he would leave….

Embedded *yes/no* questions are introduced by the conjunction *if*; the same conjunction is used for conditionals (15a,b). As shown by (15c,d) above, I-to-C movement which typically derives root *yes no* questions may be used to derive a conditional clause (see Bhatt & Pancheva 2006: 657-661 for discussion). It may be postulated that in cases of inversion, I-to-C movement is triggered by a checking relation between a head feature of I and the operator in the left periphery. In the case of *yes/no* questions and of conditional clauses, the relevant operator would have to be non overt.

Support for postulating a non-overt interrogative operator in the left periphery is to be found in the Germanic Verb Second (V2) languages. The Dutch analogue of (15c), (16a), shows that in V2 languages, direct *yes/no* questions constitute an apparent exception to the V2 constraint in that here the fronted verb seems to be the first constituent. On the assumption that *yes/no* questions contain an abstract operator in their left periphery (16b), the V2 constraint can be fully maintained: the null operator occupies the initial position and the finite verb is in second position. If we also assume that the relevant operator originates in a lower position, then *yes/no* questions can be derived by operator movement.[14] Recent authors who postulate there is a null operator in the left periphery of *yes no* questions include Barbiers (2007: 102-103 for arguments from Dutch), and Den Dikken (2006: 729).[15] If root *yes/no* questions, which display SAI, are derived by the movement of a null operator to their left periphery, the formally identical conditional clause in (16c) could by analogy also be said to contain an operator in its left periphery which is, by assumption, moved from a lower position:

(16) a. Had hij gezegd dat hij zou vertrekken?
had he said that he would leave
b. [$_{CP}$ OP [$_{Vfin}$ had] [$_{TP}$ Subject … top]]
c. Had hij gezegd dat hij zou vertrekken, ik zou teruggebeld hebben.
had he said that he would leave, I would back-called have
'Had he told me he was leaving, I would have called him back.'

If direct *yes/no* questions are derived by the movement of an abstract operator to their left periphery, the relevant operator may be taken to also be present in indirect *yes/no* questions and the movement analysis can be extended to the derivation of

[14] See however Rizzi (2001) for a different account for embedded *yes/no* questions in Italian.
[15] But see Roberts and Roussou (2002:41) for a different viewpoint.

indirect *yes/no* questions. Once again, the same derivation could be appealed to for the conditional analogue introduced by *if* (17).[16]

(17) a. I wonder if he said he would leave .
b. [$_{CP}$ Op if [he said he would leave t_{op}]][17]

A movement account for the derivation of *yes/no* questions accounts for the fact that English argument fronting is excluded from embedded *yes/no* questions.

(18) a. *Bill asked if such books John only reads at home.
(Schachter 1992: 108 (16a))
b. ??/*John knows whether this book Mary read.
(Maki et al 1999: 9, note 8, their (i))[18]

Based on the parallelisms observed between *yes/no* questions and conditional clauses; Arsenijevic (2006) analyses conditionals as the relative variant of *yes/no* questions.

3.3. Absence of low construal

Recall that the initial motivation for the movement account of temporal adverbial clauses was the availability of low construal readings in (2a). This argument, however, does not transpose to conditional clauses. Bhatt and Pancheva observe that, unlike temporal clauses, conditional clauses do not allow the low construal found with temporal adverbial clauses (see also Geis 1985, Bhatt & Pancheva 2002, 2006):

(18) a. I will leave if you say you will. high/*low
b. Had he said he would leave, I would have left. high/*low
(cf. Bhatt & Pancheva 2002: 13, a-b based on their (50a,c), (51e), 2006: 655- 6: based on their (47a,c, their (48b))

WF *oa* allows for both a temporal ('when') and a conditional ('if') reading (19). In (19) the adverbial clause may have a temporal reading ('when') or a conditional reading ('if'). In the former reading both high and low construal are available, but in the conditional reading only high construal is available. Similar facts hold for other languages, e.g. German *wenn* discussed in Bhatt & Pancheva (2002, 2006), and Polish *jak* (discussed in Citko (2000)).

(19) Ge moet kommen oan-k jen zeggen da-j moe kommen.
you must come when-I you say that-you must come
'You must come when/if I tell you to.'

The absence of low construal in conditionals as opposed to its availability in temporal clauses has indeed been taken by some as direct evidence that conditional clauses are not derived by movement.

[16] I assume that *if* is merged in C.
[17] For the movement analysis, cf. among others Larson (1985), Den Dikken (2006: 729), with evidence from the distribution of *either* in indirect question introduced by *whether* and *if*.
[18] The data are more complex. Maki et al (1999: 9, note 8), point out that (39b) is 'marginal in American English and almost grammatical in British English.' The (British) speakers I consulted considered it ungrammatical.

> *As has been noted by Geis (1970) and Larson (1987), the unavailability of long distance construals is what distinguishes if clauses in English from when clauses. This difference is standardly attributed to the possibility to move the wh-pronoun when long-distance, which correlates with the long distance construal. In the case of if clauses, on the other hand, the option of long-distance movement does not exist, since if, being a complementizer, is base generated in C°. (Citko 2000:6)*

That conditionals are not derived by operator movement is, however, not the conclusion drawn by Bhatt & Pancheva (2002, 2006), who, in spite of the fact that conditional clauses resist low construal, adopt a movement account. To account for the absence of low construal, Bhatt & Pancheva (2002, 2006) propose that the moved World operator must locally bind its variable.[19]

Recall that Arsenijević (2006) treats conditional clauses on a par with *yes/no* questions. This parallelism is confirmed with respect to the locality of the operator movement: like conditionals, yes/no questions do not allow for a low construal reading of the operator.[20] In the embedded *yes/no* interrogative in (20), the question bears on the polarity of the proposition introduced by *if* ('he said') and not on the proposition embedded under *said* ('he would leave'). See also section 4.3.3.

(20) I wonder if he said he would leave.

4. Modal expressions and conditional clauses

4.1. Restrictions on modal expressions in conditional clauses

It has often been observed in the literature that certain 'high' modal expressions are incompatible with conditional clauses. Typically, expressions of speech act modality (21a), evaluative modality (21b,c,), evidential modality (21d) and epistemic modality (21e,f) lead to ungrammaticality when they appear in conditional clauses.

(21) a. ??*If frankly he's unable to cope, we'll have to replace him.
b. * If they luckily /fortunately arrived on time, we will be saved.
(Ernst 2007: 1027, Nilsen 2004).
c. *If the students apparently can't follow the discussion in the third chapter, we'll do the second chapter.
d. *If George probably comes, the party will be a disaster.
e. *John will do it if he may/must have time.
(Declerck & Depraetere 1995: 278, Heinämäkki 1978: 22, Palmer 1990: 121, 182)

The data are complex and I refer to Ernst (2008) for subtle discussion of complicating factors, but as a general trend it seems clear that such expressions of modality are not easily compatible with conditional clauses. The restriction on modals in conditional clauses is not English specific. For example, Lahousse (2008: 22) and Ernst (2008:10)

[19] Low construal is available with conditionals formed by relativization:
(i) I will leave in any circumstance in which you say you'll leave. high/low
(Bhatt & Pancheva 2002: 13, a-c their (50), d,e: their (51); 2006: 655-6: their (47))
I assume that such conditionals are genuine relative clauses.

[20] In a different context, this point was also made in Ingham (2008).

discuss the same constraints in French; Ernst (2008: 10) also illustrates the constraint for Dutch and Chinese; Tomascewiz (to appear) shows the same restrictions in Polish.

If we assume with Cinque (1999) that the high modal expressions illustrated above are IP-internal, then it is at first sight not clear how their unavailability in conditionals can follow from some particular constraint on the left periphery of conditionals. However, in terms of their interpretation the relevant modal markers are all associated with the speaker's point of view and modify the assertive force. If MCP can be argued to depend on speaker assertion, the absence of the modal markers, which all implicate the point of view of the speaker (cf. Tenny 2000: 29), might be seen as another instantiation of the absence of MCP in conditional clauses (cf. Heycock 2006: 188).

The absence of modal markers seems to correlate with the absence of argument fronting (and of MCP in general). There have been explicit proposals to relate the two phenomena (Krifka 2001): the quotation below is from Bayer (2001). For discussion of the correlation between modal markers and topicalisation see also Whitman (1989) and Hrafnbjargarson (2008).

> *... this form of [*emphatic*, lh] topicalisation is the grammar's reflex of the speech act to be performed*_and is as such on a par with German constructions involving modal particles like *aber, denn, doch, ja* etc. Modal particles supply features which interact with other features such as [WH] yielding a wide range of illocutionary forces. Bayer, 2001: 14-15)
> . *...if emphatic topicalisation belongs to the class of grammatical means of force projection in the sense of Rizzi (1997), its root clause property* and strict left peripherality [in Bavarian] are not surprising.' (Bayer, 2001: 14-15, italics mine)

In Haegeman (2006a,b,c) I relate the distribution of modal markers and that of MCP in English by arguing that both depend on the availability of assertion, and I formalize this by postulating an independent projection ForceP in the left periphery. Below I will explore two alternative accounts that derive the absence of high modal markers in conditional clauses from the movement account of conditional clauses. The first proposal, elaborated in Haegeman (to appear c), fits in with proposals in Haegeman (2006b,c) and relates the availability of the high modal markers directly to the syntactic encoding of illocutionary force . The second account explores a proposal put forward in Haegeman (2007a) and adopts Cinque's approach to the adverbial hierarchy.

4.2. ForceP and the licensing of high modals

Formalizing an intuition going back to Hooper and Thompson (1973), Haegeman (2006b,c) proposes that assertion is syntactically encoded in a specialized projection to encode illocutionary Force, here labeled ForceP. In the literature, there is a convergence that speech act is encoded by a functional projection high in the left periphery (cf. Ernst (2002: 70ff); Speas and Tenny (2003); Meinunger (2004), Hill (2007a,b); Abraham (2008)) and many others) as in (22a). Adopting the split CP hypothesis (Rizzi 1997) and following Bhatt &Yoon (1992), Rizzi (1997: note 6), and others, Haegeman (2006b,c) makes a distinction between the functional head 'Force' and the head hosting the subordinating conjunction, labelled 'Sub'. (cf. Haegeman

2002, 2003a).[21] In assertive declarative clauses Force hosts an abstract Assertion operator.

(22) a. [$_{SubP}$ [$_{ForceP}$ OP [$_{FinP}$ [$_{TP}$ Sheila has left the office]]]]

Not all 'declarative' clauses are assertive. Temporal adverbial clauses and, crucially for our purposes, conditional clauses are a case in point: while they might be argued to be 'declarative', crucially they are not assertions. Haegeman (2006b,c) proposes that the left periphery of such adverbial clauses is impoverished and lacks the Assertion operator: either because the projection ForceP is absent, or, alternatively, because ForceP is projected but lacks the Assertion operator in its specifier.

The absence of the Assertion operator in conditional clauses was stipulated in the earlier account and seen as a direct correlation of the fact that such clauses are not interpreted as assertions. In the present account the unavailability of the Assertion operator follows from the intervention effect. In order to derive the conditional clause, i.e. a free relative, I propose that a TP-internal operator moves to the left periphery (say to the specifier of Sub[22]). But if the assertion operator occupies SpecForceP then on its way to the left periphery the 'conditional' operator would have to cross the Assertion operator (OP). By intervention, the Force operator blocks the movement of the conditional operator. This is schematically represented in (22b), where the asterisk should be related to the representation.

(22) b. *John will leave [$_{SubP}$ OP$_{COND}$ if [$_{ForceP}$ OP$_{ASS}$ [$_{FinP}$ [$_{TP}$ Sheila leaves the office ~~OP~~]]]]

In Haegeman (2006b,c, to appear b) I propose that high modals are licensed by the assertion operator for their licensing. Hence, if the Assertion operator in ForceP is unavailable in conditional clauses as an effect of the movement of the conditional operator, it will follow that the high modals will not be licensed. The account in Haegeman (2006b,c) also postulated that argument fronting in English depended on the availability of the operator in ForceP. In that account, the movement account of adverbial clauses had not yet been adopted. As discussed above, assuming the movement account of adverbial clauses we derive the absence of argument fronting without recourse to the Assertion operator.

The analysis developed in this section hinges on the assumption that illocutionary force is encoded in a specific projection in the left periphery and that high modals are directly licensed by the Assertion operator associated with this projection. In the next section, I propose an alternative which derives the absence of high modals directly from the adverbial hierarchy postulated in Cinque (1999). [23]

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[21] For similar proposals see also Roussou (2000), Bentzen *et al* (2007a,b, 2008), Hernanz (2007a,b), and Julien (2008).

[22] Benincà (2001) shows that the *wh*-constituent of free relatives moves as high as that of headed relatives.

[23] A prediction of this account is that in structures lacking a left periphery, high modals should not be available. A potential problem is that epistemic modals remain available in diary style null subject sentences as those illustrated in (i) for which it has been proposed that they are truncated structures (TP/SubjP) (cf. Haegeman 1997, 2007b).

(i) Must be hot in Panama.
Must be somebody waiting for you. (Quirk et al 1985: 896-7)

Obviously the conclusions drawn from such data depend on the analysis adopted.

4.3. Intervention and the licensing of high modals

4.3.1. Cinque's Specifier approach to adverbials

Cinque (1999) proposes that adverbials be merged as specifiers of hierarchically organised specialized functional projections which constitute the backbone of the clausal structure and that the heads of the relevant modal projections also host modal auxiliaries. The layered structure represented in (23) is located in the TP domain (see Cinque 199: 84)

(23) $MoodP_{speech\ act}$>$MoodP_{evaluative}$>$MoodP_{evidential}$> $ModP_{epistemic}$ >TP (Past) > TP(Future) > $MoodP_{irrealis}$ > $ModP_{alethic}$ > $AspP_{habitual}$ > $AspP_{repetitive}$ > $AspP_{frequentative}$ > $ModP_{volitional}$ > $AspP_{celerative}$ > TP (Anterior) > $AspP_{terminative}$ >$AspP_{continuative}$ >$AspP_{retrospective}$ > $AspP_{proximative}$ >$AspP_{durative}$ >$AspP_{generic/progressive}$ > $AspP_{prospective}$ > $ModP_{obligation}$ > $ModP_{permission/ability}$ > $AspP_{completive}$ >VoiceP > $AspP_{celerative}$ >$AspP_{repetitive}$ >$AspP_{frequentative}$ (Cinque 2004: 133, his (3))

Based on data from Koster (1978), Cinque (1999) shows that adverbials obey rigid ordering constraints. As shown by Koster, the evaluative adverbial *helaas* ('unfortunately') precedes the epistemic adverbial *waarschijnlijk* ('probably') (24a). The alternative order (24b) is ungrammatical.

(24) a. Hij is helaas waarschijnlijk ziek. (Koster 1978: 205-209)
$MoodP_{evaluative}$>…> $ModP_{epistemic}$
he is unfortunately probably ill
b. *Hij is waarschijnlijk helaas ziek.
*$ModP_{epistemic}$ >$MoodP_{evaluative}$

Movement of an adverb lower in the hierarchy across an adverb higher in the hierarchy disturbs the rigid ordering constraints and leads to ungrammaticality. This is illustrated in (24c,d). In Dutch a root V2 clause may have a modal adverb as its first constituent. Let us assume that this order is derived by movement of the adverb to the left periphery. When more than one such high adverb is available, the highest adverb moves to first position. A lower adverb cannot cross a higher adverb to become the first constituent. Thus (24c) is grammatical: here the leftmost adverb *helaas* ('unfortunately') has been fronted. (24d) is ungrammatical : it would have to be derived by moving *waarschijnlijk* ('probably') across the leftmost evaluative adverb *helaas*, leading to an intervention effect. Thus in this account, the ungrammaticality of (24c) and (24d) is derived syntactically and follows from an intervention effect on the movement of the adverbial. For the locality restrictions on such adverbials see also Rizzi (2004).

(24) c. Helaas is hij waarschijnlijk ziek. .
$MoodP_{evaluative}$>…> $ModP_{epistemic}$
d. *Waarschijnlijk is hij helaas ziek.
*$ModP_{epistemic}$ >…$MoodP_{evaluative}$

4.3.2. Absence of high modals in conditional clauses

In his discussion of the ban on high modals in conditional clauses, Ernst (2008) says that the 'F –Spec account [such as Cinque's account outlined above, lh] has nothing to say about why SpOAs [Speaker oriented adverbs, lh] are usually bad in …the antecedents of conditionals.' (Ernst 2008: 7). He continues: 'Such facts may be treated

as a purely semantic matter (…) but for the F-Spec approach a semantic explanation must be an add-on to the basic syntactic account' (Ernst 2008: 7). In what follows I will show that Ernst's conclusion is not inevitable and that the F-spec hypothesis coupled with a movement account for conditional clauses can handle the observed patterns. In order to do this, I first reinterpret the analysis of conditional clauses as free relatives (Bhatt & Pancheva's (2002, 2006), Arsenijevic 2006, Lecarme 2008: 210, Tomaczewic to appear) in terms of Cinque's articulated structures of TP. Concretely let us assume that Bhatt and Pancheva's (2002, 2006) World operator which moves to the left periphery to derive a conditional clause originates in the Cinque's MoodP (irrealis) (Haegeman (2007a) is a first proposal along these lines and see also Tomaszewicz (to appear) for an application to Polish). Informally speaking, Irrealis mood is used 'when the speaker doesn't know if the proposition is true' (Cinque 1999: 88); it signals that the event is not realised, i.e. is not true in the actual world of the discourse (cf Tomaszewicz (to appear), Willmot (2007) and Lahousse (2008:23) on the relevance of the realis/irrealis mood for conditionals).

Since it originates in SpecMoodP$_{\text{IRREALIS}}$, the moved Irrealis operator belongs to the class of high modal markers in Cinque's approach, and crucially, it shares features with these high modal markers. If we assume an approach to intervention according to which a constituent with the feature α blocks extraction of a constituent with the same feature in its c-command domain (for discussion in terms of cartographic approaches see, among others Rizzi 2004, Friedmann, Belletti and Rizzi 2009), this implementation of the movement approach to conditional clauses leads to the prediction that conditional clauses will be incompatible with modal expressions which are located higher than Mood$_{\text{IRREALIS}}$, i.e. that conditionals are incompatible with expression of speech act mood, evaluative mood, evidential mood and epistemic modality. This is so because in the same way that intervention rules out the reordering of the high modal expressions (24c,d), movement of the Mood$_{\text{Irrealis}}$ operator across the higher adverbs leads to intervention effects. (25) is a schematic representation. The role of modals as interveners on operator movement is also signalled in Agouraki (1999: 30). I refer to her paper for discussion.

(25) [[MoodP$_{\text{speech act}}$ > MoodP$_{\text{evaluative}}$ > MoodP$_{\text{evidential}}$ > ModP $_{\text{epistemic}}$
* >TP (Past) > TP (Future) >MoodP$_{\text{irrealis}}$

Observe that this account remains compatible with the fact that circumstantial adjuncts can be fronted in conditional clauses (9b). Circumstantial adjuncts should be set apart from the adverbs associated with Cinque's hierarchy:

> *If AdvPs proper occupy the specifier position of distinct functional projections above the VP…it seems natural <u>not</u> to assume the same for circumstantial phrases. This is particularly natural if the rigid ordering of AdvPs is a consequence of the rigid ordering of the respective functional heads. (Cinque 1999: 29, also: pp. 15-16 and 28-30).)*

As shown by Dutch (26a), the circumstantial adjunct *vandaag* ('today') has no fixed position vis-à-vis the high modal adverbs and may be interspersed among them. As shown by (26b) *vandaag* also does not block the movement of a high adverb to the left periphery:

(26) a. Hij is (vandaag) helaas (vandaag) waarschijnlijk (vandaag) ziek.
He is (today) unfortunately (today) probably (today) sick
b. Waarschijnlijk/Helaas is hij vandaag ziek.
Probably/unfortunately is he today sick

Clearly, in terms of the account proposed here circumstantial adjuncts of the type *vandaag* ('today') must belong to a different class (in terms of Rizzi 2004) than the modal expressions (adverbs as well as auxiliaries) and are hence featurally distinct. If the two types of adjuncts are featurally distinct, then circumstantial adjuncts should not give rise to intervention effects with respect to the modal expressions.

Though it is of independent interest, I will not explore the contrast between modal adverbs and temporal adjuncts any further in this paper, but note that, for instance, the former cannot be clefted (27a), while the latter can (27b,c):

(27) a. *It is probably/obviously/fortunately/frankly that he left.
b. It was yesterday/only recently that he left.
c. It was initially that I was rather against the idea
(Davies 1967: 5, (1a)8)

Furthermore, modal adjuncts cannot undergo *wh*-movement, while temporal adjuncts can (cf. Cinque (1999: 17)). While the epistemic adjective *probable* can be the basis of a *wh*-interrogative (28a), its adverbial parallel *probably* cannot be questioned (28b). Similarly, the adjective *fortunate* can be the basis of a *wh*-exclamative, while the adverbial *fortunately* cannot (28c,d). The restriction on *wh*-movement of these adverbials itself remains subject to future research. One option is to assume that high adverbs are operators merged in their scope position and that they cannot undergo further movement. In contrast, circumstantial adjuncts have been argued to have a predicative relationship with the constituent which they modify (see Hinterhölzl (to appear) for a precise implementation).

(28) a. How probable/likely is it that he will be there?
b. *How probably/likely will he be there?
c. How unfortunate that he will not be there!
d. *How unfortunately he will not be there.
e. How recently did he tell you that?

Another contrast is that in general the high modal adverbs cannot undergo long movement (see Cinque 1999: 18 for discussion). In (29) the fronted adverbs must be construed with the matrix clause ('he thinks') and cannot have low construal.

(29) a. Frankly, I do not understand that he wants to leave.
b. Probably/obviously/fortunately, he thinks that Mary will come.

Circumstantial adjuncts, in contrast, do undergo long movement (cf. Haegeman (2003b), for an early discussion of long moved adjuncts see Postal and Ross 1971, Cinque 1990: 93-95, Bouma, Malouf and Sag 2001, Hukari and Levine 1995):

(30) By tomorrow I think the situation will be clear.

There are a number of proposals in the literature to differentiate circumstantial modifiers from modal adverbials. For instance Alexiadou (1997) proposes that circumstantial adjuncts are complements to V, Laenzlinger (1996: 107) distinguishes quantifier adverbs such as the high modal adverbs from qualifier adverbs like circumstantial adjuncts on the basis of French data, Cinque (1999: 29) discusses some options to make the distinction, see also Cinque (2004) and Hinterhölzl (to appear) for discussion of the syntax of prepositional circumstantial adjuncts.

4.3.3. Conditionals lack low construal

Recall that unlike temporal adverbial clauses, conditional clauses do not allow low construal readings (Bhatt & Pancheva 2002, 2006: 655, Geis 1970). Bhatt and Pancheva (2002, 2006) attribute this to a restriction on the specific properties of the World variable which, in their approach, must be locally bound. Put differently, unlike the temporal operator in adverbial clauses, the conditional operator moves locally. Bhatt and Pancheva's requirement that the variable bound by the conditional operator must be locally bound can now be made to follow from the implementation of the movement account proposed above. We assume that Bhatt and Pancheva's World operator (my Irrealis operator) originates in the specifier of $\text{Mood}_{\text{IRREALIS.}}$ and that the operator shares relevant features with the high modal expressions in the Cinque hierarchy. In other words the $\text{Operator}_{\text{IRREALIS}}$ belongs to the same class as the 'high' expressions of modality in the Cinque hierarchy (23). Since the high modal (speech act, evidential, evaluative, epistemic) operators are seen not to undergo long movement (29), we can speculate that whatever property excludes the relevant long movement[24] also excludes high movement of the $\text{Operator}_{\text{IRREALIS}}$ that derives conditional clauses. [25]

4.4. Yes/ no questions

Recall that in line with Bhatt and Pancheva (2002, 2006) and Arsenijević (2006), this paper postulates there is a parallelism between the derivation of conditional clauses and that of *yes/no* questions, which I assumed would also be derived by the leftward movement of an operator. If the operator involved in deriving *yes/no* questions also originates in the specifier of the $\text{Mood}_{\text{IRREALIS}}$ projection, we correctly predict the observation (McDowell (1987), Barbiers (2006)) that that *yes/no* questions are incompatible with the high modal markers.

(31) a. *Must he have a lot of money?
b. *Will he probably win the race?

[24] It could be that the adverbials, being non-referential and unable to combine with a referential feature, are incompatible with the topic or focus feature that can drive long movement. This needs to be looked at in future research.

[25] Bhatt and Pancheva observe that low construal is available with conditionals formed by relativization:

(i) I will leave in any circumstance in which you say you'll leave. high/low
(Bhatt & Pancheva 2002: 13, a-c their (50), d,e: their (51); 2006: 655-6: their (47))

I will assume that in such cases the *wh*-operator (*in which*) originates as a circumstantial adjunct and hence will have share properties with circumstantial adjuncts. One such property is that circumstantial adjuncts can undergo long movement:

(ii) Under these circumstances I don't think he will agree to your proposal.

5. Emphatic polarity as an MCP

The movement account of conditional clauses has further explanatory potential. A number of recent papers have highlighted that emphatic affirmation/denial may be associated with a specific structure in the left periphery. I illustrate some such patterns below. The patterns discussed here have been argued by the relevant authors to implicate an operator in the specifier of FocP in the left periphery. A movement account of conditional clauses predicts correctly that such expressions of emphatic affirmation are excluded from the conditional clauses: the focus operator which is required for the expression of emphatic affirmation/denial will interfere with the movement of the Irrealis operator for the conditional clause.

5.1. Emphatic polarity bien/si in the Spanish left periphery (Hernanz 2007a,b)

Hernanz (2007a,b) discusses the expression of emphatic affirmation by means of *bien* in Spanish. She proposes that when expressing emphatic affirmation *bien* is a *wh*-operator which is merged in SpecPolP and moves to specFocP. Hernanz (2007b: 131-139). (32a) has the representation in (32b):

(32) a. Pepito bien ha comido pasta. (Hernanz 2007b : 135 (68))
Pepito *bien* has eaten pasta
b. $[_{ForceP}\ [_{TopicP}$ Pepito$_j$ $[_{FocusP}$ *bien* $[_{PolP}$ t_i $[_{IP}$ e_j…]]]]]

If conditional clauses are derived by leftward movement of an Irrealis operator we correctly predict their incompatibility with emphatic *bien:* indeed, the very presence of the operator in SpecFocP should suffice to rule out the sentence.

(32) c. Si Pepe (*bien) acaba a tiempo su tesis, ya te lo haré saber.[26]
If Pepe (*well) finishes the thesis on time, I'll let you know

5.2. Sentence final emphatic negation in the Veneto dialect (Zanuttini 1997, Poletto 2008, 2009)

In the Veneto dialect (Poletto 2008, Zanuttini 1997) a sentence final stressed particle *NO* ('no') serves to express emphatic negation.

(33) a. No ghe so ndà NO. (Poletto 2008)
Not there are gone NOT
'I did not go there'

To account for the final position of *NO* in (33a) (her (9)), Poletto (2009:6) proposes

> *According to this analysis, NO is always moved from within the NegP where it originates [note omitted] to a Focus position, which, following standard assumptions on the structure of the clause in Italian is located low in the CP area. When NO is in first position, the sentence there is no IP fronting. When NO is in sentence final position, this is the result of a movement of the whole IP to a position, GroundP, which is located in the Topic field, higher than Focus (again following standard assumptions on the CP layer) [note omitted]*

[26] Thanks to M. Lluisa Hernanz for help on the data. Hernanz (2007a,b) shows that *bien* is incompatible with temporal adverbial clauses.

(33) b. [$_{SpecGroundP}$ [$_{IP}$ no ghe so ndà] [$_{Ground°}$ [$_{CPFocus}$ NO] [$_{FinP}$ [$_{IP}$ ~~no ghe so ndà~~]]] [$_{Fin°}$ [$_{IP}$ ~~no ghe so ndà~~]]] (Poletto 2009:6, (13))

Predictably sentence-final *NO* will not be compatible with conditional clauses, the movement triggered by *NO* blocks the operator movement required to derive the conditional clause:

(33) c. Dovrebbe finire il lavoro per stasera.
Must-COND-3SG finish the work for tonight.
*Se non lo finisce NO, lo faccio io.
If *non* it finish-3SG NO it do-1SG I (C. Poletto, pc. 22.10.08)
d. *Se non viene NO…
If not comes NO
If he is not coming,… (Poletto 2009: 9, her (37b))

5.3. Sentence final ni in Nupe (Kandybowicz 2007, 2008)
Kandybowicz (2007, 2008) discusses sentence final *ni:* in Nupe. The semantic contribution of *ni:* in (34a, b) is 'to reinforce the polarity of the clause/add emphasis to the asserted truth or falsity of the sentence.' (2008: 33) He proposes that *ni:* is the expression of the left peripheral head Foc^0, which attracts ΣP to its specifier (34c). Once more the movement account of conditional clauses advanced here correctly predict that emphatic *ni:* will be incompatible with conditional clauses:

(34) a. Musa ba nakàn ni:. (Kandybowicz 2008 : chapter 2 : (22))
Musa cut meat ni
'Musa actually cut the meat.'
b. Musa ba nakàn à ni:. (Kandybowicz 2008 : chapter 2 : (23))
Musa cut meat NEG ni
'Musa did not actually cut the meat.'
c. [$_{FocP}$ [$_{ΣP}$ Musa ba nakàn [$_{Σ}$ à] [$_{Foc}$ ni:] [$_{ΣP}$…
d. *Musa gá ba nakàn ni:, Gana à du u: [27]
Musa COND cut meat FOC Gana FUT cook 3RD.SG
'If Musa DID cut the meat, then Gana will cook it.'

5.4. Emphatic polarity in conditional clauses.
At this point it is important to add that not all cases of what might be labeled 'emphatic polarity' are incompatible with conditional clauses. In particular, English emphatic *do* is compatible with conditionals, as is the negative particle *en* in colloquial variants of Flemish and in Flemish dialects, which according to Haegeman (2001, 2002) and Breitbarth & Haegeman (2008) is a marker of emphatic polarity. It follows that apparently emphasis on polarity is not necessarily a MCP.

(35) a. If it does rain, you should water the flower bed.
b. Oa't nie en regent, moe-j de blommen woater geven
if it not *en* rains, must you the flowers water give
(Breitbarth & Haegeman 2008)

[27] Thanks to Jason Kandybowicz for the data.

One essential difference between the expressions of emphatic polarity which are incompatible with conditional clauses and those that are compatible with them is the fact that the former are part of the left periphery while the latter can be argued to be IP internal. (cf. Duffield (2007) for *do* insertion in English and Haegeman (2002) for an analysis of emphatic polarity *en* in Flemish). The contrast between polarity emphasis that leads to intervention effects and that which does not can be compared to the difference between focalization qua movement, which is an MCP, and focalization in situ, which is not:

(35) c. If you invite JOHN, you'll regret it.

Expressions of emphasis that do not give rise to MCP effects are found elsewhere and definitely deserve investigating further. See also the discussion on verb doubling in Nupe in Kandybowicz (2008).

6. Summary

The paper elaborates Bhatt and Pancheva's (2002, 2006) proposal that like temporal adverbial clauses, conditional sub-clauses are derived by operator movement to the left periphery. It is shown that this proposal can account for the absence of MCP in conditional clauses. A particular implementation of the proposal in terms of Cinque's articulated TP allows one to account for the absence of high modal markers in conditional clauses and for the observation that low construal is incompatible with conditional clauses, an observation due to Geis (1970, 1985). The paper also further explores the parallelism between conditional clauses and *yes/ no* questions elaborated in Bhatt and Pancheva (2002, 2006), and in Arsenijević (2006).

To the extent that the analysis proposed here succeeds in offering a syntactic account of what might previously have been considered phenomena that purely belong to the domain of semantics/pragmatics (cf. Lahousse 2008 for such an approach and for references), the paper is a contribution to the cartographic research program as laid out recently by Cinque and Rizzi (2008: 39):

> *The cartographic studies can be seen as an attempt to "syntacticize" as much as possible the interpretive domains, tracing back interpretive algorithms for such properties as argument structure ... scope, and informational structure (the "criterial" approach defended in Rizzi 1997 and much related work) to the familiar ingredients uncovered and refined in half a century of formal syntax.*

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Mesoclisis in the Imperative: Phonology, Morphology or Syntax?

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Mesoclisis in the imperative and parasitic plurals in Spanish are currently accounted for either at Morphological Structure (Halle and Marantz 1994) or at the PF interface (Harris and Halle 2005). In previous work (Manzini and Savoia 1999, 2004a, 2004b, 2005, 2007, 2008a, 2008b) we argued that these and similar phenomena in both Romance and Albanian are best accounted for at the syntactic level. Since sub-word constituency is involved, this amounts to saying that syntax subsumes morphology. Here we defend the conclusions of our previous work, including in particular a strictly lexicalist stance on the projection of morphosyntactic structures from the lexicon.

1. The analyses of Halle and Marantz (1994), Harris and Halle (2005)

Halle and Marantz (1994: 286) consider a mesoclisis phenomenon in Spanish varieties, whereby in imperatives a clitic cluster appears between a verb stem and its plural *–n* inflection, as in (1b). This contrasts with the simple enclitic pattern of standard Spanish in (1a).

(1) a. de- n- me-lo
give 2pl me it
'Give it to me!'
b. de- me-lo-n
give-me-it -2pl

Halle and Marantz (1994) assume that the syntactic component generates structures of the type in (2a), where the clitic cluster, i.e. Det, is adjoined to the right of the constituent formed by the verb and its plural inflection. It is only in the morphological component that the clitic cluster 'adjoins to the terminal Agr node to which it is already structurally adjacent' (p. 285), yielding a structure of the type in (2b). To be more precise, given the Late Insertion hypothesis, what the syntactic and morphological rules manipulate are abstract feature clusters, which are represented in (2) by the corresponding terminals

(2) a. [[$_T$ de] [$_{Agr}$ n]] [$_{Det}$ me lo]
b. [[$_T$ de] [[$_{Det}$ me lo] [$_{Agr}$ n]]]

For Halle and Marantz (1994:287) 'the positioning of the pronominal clitics is driven by the need of the terminal nodes carrying person and case features

[i.e. the clitic cluster] to appear to the left of the terminal node carrying the plural feature [i.e. the verb agreement]. The tucking in of the clitic(s) around the plural imperative suffix re-creates the usual order of affixes in inflected words, with the plural suffix to the right of other feature complexes'. They support this proposal with the observation that 'no tucking in occurs when the clitic itself is plural', as illustrated here in (3) 'and therefore its case and person features already are to the left of a terminal node with a plural feature'.

(3) a. den los/nos
give.2pl them/ us
'Give them/ to us'
b. *de- los-/ nos- n

The analysis of the same phenomenon proposed by Harris and Halle (2005) targets a lower level of organization of the grammar, namely PF. They preliminarily deal with what they take to be a simpler case, in which the *–n* plural morphology is copied on the verb and on the clitic, as illustrated in (4), where the absence of the first copy yields mesoclisis again.

(4) venda- (n-) lo- n
sell 2pl it 2pl
'Sell it!'

In their view, (4) is a case of partial reduplication. Exactly like Halle and Marantz (1994), they take it that the syntax yields an enclitic structure, of the type in (5a) – where the terminals only appear after Lexical Insertion. At the PF interface, reduplication applies to the substring formed by the *–n* inflection and by the clitic, and the leftmost part of the reduplication is deleted, as in (5b). The square bracketing in (2b) denotes the portion of the string to be reduplicated, while the ‹ bracket at the end of the input string indicates that the portion of the string following it is omitted in the second copy in the output.

(5) a. [[$_{v}$ venda] [$_{Agr}$ n]] [$_{D}$ lo]
b. venda [n‹lo] n~~lo~~

For Harris and Halle (2005), the inversion of the clitic constituent with respect to the *–n* inflection in (1b) is obtained through another partial reduplication, whereby the leftmost part of the reduplicated material is deleted in the first copy and the rightmost part in the second copy. In particular the › bracket at the beginning of the input string indicates that the portion of the string preceding it is omitted in the first copy in the output, as in (6). The superficial effect is that of an inversion or, in phonological terms, a metathesis.

(6) venda [~~n~~›‹lo] n~~lo~~

The key to a successful derivation is the placement of the square and angled brackets in the relevant string. Harris and Halle (2005) formulate the readjustment rule for the placement of square brackets as in (7). Crucially, as they emphasize, 'representations of segmental phonology alone do not suffice to delimit the cases in which Kopy and V[erb] I[nflection] M[etathesis] are

possible; abstract (i.e. inaudible) identification of constituents is indispensable' (p. 202).

(7) In a string of the form $X/n/_{Agr} \bullet /Cl/_{D}Y$
Insert [to the immediate left of $/n/_{Agr}$
] to the immediate right of $/Cl/_{D}$

Harris and Halle (2005) offer a few arguments in favor of their approach. One concerns the fact that 'both Kopy and VIM occur freely in affirmative imperatives, where clitics follow the verb, but never in negative imperatives, where clitics must precede the verb' as in (8). 'This … follows from the fact that both full and partial reduplication, and hence metathesis, affect only contiguous strings. Inflectional *–n* and clitics are contiguous in affirmative but not in negative imperatives, where they are separated by the verb stem' (p. 204-205).

(8) No lo(*n) haga*(n)
not it do.2pl
'Don't do it!'

By contrast, the correlation between mesoclisis and enclisis could only be accounted for by stipulation in the model of Halle and Marantz (1994). In the phonological model, since mesoclisis is reduplication and the class of reduplication rules operates by definition on adjacent strings, then the adjacency requirement between the plural inflection of the verb and the clitic group (i.e. enclisis) follows. In the morphological model the adjacency requirement needs to be stipulated. In the absence of an explicit adjacency requirement, as Manzini and Savoia (2004a: 169) note, 'there is no reason why a morphological rule that has the power of infixing (part of) an enclitic group shouldn't have the power of infixing (part of) a proclitic group.'

Furthermore, according to Harris and Halle (2005: 206) 'nothing must be added to our formal account' to predict cases like those in (2'), since 'the illformed examples are ruled out by independent phonological constraints', in particular the fact that /sn/ is an 'impermissible syllable coda … in word-final position in Spanish'. Once again the comparison with Halle and Marantz (1994) is instructive; remember that morphological rules apply not on actual terminals, but on abstract features. Therefore the solution they propose, discussed above in connection with (3), is entirely based on the distribution of plural features.

2. A finer grained empirical picture

While Halle and Marantz (1994) only consider the simple data in (1), Harris and Halle (2005) introduce a more finely grained empirical picture. In particular they note examples where the *–n* inflection is found between the first and the second clitic of a cluster, as in (9a); in other words only one clitic is in mesoclisis while the other is in enclisis[1]. In (9b) we provide the schema of

[1] Harris and Halle (2005: 206) also illustrate cases where the splitting of a clitic cluster between mesoclisis and enclisis combines with copying of *–n* on the verb; in other words, two copies of *–n* appear on the verb and on the clitic in mesoclisis, as in (i):

derivation for this option under the reduplication/ metathesis analysis. This derivation brackets the first but not the second clitic of the cluster together with the inflection for the sake of reduplication.

(9) a. de- me- n lo
give me 2pl it
'Give it to me!'
b. de [~~n~~›‹me] n~~me~~ lo

Halle and Harris (2005) also notice that strings of the type in (10a), where the *–n* inflection is found to the right of a plural clitic, are illformed for the same reasons as (3b) is – i.e. the illformedness of the phonological output. However nothing prevents mesoclisis of the 1st person clitic only, as in (10b), which does not violate any phonological constraint.

(10) a. *de- me- los- n
b. de- me- n los
give me 2pl them
'Give them to me!'

By contrast, Halle and Marantz (1994) construct their analysis so as to exclude sequences of the type in (10b) as well – by assuming that *me* is prevented from tucking in between the verb base and its inflection by the fact that 'it does not fall at the right periphery of the relevant domain; instead it falls to the left of the accusative plural clitic' (p. 287). By the same reasoning, they exclude as far as we can tell all splittings of the clitic cluster on either side of the *-n* inflection.

The Albanian and Romance varieties studied by Manzini and Savoia (1999 ff.) also display splitting of clitic clusters under mesoclisis. Consider the Arbëresh (Italo-Albanian) variety of *S.Marzano* in (11), whose clitic system includes accusative and dative clitics, 1st/2nd person clitics, and the middle-passive clitic *u*[2]. The 3rd person accusative and dative are found in enclisis in the 2nd plural imperative, as in (11a), while the 1st person singular clitic is found in mesoclisis, as in (11b). The position of the *u* clitic cannot be checked in most Albanian varieties because in the middle-passive, the 2nd plural imperative is not formed with this clitic but with a specialized inflection of the verb (Manzini and Savoia 2008, Manzini, Roussou, Savoia to appear). However the Arbëresh variety of *S.Marzano* that we illustrate does fairly systematically double the

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(i) den- me- n lo
Give.2pl me 2pl it
'Give it to me!'

Here and in what follows we concentrate on mesoclisis/ VIM, as Harris and Halle (2005) in fact do in the later part of their article. We nevertheless return to copying later in this section and in section 5.

[2] Our data here and in the rest of the text are phonetically transcribed from fieldwork sessions. A broad IPA transcription is employed. In particular, to help the reader process the examples we have inserted hyphens between verbs bases and their inflections as well between them and other intervening lexical material (clitics). The word stress is not notated when trivial (e.g. on monosyllables). In the discussion, we refer to 3rd person accusative and dative clitics simply as accusative and dative. The set of 1st and 2nd person clitics will be referred to as person clitics.

specialized inflection *ɣ-* by means of *u*. Thus it can be seen that the latter occurs in mesoclisis, as in (11c).

(11) *S.Marzano*

a. ˈhua- nni j a
say 2pl to.him it
'Say it to him'

b. ˈhua- mmə- ni ɛ
say to.me 2pl it
'Say it to me'

c. siɟˈɟɔ- ɣ- u- ni
wake.up MP MP 2pl
'wake up!'

Consider then the Romance variety of *Senise* in (12)-(14). Both the 1st plural inflection, as in (12), and the 2nd plural inflection, as in (13), can split from the verb base yielding mesoclisis. The dative clitic in (13a), the 1st person clitic in (13b) and the locative clitic in (13c) are found in mesoclisis. The accusative clitic is found in enclisis in all examples, as is the partitive in (13d). Example (13e) shows that the very same clitic *nə* (syncretic in traditional terms between the 1st plural reading and the partitive reading) appears in enclisis when it is partitive, but in mesoclisis when it is a person clitic. Examples like (14) show that ordinary enclisis is also an available option, not only with single clitics but also with clitic clusters.

(12) *Senise* (Lucania)

purtæ- d'd- imə lə
bring him-her-them 1pl it-them
'Let us bring it/them to him/her/them!'

(13)

a. raˈvi- ddə- tə tuttə
give him-her-them 2pl everything
'Give him/her/them everything'

b. tʃirka- ˈm-/nˈn- itə lə
ask me/us 2pl it-them
'Ask me/him/her/them for it/them!'

c. mətta- tˈtʃ- itə lə
put there 2pl it-them
'Put it/them there!'

d. tʃirka- dd- itə nə rujə
ask him-her-them 2pl of.them two
'Ask him/ her/ them for two of them!'

e. ra- n- itə nə ɣunə
give us 2pl of.them one
'Give us one of them!'

(14)

a. purtætə mə/ nə/ də kwistə
Bring.2pl me/ us/ him-her-them this
'Bring this to me/us/him/her/them!'

b. purtætə mə lə
bring.2pl me it/them
'Bring it/them to me'

Note that standard Albanian (represented in (15) by the variety of *Gjirokaster*) has mesoclisis of all clitics, including clitic clusters[3].

(15) a. jep- i- a- ni *Gjirokaster*
give him-her-them it 2pl
'Give it to him/her/them'
b. nə- m- a- ni
give me it 2pl
'Give it to me'

Harris and Halle (2005) make a final empirical point concerning Spanish varieties where clitics clusters are split. This is that there appears to be a hierarchy of clitics, such that some speakers only allow *se* in mesoclisis, as in (16a), others *se, me*, as in (16b), others yet *se, me, le*, as in (16c). Evidently our data for *Senise* in (12)-(13) also exemplify a language of the type of (16c) where only the accusative is in enclisis, while those of *S.Marzano* in (11) exemplify a language like (16b) where both 3rd dative and 3rd accusative are in enclisis, showing that the hierarchy in (16) captures a genuine cross-linguistic generalization.

(16) a. *se* vs. *me* *le* *lo*
b. *se* *me* vs. *le* *lo*
c. *se* *me* *le* vs. *lo*
d. *se* *me* *le* *lo*

Let us assume with Harris and Halle (2005) that languages of the type in (16d) simply place no restriction on the mesoclitic position, requiring no further attention. Already the statement that languages like (16a) 'require formal specification of just that [*se*] clitic' as part of the readjustment rule seems to us problematic. For, it does not take into account the fact that this single clitic itself belongs to the hierarchy. In other words, if all that is involved in languages like (16a) is a stipulation concerning a particular clitic, then there is no reason to expect that it will always be *se*. Thus we do not know of a single language where a 3rd person accusative, or a 3rd person clitic in general, occurs in mesoclisis to the exclusion of 1st/2nd person clitics, middle-passive (reflexive) clitics etc. As far as we can tell, this cannot be predicted by Harris and Halle (2005).

As for the distinction between (16b) and (16c), Harris and Halle (2005) have two ways of approaching it. The first possibility is that 'the order of appearance of clitics in [the hierarchy] is correlated with the degree of neutralization or lack of specification for number, case and gender'. The other explanation they prospect is that languages (16b) and (16c) are differentiated by the fact that while the class III inflection *–e* of *se* and *me* is intrinsic, the class III inflection

[3] In (15a) and (15b) two different lexical bases alternate for the verb *give*. The specialized base in (15b) is required by the presence of reference to the speaker (*m*).

of the dative *le* is the result of a redundancy rule. Therefore (16b) is a language in which reduplication/ metathesis applies before the redundancy rule and (16c) a language where it applies after the redundancy rule.

The general problem we see with the second proposal is comparable to that already discussed in connection with languages like (16a). Given that it is evidently a stipulation that mesoclisis goes with III class and enclisis with other classes, we may expect that there are languages that keep the same distinction but reverse it – in other words, where 3rd person accusative clitics go in mesoclisis while datives, 1st/2nd person and *se* go in enclisis. Yet no examples of this pattern are found as far as we can tell. In other words, Harris and Halle (2005) are able to capture the distinction between the two groups of clitics but not the hierarchy that orders them.

More generally, low level morphological properties, such as those targeted by Harris and Halle (2005) are likely to display variation even in closely related languages, let alone across linguistic families. The cross-linguistic nature of the hierarchy in (16) seems to point to a higher level of organization of the grammar, in fact a level high enough to be insensitive to lower level morpho-phonological properties. For instance, it remains to be established whether and how Harris and Halle's (2005) proposals apply to Albanian. For, the notions of I/II vs. III class inflection obviously do not apply to this language (cf. Manzini and Savoia to appear b for a review of nominal inflection in Albanian). Similarly, it seems far from straightforward to apply a correlation with the degree of neutralization. Thus *i*, which appears in enclisis, is both dative and accusative plural and as such is certainly not more specified than *m* (1st person singular), which appears in mesoclisis.

But take just variation across Romance varieties, as witnessed to by our data. A language like *Senise* in (13) differs from Spanish varieties in having clitics for the locative and the partitive. There are no difficulties in accommodating the locative under one or the other of Harris and Halle's (2005) proposed generalizations, since the locative *tʃə* appears to follow the same III class/ underspecified pattern of other mesoclitic elements. But take the *nə* clitic. There are two difficulties with it. First, restricting ourselves to the partitive reading of the clitic, we observe that it occurs in enclisis, as in (13d). Yet, if underspecification is taken as the guiding principle for the clitic hierarchy, we expect *nə* to appear high in the hierarchy, since it is syncretic with the 1st person plural. If the I/II vs. III class divide is taken as relevant, then *nə* clearly belongs to the same (III class) series as elements that appear in mesoclisis – so that its enclitic position is unexpected. If the objection is raised that in a language like *Senise* the 3rd person accusative *lə*, not specialized for gender and number, does not itself belong to the I/ II class, then the problem is worse, since the I/II vs. III class criterion becomes totally inapplicable.

The second problem with *Senise*'s *nə* arises precisely in connection with the fact that the partitive and the 1st plural readings are syncretic. While example (13d) shows that partitive *nə* occurs in enclisis, example (13b) shows that 1st person plural *nə* occurs in mesoclisis. In other words, what is relevant for the ordering is not the morphophonological shape of the clitic, attainable by Harris and Halle's (2005) level of analysis (i.e. PF), but its reading, which appears to relate to the level of morphosyntax or higher.

Leaving now aside the hierarchy in (16), Manzini and Savoia (2004a ff.) note a further problem. All mesoclisis phenomena reviewed so far involve the infixation of clitics between the verb base and an agreement inflection. This is duly encoded in the readjustment rule of Harris and Halle (2005) as well in the treatment of Halle and Marantz (1994). The problem is that there is no reason in either treatment why this restriction should hold – in other words, why mesoclisis in some language could not split the verb base from a Tense/ Mood/ Aspect inflection[4]. Note that this could be compatible with the correlation of mesoclisis to enclisis just noted, for instance if mesoclisis split the verb base from the inflection of the infinitive. For, the latter in Spanish normally cooccurs with enclisis.

Another question arises in connection with doubling phenomena. It is worth emphasizing that the Calabro-Lucanian varieties studied by Manzini and Savoia (2004a ff.) are comparable to Caribbean Spanish ones in allowing for the doubling of the inflectional material, as illustrated here in (17). In the same contexts, i.e. imperatives with mesoclisis, however, we also find attestations of doubling of the clitic in mesoclisis and in enclisis, as in (18).

(17) purtæ- tə- ˈm- itə lə/ nə *Senise*
bring 2pl me 2pl it-them/ of.it-them
'Bring it/them/some of it/ some of them to me!'

(18) a. ra- dˈdi- mə ddə tuttə
give him-her-them 1pl him-her-them everything
'Let us give him/her/ them everything!'
b. ra- ˈm- itə mə kwistə
give me 2pl me this
'Give this to me!'
c. ra- ˈm- itə mə lə
give me 2pl me it-them
'Give it/them to me!'
c'. mbrɛsta- ˈm- itə mə nə

[4] In more than one occasion when this material was presented, the audience questioned this generalization. Potential counterexamples offered to us were of two types. On the one hand it was pointed out to us that in European Portuguese mesoclisis occurs in infinitival environments. Note however that this strengthens our conclusion. For, the clitic appears between the verb inflected with the infinitive (i.e. irrealis) *–r* morphology and the finite inflection, as in (i). Crucially it cannot separate the verb base from the *–r* morphology.

(i) dar- t-/lh- o- ia
Give to.you/him it I.would
'I would give it to you/him'.

Furthermore, it was pointed out to us that while the normal sequence in Romance has TMA inflections preceding agreement ones, the infixation of the agreement morphology between the verb base and the TMA morphology is also attested in some Ladin varieties, as in (ii) (cf. Benincà 1999).

(ii) a. dorˈmj-oŋ b. dorˈmj-oŋ-va c. dorˈmj-oŋ-sa *Corte/ Sief*
sleep-1pl sleep-1pl-impf. Sleep-1pl-counterf.
'We sleep' 'We slept' '(if) we slept'

This phenomenon again does not count as a counterexample to our generalization, since in conventional terms it reorders two inflections, as in (iii) – and does not involve the splitting of the verb base from its inflection(s) by other lexical material.

(iii) [[$_I$ dormj] [$_D$ oŋ]] [$_T$ va] *Corte/ Sief*

lend me 2pl me of.it-them
'Lend me some of it/them!'

Here the question is what kind of treatment Harris and Halle (2005) envisage for doubling processes of the type in (18). If they apply to (18) the same phonological treatment that derives inflectional doubling of the type in (17), they capture the continuity between these two phenomena. Yet we know that copying of clitics is also a process normally admitted to occur at the much higher level of syntax, since the two copies can be separated by major syntactic constituents (as illustrated below in (23)). A phonological treatment of (18) amounts to denying that there is any continuity between the various types of clitic copying/ doubling. Again it is far from obvious that this is the correct conclusion.

Let us summarize so far. The review of the salient proposals by Harris and Halle (2005) and by Halle and Marantz (1994), and the comparison of these two analysis with the empirical evidence of Manzini and Savoia (1999ff.) allows us to draw a provisional list of desiderata for the analysis of mesoclisis in the imperative – as well as of the way the two analyses proposed so far do or do not satisfy them. First, mesoclisis is possible only in contexts that in the same languages or in closely related ones allow for enclisis. There is no possibility of mesoclisis as a variant of proclisis. A particularly striking illustration of this is provided by negative imperatives, which forcing proclisis as opposed to enclisis, also prevent mesoclisis, as we will see in section 5. As far as we can tell, Halle and Marantz (1994) could only stipulate this fact; Halle and Harris (2005) derived it as a result of the adjacency requirement on reduplication (see the discussion surrounding (8)).

Second, in languages where mesoclisis splits the clitic cluster, this splitting observes certain general principles such as the possibility of having the 3rd person accusative in enclisis and the remaining clitics in mesoclisis (as in *Senise*) – but never the reverse. Halle and Marantz (1994) are simply not aware of the relevant data. But Harris and Halle (2005) do not far much better. For instance, under the account they sketch, there is no reason why we should not expect a language where the hierarchies in (16) are respected but reversed. This fact can at best be stipulated; it does not follow from any independent principle.
Finally, there are generalizations that neither of the accounts reviewed seems to be aware of – though they are discussed at length by Manzini and Savoia (2004a ff.). First, it appears to be the case that only finite (i.e. agreement) inflections can be split from the verb base under mesoclisis. Second, there appears to be a continuity between the doubling of inflections (possibly a morphophonological process) and the doubling of clitics – ostensibly a syntactic phenomenon. This continuity must be proven inexistent or else it requires a unification of the levels of analysis involved.

3. The reduplication straightjacket

The rich literature on reduplication characterizes it as a phonological process which operates at the interface between morphology and phonology. This literature shows that in natural language, both total and partial reduplication of a lexical string is to be viewed as a type of affixation. According to Marantz (1982: 436) 'Except for the fact that the material attached to the stem in

reduplication resembles the stem phonologically, reduplication rules look like normal affixation processes. To provide the best account of reduplication rules, we say they are normal affixation processes'. These affixes are, as we can expect, associated with grammatical/ functional values (i.e. intensive, perfect, plural, etc.)

Marantz's (1982) reduplication is a readjustment rule which copies phonological material from the lexical basis on the skeletal template associated to an affix. Phonological constraints define the melody copying process: 'In the unmarked case, reduplicating prefixes associate with their melodies from left to right, reduplicating suffixes from right to left. The association of phonemic melodies and C-V reduplicating affixes is "phoneme-driven" in the sense that, for each phoneme encountered linking from left to right or from right to left, the association procedure scans along the skeleton to find a C-V slot eligible for association with the phoneme' (446). The example of reduplication in (19), concerning plural noun formation in Agta (a language spoken in the Philippines), illustrates the copying mechanism (from Marantz 1982: 446).

(19)

	t a k k i		t a k k i		t a k k i				
	| | | | |	→	| | |		| | | | |	=	taktakki
	CVC + CVCCV		CVC	+	CVCCV				

McCarthy and Prince (1995) set the treatment of reduplication within Optimality Theory. The idea is that reduplication is again a relation between an input of the type Aff + base, and an output derived through a copying process. A crucial role is assigned to the ranking of the faithfulness constraints which relates input-output representations and accounts for the different types of reduplication. In general, they assume that 'the regularities of reduplication and similar phenomena' must be derived 'from general properties of morphology, general properties of phonology, and general properties of the interface between morphology and phonology' (p. 11).

According to the more recent proposal of Raimy (2000) 'the morphology builds reduplicated structures by adding 'loops' … to the precedence structure of a V[ocabulary] I[tem]' (Harrison and Raimy 2004). For instance given the Vocabulary item in (20a) (from the Uto-Aztecan language Tohono O'odham, cf. Raimy 2000:113), with the precedence structure notated by the arrows, the reduplication consists in the adding of the loop in (20b), notated here beneath the *ho* subsequence. 'Following the modular structure of DM, these representations are then passed onto the phonology. The phonology contains a linearization process that eliminates loops via repetition, as in [20c]'. The crucial aim pursued by Harrison and Raimy (2004) is to provide evidence in favor of the conclusion that reduplication is 'the result of the spell-out of a Vocabulary Item'.

(20) Tohono O'odham CV reduplication

a. *root* 'the body' # → h → o → n → %

b. *root* 'the body' + *plural* # → h → o → n → %

c. *linearized* [hohon]

Finally, Halle (2008) adopts the guiding principles of the phonological analisys of reduplication proposed by Raimy (2000). The 'crucial innovation' of Raimy is to admit phonological representations including a double concatenation of the timing slots: the traditional linear concatenation and an accessory extralinear concatenation feeding the reduplication mechanisms. In any case, reduplication is a 'readjustment rule' triggered by a zero morpheme (Halle 2008: 329).

The point that this brief review of the phonological literature on reduplication should bring into relief is that the work of Harris and Halle (2005), while making use of the mechanics of reduplication as defined in phonological analyses, is conceptually anomalous with respect to them. In particular, in the reduplication treatment of mesoclisis, there is no morphologically defined template with autonomously defined features, justifying the application of reduplication. Both in Agta in (19) and in Tohono O'odham in (20), the reduplication skeleton or loop is the morphology for plurals in the relevant languages. But there is no morphological feature associated with the mesoclisis of Romance or Albanian. Rather, the mesoclitic formations have the same interpretation and morphosyntactic make-up as the enclitic structures with which they are in free alternation in many varieties.

An important conceptual point concerning the phonological-level analysis of Harris and Halle (2005) is that the readjustment rule in (7), which defines the reduplicated string, not only contains a considerable amount of morphosyntactic level information, but more to the point contains absolutely no information of a prosodic or segmental nature. Thus, if the operation applied on abstract terminals. before the level of lexical insertion where vocabulary items become relevant, it would give exactly the same results. This is of course not true of *bona fide* phonological reduplications such as (19) or (20). In other words, Harris and Halle's (2005) reduplication really seems to be a syntactic rule in disguise.

A further problem for Harris and Halle (2005) connects with this general observation. As they themselves note, there are other phenomena in Romance languages where the lexical base is separated from its inflection by other lexical material. One such phenomenon is the 'parasitic plural' of Spanish under which the *–s* plural morphology interpreted as part of the dative clitic, overtly combines with the accusative clitic, for instance *los* in (21).

(21) Ese vino yo se los regalé a mis primos.
that wine I to.them it I.gave to my cousins
'That wine I gave to my cousins.'

Under the metathesis treatment of mesoclisis in the imperative, the apparent continuity with phenomena such as the parasitic plural cannot be captured. The reason is that, as shown in (21), parasitic plurals characterize environments where the dative *le/les* 'to him-her/ to them' does not surface; rather, the suppletive *se* form does. Because there is no **ses* in the language, *se* cannot be the source of the *–s* appearing after the accusative *lo* 'it' in (21). This excludes a treatment in terms of phonological reduplication, which would require **ses* in the underlying string, and necessitates a treatment at the morphological level, where rules operate on abstract terminals (cf. Harris 1994 for such a treatment

within the Distributed Morphology framework)[5].

In this respect Halle and Marantz (1994) seem to have a better handle on the level of generalization required for a unified account of all of these various data, since their analysis targets not the phonological level of organization, but the morphological level. Yet Manzini and Savoia (1999 ff.) emphasize a different problem of explanatory adequacy they face. The operation remerging the Det constituent from the position in (2a) to the position in (2b) is formally identically to the syntactic operation of movement. At the same time there are obvious constraints on syntactic remerge – such as the Extension condition of Chomsky (1995) that are violated by a tucking in movement like (2). Thus 'under the morphological derivation, the operation of movement in the syntax is actually duplicated by an operation of movement in the morphology: to the extent that the two operations have the same properties a redundancy arises; to the extent that they differ the grammar is considerably enriched' (Manzini and Savoia 1999: 296).

The reason we introduce this very general point is that it leads the way to an altogether different approach to the mesoclisis and doubling phenomena at hand, namely an approach in which they are handled within the component where movement processes are independently needed as are the categories/ features that these processes ostensibly manipulate – namely syntax.

4. A syntactic analysis

In the remaining part of this article, following Manzini and Savoia (1999 ff.) we provide an analysis of the Romance and Albanian data presented so far that keeps entirely within the bounds of the syntactic component[6]. We argue that this analysis provides an answer to all of the questions raised above for morphophonological level analyses, as well as eliminating the syntax – morphology redundancy problem noted at the end of the last section. In other words, we would like to claim that the burden of proof is on proponents of morphophonological treatments to show that such treatments are still necessary (and eventually sufficient).

In the course of the previous sections it has become clear that what are at stake are not 'two curious idiosyncratic phenomena of Spanish dialects' (Harris and Halle 2005: 204) but phenomena cropping up with some regularity in Romance languages as well as in (non directly related) Albanian varieties. Yet the reason why we enter into the discussion is not so much the intrinsic interest of the phenomena themselves as the theoretical implications they hold. For, if the phenomena admit of an analysis entirely within the boundaries of syntax, as we want to propose, it follows that syntax can reorder constituents below the word level, i.e. inflections – which means in turn that the distinction between

[5] Of course, a split account for mesoclisis in the imperative and for parasitic plurals is only problematic to the extent that the two have common properties. The discussion of Manzini and Savoia (2009) is devoted to establishing that these two phenomena as well as a number of related phenomena in Italian varieties require a unitary account.

[6] A different syntactic construal of the mesoclisis facts is presented by Kayne (2008). The unpublished nature of this work prevents us from discussing it in detail, though we shall return to parts of it in fn. 8, 10 and in section 6. As for Kayne's (2008) discussion of Harris and Halle (2005) and of Halle and Marantz (1994), it reiterates the objections we raise in our work. Since Kayne (2008) shows no awareness of Manzini and Savoia (1999 ff.), and his discussion ostensibly does not depend on ours, we conclude that such objections are fairly self-evident within the model we adopt.

syntax and morphology is essentially erased. In this respect we embrace Halle and Marantz's (1994: 285) statement that the facts 'argue strongly for the parallel between word-internal and word-external syntax that DM predicts' – and we generalize it to the conclusion that what is involved is not simply a (partial) parallelism, but rather a (complete) unification of the two modules. In other words syntax subsumes morphology.

We take this unification to extend to one key task apportioned by Distributed Morphology to Morphological Structure, i.e. Vocabulary Insertion, which in the architecture of grammar proposed by Halle and Marantz (1993) is 'late', i.e. follows morphological readjustments. By contrast, the model of syntax we adopt here adheres strictly to the minimalist postulate of projection from the lexicon (Chomsky 1995), which we interpret as requiring that syntactic structures be projected from actual lexical terminals. This lexicalist construal of the Inclusiveness condition is as far we can tell the one intended by Chomsky (1995) himself. If so, note that our unified morphosyntax defines the PF interface as well.[7]

Let us begin with a point on which there is full agreement between Halle and Marantz (1994), Harris and Halle (2005) and us – namely the fact that enclisis in the imperative as in standard Spanish (1a) is derived by syntax-internal operations. Following Rivero (1994) and much related literature we assume that the imperative appears in a high position in the sentence, i.e. within the C field, associated with the modal properties of the verb. Since at least Kayne (1991), enclisis of the pronominal clitic on the verb has been taken to be a consequence simply of the movement of the verb to this high position. The postverbal position of the clitic(s) follows from the raising of the verb if the clitics remain in their ordinary inflectional position.

A classical body of work initiated by Rizzi (1997) argues that the C field of sentences is articulated in several C heads. The distribution of object clitics suggests that the imperative occupies a higher position than the finite verb involved in V2 contexts such as questions. For, object clitics precede finite verbs in the V2 position; yet they follow imperatives. Keeping C as the conventional label for the properties instantiated by (residual) V2, we notate the position instantiated by imperatives (and infinitives) as C_I, to suggest Irrealis. Since we observe C_I – object clitics and object clitics – C, we infer C_I – C, as in (22).

(22) $[C_I \quad [C \quad [I(nfl)$

The next assumption we will make is that clitics not only correspond to syntactic level constituents but each of them has its own dedicated and categorially distinct position. This conclusion characterizes our work – but can be found in independent work as well. Thus Poletto (2000) has autonomous (and autonomously categorized) positions at least for subject clitics – while

[7] Phenomena that crucially motivate Late Insertion in Distributed Morphology specifically include syncretism and suppletivism. Manzini and Savoia (2005, 2007, to appear a) argue for an analysis of these phenomena (as seen in Romance clitics, Romance and Albanian verbal and nominal inflections, Albanian Case inflections) consistent with the larger picture in the text. In other words, syncretic/ suppletive forms project their actual lexical specification in syntactic structure – and their multiple functions correspond to ambiguity resolution at the LF interface. See also fn. 12.

autonomous positions/ categories for all clitics are proposed by Sportiche (1996)[8].

Recall now the existence in *Senise* of examples where doubling in the imperative involves a clitic copied both in mesoclisis and in enclisis. Doubling of clitics is anything but a rare occurrence in either Romance or Albanian – and the two occurrences are typically separated by verbal or other heads (negation etc.). Here we provide examples from the Arbëresh variety of *S.Marzano*, with which we also illustrated mesoclisis. In (23), 3rd person accusatives and datives copy on either side of the finite auxiliary, while 1st and 2nd person clitics appear before it.

(23) a. j a kamm j a hənnə *S. Marzano*
him-her-them it I.have him… it said
'I have said it to him/her/them'
b. t ɛ kamm ɛ hənnə
to.you it I.have it said
'I have said it to you'

The distribution in (23) is limited to auxiliaries, while all clitics appear in proclisis on lexical verbs, evoking comparison with English questions, where auxiliaries take a C position, higher than that of lexical verbs. We surmise that the auxiliary in (23) is in C, and that enclisis of the accusative and dative depends on this position. Clitics occurring above I but below C will surface in enclisis. On the other hand clitics will have to occur higher than C in order to surface before the auxiliary. This leads us to identify at least two different positions for clitic categories, as schematized in (24).

(24) [C_I [CL* [C [CL* [I(nfl)

The reader may have noticed that clitics found in proclisis and in enclisis in (23) closely match those found in mesoclisis and in enclisis respectively in the imperative examples in (11). In fact the split between accusative and dative on the one hand and 1st/2nd person clitics on the other, remains fairly constant in Albanian varieties independently of the configurations (of proclisis, mesoclisis, enclisis) it gives rise to. In the Arbëresh variety of *Greci* in (25), the accusative clitic follows the imperative, as in (25a), while the 1st person clitic precedes it, as in (25b). When they combine, the 1st person clitic is in mesoclisis, while the accusative remains in enclisis. Thus the mesoclitic or proclitic position of the 1st person varies, but what does not vary is its split from the accusative.

[8] We note that Kayne (2008) now assumes that 'sequences of clitics never form a constituent', contrary to what explicitly predicted for instance by Kayne (1994). At the same time we are extremely puzzled by the statement that Savescu-Ciucivara (2007) (not available to us) 'comes closest' to holding such a proposition. For, we explicitly exclude clitic clusters beginning with our earliest work. Thus Manzini and Savoia (1999), quoting even earlier work by Manzini and Savoia (1998), state 'According to our theory each clitic realizes a specialized position in the clitic string, characterized by a well-defined set of features and ordered in a fixed way with respect to other positions' (p. 292).

(25) a. zɟɔ- nni a *Greci*
wake.up 2pl him
'Wake(pl) him up'
b. mə/ na zɟɔ- nni
me/ us wake.up 2pl
'Wake me/us up'
c. ˈne- m- ni a
give to.me 2pl it
'Give it to me'

In the variety of *Shkodër* in (26), the accusative clitic appears in enclisis, as in (26a), while the 1st person clitics appear in proclisis, as in (26b). As expected, dative-accusative cluster appears in enclisis, as in (26c). Interestingly the presence of a 1st person clitic requires the proclisis of the entire group, as in (26d-d'). Thus *Shkodër* is quite different from other Albanian varieties considered so far[9] in that it always keeps clitic groups together. However the split between accusative/dative and 1st person clitic has a reflex in the enclisis/ proclisis alternations affecting such groups.

(26) a. ʃifni ɛ *Shkodër*
look.2pl him-her
'Look at him/ her!'
b. mə/ na ʃifni
me/ us look.2pl
'Look at me/us!'
c. nɛpni j a
give.2pl to.him-her-them it
'Give it to him/ her/ them!'
d. m a nɛpni
to.me it give.2pl
'Give it to me!'
d'. na ɛ nɛpni
to.us it give.2pl
'Give it to us!'

We briefly return to how the various enclisis – proclisis alternations in (25)-(26) fit into the schema in (24) in the next section, after we consider how mesoclisis does. Summarizing so far, while it is generally agreed that enclisis in the imperative is a syntax internal matter, in this section we have entered in some detail in the syntactic analysis we adopt – setting the stage for our analysis of mesoclisis. Thus in (24) we adopt an articulated set of C positions, among which imperatives target the higher one. Clitics project autonomous positions/ categories onto the syntactic tree; these are found in at least two different domains of the sentence, the inflectional domain and the modal domain. Such conclusions are not based on a priori considerations but on empirical evidence.

[9] Traditional Albanian dialectology distinguishes two main groups of varieties: Tosk and Geg. Both Arbëresh and standard Albanian (represented here by *Gjirokastër*) belong to the Tosk group, while *Shkodër* is a Geg variety.

It is very important for us to emphasize that we are not overstepping at any point the boundaries of standardly accepted syntactic reasoning. For, the final aim of our discussion is to show that mesoclisis is entirely explainable within syntax; but if so, it is obviously important that our syntax does not conceal extra devices.

5. Mesoclisis as a syntactic phenomenon: the core analysis

Since copying of the clitic has provided key evidence in section 4, we resume our analysis of mesoclisis with the examples of *Senise* in (18) which presents the doubling of the clitic in mesoclisis and in enclisis. In accordance with the schema in (24), the two copies of the dative or 1st/ 2nd person clitic in (18) will be found in the domain immediately above C and in the domain immediately above I respectively (henceforth the C and I domain). This will also mean that the single copy of the accusative clitic in (18c) is found in the I domain. The verb base, that precedes all clitics will be in the higher modal position C_I, as schematized in (27). One thing that the previous discussion does not provide any indications on is precisely the defining property of the mesoclisis phenomenon, i.e. the position of the inflection. We provisionally notate clitic positions as CL; we return to their exact nature in section 6.

(27) [$_{CI}$ ra [$_{CL}$ m [$_{??}$itə [$_{CL}$ mə [$_{CL}$ lə *Senise*

In section 4 we argued that multiple instantiations of a clitic are a syntactic level phenomena, because of the instances of doubling where the clitic copies are separated by syntactic constituents. In other words, if the copying of the clitic in proclisis and in enclisis in *S.Marzano*'s (23) and the copying of the clitic in mesoclisis and in enclisis in *Senise*'s (27) are the same kind of phenomenon, then mesoclisis must be defined within the syntax, as enclisis and proclisis are. We exclude that two different levels of analysis are involved in the various cases at hand, not only on simplicity grounds, but also on empirical grounds. Thus a very similar distribution of object clitics characterizes both (23) and (27), typically splitting the 3rd person accusative from 1st/ 2nd person clitics.

The unified syntactic analysis we pursue at this point simply requires that we fix the nature of the category projected by the inflectional material in (27). The obvious solution that comes to mind (Manzini and Savoia 1999) is that the inflection sits in a verbal position in between the clitics, namely C, as shown in (28).

(28) [$_{CI}$ ra [$_{CL}$ m [$_{C}$ itə [$_{CL}$ mə [$_{CL}$ lə *Senise*

There is no obvious derivational/ representational constraint excluding (28) on the assumption that verbs move/ form chains. Thus (28) could be derived by moving *ratə* to C and then moving the verb base *ra* to C_I. As far as we can tell, the resulting structure respects the basic c-command requirement on chains. Yet (28) has another problem, namely that it provides no insight as why an agreement inflection can be split by the verb base, but not a Tense/Mood/Aspect inflection. For, if (28) is the correct structure for mesoclisis, one could equally have a structure where the agreement inflection is replaced, say, by the

infinitival inflection[10].

Starting with Manzini and Savoia (2004a) we have therefore proposed a different approach to the structure of mesoclisis – based in particular on the nominal nature of the inflection stranded by the verb base in mesoclisis phenomena (with or without doubling). The basis for our analysis is the idea that agreement morphemes within the inflected verb project a position which has the same categorial signature and other relevant syntactic/ LF properties as a pronominal subject. Thus the internal structure of the inflected 2nd person plural imperative of *Senise* in (29a) closely parallels that of an English sentence like (29b). Following Chomsky (1995) we adopt D as the categorial signature of the EPP argument; we take the verb base inclusive of the so-called thematic vowel to correspond not to the root, but to an inflected constituent, whence its I categorial signature.

(29) a. [$_{I}$ ra [$_{D}$ tə]] *Senise*
b. [$_{D}$ you [$_{I}$ give]]

Starting with Manzini and Savoia (2004a) we have further proposed that in mesoclisis contexts, the so-called agreement inflections project on the syntactic tree the same position that subject clitics project in varieties that present them. This is equally applicable to mesoclisis with clitic doubling, as in (30a), now replacing (27)-(28) and to simple mesoclisis, as illustrated in (30b) for example (13b). As for the doubling of the inflection, in (17), it equally fits the syntactic schema now defined, if we assume that the first copy of the inflection is attached to the verb base in the C_I position and the lower copy is stranded in the D position, as in (31). The pattern of *S.Marzano* (11b) is amenable to the same schema as *Senise*'s (30b).

(30) a. [$_{CI}$ ra [$_{CL}$ m [$_{C}$ [$_{D}$ itə [$_{CL}$ mə [$_{CL}$ lə *Senise*
b. [$_{CI}$ tʃirka [$_{CL}$ m [$_{C}$ [$_{D}$ itə [$_{CL}$ lə

(31) [$_{CI}$ purtætə [$_{CL}$ m [$_{C}$ [$_{D}$ itə [$_{CL}$ lə

[10] Kayne (2008) implements a syntactic analysis for mesoclisis and doubling which scatters the verb base and the inflection in the verbal positions of the sentence not through movement but through the postulation of 'silent' categories, in the sense of Kayne (2006). Thus mesoclisis with doubling of *–n* in Caribbean Spanish, as in (4) in the text, corresponds to the whole inflected imperative moving to a left periphery position where it is followed by the clitics; the stranded inflection is in reality attached to a 'silent' Aux, as in (i). In this perspective, Kayne (2008) concludes that in simple mesoclisis examples there is 'probably' a silent *–n* attached to the verb base as in (ii) ('silent' categories are capitalized).

(i) den le AUX-n

(ii) [haga-N]$_i$ lo AUX-n t_i

Elsewhere (Manzini and Savoia to appear a, Savoia and Manzini to appear), we have raised both theoretical and empirical issues concerning 'silent' categories as applied in particular to syncretisms in Romance clitic systems. Many of the general objections apply in the case at hand. Thus what is to restrict the appearance of 'silent' auxiliaries? Kayne (2008) makes a reference to auxiliaries 'visibly seen in negative imperatives in some Northern Italian dialects'. But those auxiliaries are seen precisely in negative contexts, where mesoclisis never occurs and they embed infinitives or gerunds, as auxiliaries generally do in Romance (see Manzini and Savoia (2005) for extensive exemplification); therefore the silent auxiliary in (i)-(ii) is not their unpronounced counterpart.

Gjirokastër in (15) represents the simple variant of (30b) in which an entire clitic group fits between the verb base in C_I and its inflection in D. More complex are the cases of *Greci* in (25) and *Shkodër* in (26). In *Greci* mesoclisis again follows the lines of (30b), as shown in (32a). When the inflection is not split from the verbal base, however, the inflected imperative appears to sit in the C position where it is followed by the accusative clitic, as in (32b) and preceded by the 1st person clitic, as in (32c).

(32)	a.	[$_{CI}$ ne	[$_{CL}$ m	[$_{C}$	[$_{D}$ ni	[$_{CL}$ a	*Greci*
	b.			[$_{C}$ zɟɔnni		[$_{CL}$ a	
	c.		[$_{CL}$ mə/ na	[$_{C}$ zɟɔnni			

The patterns of *Shkodër* correspond closely to (32b-c) of *Greci*. The inflected imperative is in the C position where it is preceded by clitic clusters containing a person clitic, as in (33b), and followed by clusters which do not include a person clitic, as shown in (33a). The interesting pattern whereby clitic clusters cannot be split, configures a parameter in the distribution of clitics, rather than in the position of the verb. We shall return to it briefly in section 6.

(33)	a.		[$_{C}$ nɛpni	[$_{CL}$ j	[$_{CL}$ a	*Shkodër*
	b.	[$_{CL}$ m	[$_{CL}$ a	[$_{C}$ nɛpni		

Other facts noted above as problematic for morphophonological level analyses of mesoclisis follow from its syntactic analysis, in particular the fact that mesoclisis is restricted only by morphosyntactic properties; this fact remains mysterious in the phonological treatment of Harris and Halle (2005). At the same time, the correlation between enclisis and mesoclis, that could only be stipulated by Halle and Marantz (1994) is derived. In order for object clitics to appear between the verb base and the verb inflection, there must be syntactic space available for their insertion. This condition is satisfied when the verb base moves high enough to take object clitics to its right, hence in particular in imperatives, but not when it remains lower, taking object clitics to its left (in proclisis).

More generally, recall that we objected to Distributed Morphology because of its redundancy with syntax. The re-merging of the clitic cluster in (2) that Halle and Marantz (1994) postulate as a Morphological Structure operation, is now subsumed by ordinary syntactic Merge of the verbal base and of the clitic constituents in the left periphery of the sentence. Thus the syntax-internal account of mesoclisis eliminates an important redundancy between morphology and syntax. In the process it also eliminates the tucking in implied by the movement in (2) and the potential enrichment of the grammar that it represents.

It was mentioned that negation, blocking enclisis in the imperatives, also blocks mesoclisis, as illustrated in (3) for Caribbean Spanish and in (34a) below for *Senise*. The switching of clitics from the enclitic to the proclitic position in negative imperatives is generally interpreted as an indication that the verb does not move to the high C_I position, due to the blocking effect of the negation (Rivero 1994, Roberts 1994). Suppose then that in negative contexts imperatives sit in the ordinary I position of inflected verbs. It evidently follows that all possible clitic positions are higher than the verb and clitics are forced to appear

to its left, as schematized in (34b). This excludes enclisis – and what in present terms is but a particular subcase of enclisis, i.e. mesoclisis, establishing the desired link between the two phenomena.

(34) a. nun m/ d u purtæ:tə *Senise*
not me/him-her-them it-them bring.2pl
'Don't bring it/them to me/him/her/them'
b. [$_{NEG}$ nun [$_{CL}$ m/d [$_{CL}$ u [$_{I}$ purtæ:tə

The matter of the parameters involved in mesoclisis has so far been left largely implicit. Under the proposals of Halle and Marantz (1994) and of Harris and Halle (2005) the issue hardly arises. The infixation rule of the former and the metathesis rule of the latter are clearly conceived as language specific – so that they will simply be stated in the grammar of Caribbean Spanish but not of standard Spanish. Matters are not quite so simple if a syntactic level analysis is on the right track. This is because it is a basic property of current syntactic models that they do not have construction specific rules (Chomsky 1981) – nor is parametrization connected to operations of the computational components but rather to the properties of the lexical items they operate on (Chomsky 1995).

Let us consider *Senise* again, where mesoclisis is possible both without copying of the inflection, as in (12)-(13) and with copying of it, as in (17) -- and it alternates with ordinary enclisis as in (14). Following again current syntactic theorizing we assume that true optionality does not exist in grammar – so *Senise* must be characterized by three (minimally) different grammars or, more properly, lexicons. In particular, the grammars with mesoclisis can be characterized on the basis of a property of the D inflection – namely that of associating with the I (or at most the C) domain of the sentence. This result can be achieved in two ways in the language. One has the D element appearing both as a clitic(-like) constituent in the I domain and as part of the verbal constituent in C_I (copying); the other has it appearing only in the I domain (simple mesoclisis). The no mesoclisis grammar doesn't have the relevant requirement, so that D appears only inside the verb (in C_I).

In fact, while in the discussion surrounding (30)-(32) we defined the conditions that make it possible for the agreement inflection to split from the verb base, we are now supplying the conditions that make this necessary. We would like to stress that in the simplicity metrics, the present syntax-internal view of parametrization appears to be remarkably simpler than the view of parametrization that would emerge from the adoption of rules such as (2) or (6)-(7). We therefore claim this as an important advantage of construing mesoclisis as purely syntactic.

6. The clitic split(s)

The final empirical point raised in the discussion in section 2 had to do with the clitic hierarchy defined by clitic split in mesoclisis. One of the objections that we raised against Harris and Halle's (2005) treatment is that it does not provide a descriptively adequate characterization of the clitic hierarchy in (16) – let alone an explanation for it. The descriptive generalizations envisioned by Harris and Halle (2005) correlate the position of a clitic in the hierarchy with its inflectional class or with its degree of neutralization. A different generalization

is suggested by Kayne (2008) who correlates the sequence of clitics in (16) to their relative order in the critic string. As before, the question is whether this latter generalization holds – and if it holds why.

Let us consider descriptive adequacy first. The correlation obviously holds in Spanish; it furthermore holds for Italian varieties of the type of *Senise*, where as in most Romance languages, the accusative and partitive clitics in enclisis are also the lowest clitics of the string. Albanian varieties are more interesting. The basic order whereby datives and 1st/2nd person clitics precede the middle-passive clitic *u* is stable across Albanian; in (35a) we provide an example of it from the standard-like variety of *Gjirokastër*, while in (35b) we illustrate it in the Arbëresh variety of *Portocannone*. But then *S.Marzano*'s (11c) represent a counterexample to Kayne's (2008) generalization. For in *S.Marzano*, *u* is in mesoclisis and the dative in enclisis, reversing the basic order where the dative precedes *u*.

(35) a. m/ i u θiɛ gɔta *Gjirokastër*
to.me/to.him MP broke the.glass
'The glass broke (on me/him)'

b. m/ i u tʃa- x ɲə bukjer *Portocannone*
to.me/to.him MP break-MP a glass
'A glass broke (on me/him)'

More to the point, problems arise if we move from the correlation itself to the reasons why it should hold. Kayne (2008) suggests the obvious reason that 'Spanish *se* can move higher than *lo* to judge by clitic order. Plausibly this translates into *se* being able to move past *-n* more readily (cross-dialectally) than *lo* can'. Yet note that this explanation only removes the questions to a different level: namely, what determines clitic order? If the answer was simply that clitic order is randomly determined by each grammar, then we would not expect to find the remarkable regularities that we do find in, say, Romance and Albanian. We conclude that the explanation for (16) is not to be found in the correlation with any one fact concerning clitics – be it their position, as for Kayne (2008), their morphological makeup, as for Harris and Halle (2005), or other. Rather there is a common set of principles governing clitics from which all of these closely interwoven facts follow. It is directly at this set of principles that we aim in our work (Manzini and Savoia 1998 ff.).

Let us consider so-called 3rd person accusative clitics; recall that if only one clitic appears in enclisis (rather than in mesoclisis) it is a 3rd person accusative. Morphologically these clitics are characterized in both Romance and Albanian by the fact that they (or at least a subset of their allomorphs) bear differentiated nominal class morphology. In Manzini and Savoia (2002 ff.) we argue that nominal class morphology projects the N category, providing the overall N categorial signature of nouns[11]. In this sense, we argue that the categorial signature projected by so-called 3rd person accusative clitics is N. We further argue that N properties are sufficient to satisfy the internal argument of a

[11] In this conception there is no *n* category in the sense of Marantz (1997). Recently Pesetsky (2008), argued for much the same, namely that N should be recognized as the category projected in the noun by particular morphological specifications.

selecting predicate. In short, N implies the presence of nominal class properties (at least in the languages under examination) and the satisfaction of the internal-argument-of relation.

If two clitics are isolated in enclisis (as opposed to other clitics in mesoclisis), then they coincide with the 3rd person accusative (as above) and with the 3rd person dative. A fact related to this is that in Albanian and in several Romance languages so-called 3rd person datives are lexicalized by nominal class morphology (as in the case of Albanian *i*). Positionally as well, there is evidence from several Romance languages that datives occupy the same slot in the clitic hierarchy as accusatives – with which they are mutually exclusive. On the basis of this evidence Manzini and Savoia (2002 ff.) conclude that datives can also project N.

At the same time in Romance languages, when dative clitics display an actual syncretism with accusative clitics, the syncretic form of the accusative is always the plural. In Manzini and Savoia (2002 ff.) we take this an indication that there is some deeper quantificational(-like) property that plurals and datives share. This quantificational property Q (distributivity or other) can be projected by datives on the syntactic tree – in which case they can combine with accusatives in N and precede them. The partial order Q > N is the same observed wherever quantificational properties are ordered with respect to nominal/ argumental properties.

The Q property of datives is at the core of perhaps the most famous syncretism/ suppletivism phenomenon in the Romance clitic system, namely the so-called Spurious *se* of Spanish, illustrated in connection with parasitic plurals in (21) – whereby the dative reading is associated with the middle-passive *se* clitic. The fact is that at least in the so-called impersonal reading of the middle-passive (Manzini 1986, Chierchia 1995, Manzini and Savoia 2002 ff.) *se* must be construed as a variable in the scope of quantificational closures (generic/ universal, existential) – hence it must be a Q clitic itself.

The other clitics present in the hierarchy in (16) are 1st/2nd person ones. In Romance and in Albanian their morphology and the category/ position they project on the syntactic tree depends only on their person denotation – in particular Case is irrelevant, leading them to overlap neither with 3rd person accusatives, nor with 3rd person datives. On the basis of this evidence Manzini and Savoia (2002 ff.) associate 1st/ 2nd person clitics a P(erson) category, here notated, more transparently, as 1/2P to which we assign a position higher than that of N clitics and lower than that of Q clitics.

The same area of the clitic hierarchy, higher than 3rd person accusatives and lower than *si*, is associated with the locative clitic – which is absent from Spanish, but appears in the examples from *Senise*, e.g. (13c). In Manzini and Savoia (2002 ff.) we conclude therefore that this intermediate area of the clitic hierarchy is connected with specifications pertaining to the universe of discourse (speaker, hearer, location). This yields the hypothesis in (36) on the organization of the clitic string.

(36) … [Q [1/2P [Loc [N

We already stressed that the Q > N ordering is reflected in the internal organization of the noun phrase; similarly in the noun phrase, demonstratives (essentially a part of the locative system of natural languages) appear

immediately above N and below quantificational specifications (Brugè 1996, Bernstein 1997). Finally, languages like *Senise* also differ from Spanish in having a partitive clitic. This is in complementary distribution with the accusative and connected like it to internal argument specifications. We conclude therefore on this basis and on the basis of the fact that it follows all clitics with which it cooccurs that it is associated with the same N position as the accusative clitic.

Within the framework defined by the hierarchy in (36), Manzini and Savoia (2004a ff.) propose that the basic clitic split opposes what they call discourse-anchored and event-anchored categories. The core cases of discourse-anchored clitics are $1^{st}/2^{nd}$ person clitics and locatives, which appear in mesoclisis where splits are attested. The core cases of event-anchored clitics are accusatives and partitives, connected with the internal argument specifications. These are in enclisis where splits occur.

Datives can behave as discourse-anchored elements, as in *Senise* where datives are in mesoclisis, or as event-anchored elements, as they do in *S.Marzano*, where they are enclitic like accusatives. There is a good correlation between this oscillation of datives and the fact that on the one hand, as noted by Harris and Halle (2005), they appear to have the same (invariable) inflectional properties as *se* and 1^{st} or 2^{nd} person clitics – while on the other hand these properties enter in a larger inflectional system for *l* bases including accusatives. Extricating the underlying intuition from the technicalities of its implementation we could say that depending on how one looks at them, dative inflectional properties class them together with accusatives or with $1^{st}/2^{nd}$ person clitics. A similar oscillation can be seen in the position datives project. Thus they can take the same low N slot as accusatives or a higher Q slot which puts them in the deictic/ quantificational area of the hierarchy.

The middle-passive clitic *si/ u* is equally interesting. Its variable denotation, requiring quantificational closure (generic or other) evidently puts it into the discourse-anchored set – so that it will systematically appear in mesoclisis. In fact, if there are languages where, as Harris and Halle (2005) state, the mesoclisis position selects *se*, then the relevant split may specifically target quantificational properties (as a subcase of discourse-anchored ones). The fact that *u* appears lower than datives and 1/2P clitics in Albanian examples like (35) need not be in contradiction with its appearance in mesoclisis – since properties other than its variable status may be relevant for its projection of a position in the string in (36). One possibility is that *u* in lexicalizing middle-passive voice in Albanian, targets internal argument specifications (like the accusative with which it is in complementary distribution) – and therefore sits in the low N position in the string.

Strong evidence that what determines the mesoclisis/ enclisis split is not the morphophonological shape of the clitics involved but rather their interpretation is provided by examples (13b), (13d) and (13e) of *Senise*. Thus *nə* is mesoclitic when it has person reference, i.e. is discourse-anchored in present terms and enclitic when it is a partitive, i.e. event-anchored in present terms[12].

[12] A different question is why the partitive and the 1^{st} person plural reading should be syncretic. We already mentioned in fn. 7 that an account of syncretisms in the Romance clitic systems is provided by Manzini and Savoia (2005, 2007, to apper a) in terms compatible with the present assumptions. The Late Insertion model of Distributed Morphology assumes that syncretism represents the emergence of the unmarked. On the contrary we propose that syncretisms

Patterns where clitic clusters split between enclisis and proclisis, as in *Greci*'s (32) or in *Shkodër*'s (33), can be accounted for along the same lines outlined for mesoclisis. In other words our treatment captures the desired continuity between phenomena such as mesoclisis, conventionally of a morphological nature, and phenomena such as enclisis/ proclisis alternations, conventionally taken to be syntactic in nature. The characteristics that differentiates *Shkodër* from other languages considered is that it does not allow for the splitting of clitic clusters. Yet the sensitivity to the opposition between discourse-anchored and event-anchored referents translates into different placements for clitic groups according to whether they do or do not contain a discourse-anchored clitic. Clusters containing such a clitic appear in a higher domain than those not containing it.

Harris and Halle (2005), even assuming they could distinguish correctly the various sets in (16), could not explain why they map to enclisis and mesoclisis in the way observed, as opposed to, say, the reverse. Kayne's (2008) proposal, based on the correlation with clitic order, can predict the particular way in which the clitic split maps to mesoclisis vs. enclisis – except that it begs the question of what determines clitic order in the first place. Because of this, it also meets some empirical problems, since sometimes clitic order and clitic splits go separate ways, as in *S.Marzano*.

Under the present proposal, the fundamental clitic split is between discourse-anchored and event-anchored denotations. What is more, mesoclisis and enclisis are just descriptive terms for the positioning of clitics in the I inflectional domain and in its C modal domain. Taken together, these two conclusions imply a correlation between event-anchored clitics and the inflectional I domain on the one hand (enclisis) and between discourse-anchored clitics and the modal C domain on the other (mesoclisis/ proclisis). This schema is more general than the data at hand and ought to find applications well beyond them; indeed Manzini (2009) provides a possible application of it to the interaction of clitics and clitic copying with the negation.

7. Summary and conclusions

The empirical focus of this paper was relatively narrow, concerning phenomena of mesoclisis (with and without copying of the inflection and/or the clitics) in imperatives of Romance and Albanian. Despite its narrowness the phenomenon has an obvious theoretical interest in that it presents a case of (apparent) reordering of morphological level and syntactic level constituents with one another. Corresponding to this, treatments are available for the phenomenon at no less than three different levels of organization of the grammar, namely Morphological Structure (Halle and Marantz 1994), the phonology (Harris and Halle 2005) and the syntax (Manzini and Savoia 1999 ff. – also Kayne 2008). The first aim of this article has been to show that morphological and phonological analyses present problems sufficient to warrant the exploration of the third major possible solution – namely the syntactic one.

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correspond to the existence of lexical items ambiguous between different readings at the LF interface – based on the positively specified properties of such items. An idea of how this works in practice is provided by the treatment of Spurious *se* sketched here in the discussion introducing (36).

In fact, if we are correct, a syntax-internal treatment for mesoclisis is advantageous for both theoretical and empirical reasons. In the Distributed Morphology treatment it remains mysterious why Morphological Structure would have a re-merge rule – in part redundant with the syntactic rule of movement and in part more powerful than it (allowing for downward movement). In the phonological treatment it remains mysterious why the phenomenon is entirely constrained by morphosyntactic level constituency. A syntactic level treatment solves automatically the second problem – while also eliminating the need for syntactic-like rules in the morphology.

Some of the main empirical facts to be explained, as noted and discussed by Harris and Halle (2005), are why mesoclisis occurs only in contexts where enclisis can also occur (section 1); and why in instances where some clitics are in enclisis and some in mesoclisis the split is not random, but follows a certain clustering of clitics (section 2). Other generalizations we noted are that mesoclisis phenomena single out agreement inflections and that the doubling of inflectional material has a parallel in the doubling of the clitics themselves (section 2).

We argued that a syntactic level analysis is needed to deal with the doubling of clitics, involving in particular the postulation of two different domains for clitic insertion (section 4). Mesoclisis corresponds to the higher domain of insertion and enclisis to the lower domain (section 5). Neither morphophonological information (Harris and Halle 2008) nor a pure correlation with the relative position of clitics (Kayne 2008) are sufficient to explain the true nature of the observed splits – which require a full theory of clitic categorization (section 6). In mesoclisis, the agreement inflection is itself analyzed as a nominal clitic constituent (a 'subject clitic') – which explains why non-agreement inflection do not give rise to mesoclisis (section 5).

If a syntactic analysis is at all feasible, then there is a serious possibility that some reordering of morphological-level and syntactic-level constituents is not performed by morphological readjustment rules or Spell-Out rules – but by core syntax. This has potential implications for the architecture of grammar as a whole, which should be taken into account by the theoretical debate.

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Linearization and the Architecture of Grammar: A view from the Final-over-Final Constraint*

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This paper addresses the issue of the locus of linearization information in the context of a minimalist grammar. Contrary to what is arguably the dominant view in minimalist theorizing today, it is argued that linearization information must in fact be specified Narrow Syntax-internally. The imperative underlying this conclusion is an empirical skewing in the domain of word-order variation, in terms of which head-initial structures associated with a given projection line may only be (harmonically) dominated by head-initial structures, while head-final structures may be dominated either by head-initial or head-final structures in the same context – the so-called *Final-over-Final Constraint* (FOFC). It is argued that attested FOFC effects suggest that linearization information is in fact encoded in such a way – namely, by harnessing an already-required movement diacritic in accordance with Relativized Minimality, arguably a third-factor-imposed principle – that its NS-internal presence does not violate the Strong Minimalist Thesis of Chomsky (2001 *et seq.*). We also consider the question syntactic categories and their formal status, against this background.

1. Introduction

This paper is primarily concerned with linear ordering and its locus in the architecture of grammar. During the GB era, syntactic structure was generally assumed to involve both hierarchy and fixed linear ordering, with the former falling out as the consequence of a principle of UG (X-bar theory) and the latter following from the setting of universally given parameters (e.g. the Head Parameter). In the context of Minimalism, by contrast, there presently appears to be a fairly strong consensus that linear ordering is only established at PF (cf. i.a. Berwick & Chomsky 2008, Boeckx 2008 and Richards 2009). Further, it is often asserted that the language faculty exhibits an "LF bias", with the mapping

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from syntax to SEM conforming to the Strong Minimalist Thesis (SMT; cf. Chomsky 2001) in (1), while that from syntax to PHON does not.

(1) The **Strong Minimalist Thesis**: Language is an optimal solution to legibility conditions, i.e. it is a "perfect", maximally efficient solution to the conditions imposed by the interfaces, SEM and PHON.

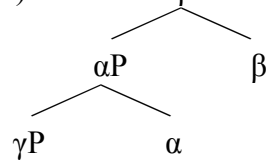
The purpose of this paper is to take issue with these views, and to argue, firstly, that the commonly held "good design" expectation that linearization only comes into play at PF cannot in fact be correct and, secondly, that this fact undermines the view that PF, unlike LF, simply has to "make do" with the incomplete structural information that is fed to it. Our argument is based on a striking empirical asymmetry in the domain of attested word-order patterns, one which is not amenable to a parsimonious "late linearization" account.

The paper is structured as follows: section 2 introduces the empirical facts and the word-order constraint that lead us to reconsider the role of linearization information in Narrow Syntax; section 3 outlines the proposed analysis of these facts; finally, section 4 considers the implications of the analysis and concludes.

2. A word-order asymmetry: introducing the Final-over-Final Constraint

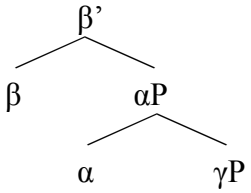
Building on Holmberg (2000), Biberauer, Holmberg & Roberts (2007; BHR) observe a skewing in the word-order patterns attested in the world's languages: while both types of "harmonic" order (i.e. consistently initial and consistently final) are readily found, only one of the expected "disharmonic" types surfaces, namely that involving head-initial phrases dominating head-final ones. This asymmetry is schematized in (2):

(2) a.



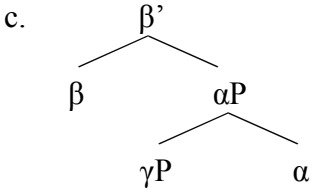
Consistent head-final

b.



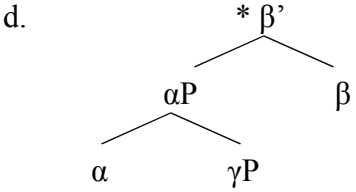
Consistent head-initial

c.



Initial-over-Final

d.



Final-over-Initial

Evidence of the skewing in the disharmonic domain comes from a wide range of structures, discussed in more detail in BHR and also Biberauer, Newton & Sheehan (2009a,b) and Biberauer, Holmberg & Roberts (2009). Here we mention only three: (i) the apparent crosslinguistic absence of VOAux orderings, and (ii) the absence of VO languages with initial complementisers, and (iii) the diachronic pathways which languages appear to follow during the

process of word-order change. As the discussion in section 3.3 will show, these empirical facts can be understood as reflexes of a general constraint, which may be formulated as follows:

(3) The Final-Over-Final Constraint (FOFC)
For all heads {α, β, ..} on a single projection line, if α is a head-initial phrase and β is a phrase immediately dominating α, then β must be head-initial. If α is a head-final phrase, and β is a phrase immediately dominating α, then β can be head-initial or head-final.

*2.1. *VOAux*
Many Germanic varieties permit both harmonic and disharmonic permutations of Aux, V and O. Thus spoken Afrikaans, for example, allows both of the orders in (4a,b) and English-influenced Kaaps additionally permits (4c); no variety of Afrikaans, however, allows (4d), the FOFC-violating order:

(4) a.… dat sy [$_{DP}$ 'n brief] *geskryf* **het** [OV-Aux]
that she a letter written has
'… that she has written a letter'
b. … dat sy **het** [$_{DP}$'n brief] *geskryf* [Aux-OV]
c. … dat sy **het** *geskryf* [$_{DP}$'n brief] [Aux-VO]
d. *… dat sy *geskryf* [$_{DP}$'n brief] **het** [VO-Aux]

This pattern is replicated in other Germanic varieties, both modern and historical, in Finno-Ugric, and also in Basque and Italian Sign Language (cf. Cecchetto 2009). More generally, it appears to be the case that VOAux structures are exclusively permitted in languages featuring non-inflecting auxiliary elements, commonly designated *particles* (cf. i.a. Dryer 2009b for discussion of Niger-Congo languages permitting this structure). That particle-containing VOAux structures should not be viewed as counter-examples to (3) is strongly suggested by data such as the following:

(5) a. yə- ca dɛyo **lɔ** [Bwe-Karen]
1SG-see picture ASP
"I am looking at a picture"
b. ce-ɕɔ mi **jə-khɔ'** phi má nɔ (***jə-khɔ**)
3- say COMP 3- FUT take what
"What did he say that he would take?" (data from Dryer 2009a)

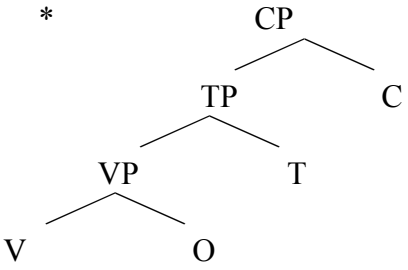
Here we see that non-inflecting particles expressing tense-aspectual (auxiliary) information necessarily occupy a very different position to that in which inflecting auxiliaries obligatorily surface. Significantly, the FOFC-violating final position is never available to the latter, the same pattern that we see in more familiar European languages, all of which feature non-particle auxiliaries. This suggests that inflecting and particle elements are formally distinct in a way that is crucially relevant for FOFC. We return to this point in section 3.3 below.

2.2. The cross-linguistic absence of VO languages with final complementisers
An oft-noted fact about the distribution of subordinating conjunctions (e.g. *that*) is that VO languages systematically lack sentence-final complementisers (Cs; cf.

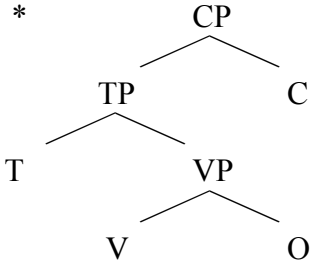
i.a. Hawkins 1990: 256-257, Dryer 1992: 102; 2009a). By contrast, many OV languages have initial Cs. According to the on-line *World Atlas of Language Structures* (*WALS*; Haspelmath et al. 2008), 54 clearly OV languages (out of a sample of 64) feature an initial adverbial subordinator ("because"), and this excludes familiar OV languages like German and Dutch, which, on account of their matrix V2 property, are listed as languages with "no dominant order"; only 2 VO languages are said to feature final adverbial subordinators, but see Newton (2008) for a critique of the descriptions underlying this classification. Evidently, then, there is a skewing in the distribution of complementisers.

On the assumption that C is on the projection line of V (cf. Grimshaw 1991)[1], the fact that VO languages systematically lack final Cs follows directly from (3), as the following diagrams show:

(6) a. *$[_{CP}\ [_{TP}\ [_{VP}$ V O] T] C] -- violates FOFC for α = V and β = T



b. *$[_{CP}\ [_{TP}$ T $[_{VP}$ V O]] C] -- violates FOFC for α = T and β = C



Worth noting here is that it appears to be necessary to draw a formal distinction between subordinating elements of the type illustrated above and so-called *C particles* such as the force particles in i.a. the Chinese dialects (Paul 2009), the Northern Italian dialects (Munaro & Poletto 2006) and Gungbe (Aboh 2006). Firstly, the latter are very commonly restricted to matrix contexts and secondly, comparison of the placement of these elements indicates that subordinators consistently surface in the expected initial position, while the particles surface in apparently FOFC-violating positions. The examples from Vietnamese below illustrate:

(7) a. Tân mua gi **the**?
Tan buy what PRT
'What did Tan buy?'

[1] In the sense that it is part of the clausal functional sequence, it is clear that C should count as part of the extended projection of V. The fact that complementisers are sensitive to verbal properties such as finiteness further reinforces this impression.

b. Anh đã nói (**rằng**) cô ta không tin
PRN ANT say that PRN NEG PRT believe
'He said that she didn't believe (him)'

Once again, then, there are indications that particles are, in some sense, special. Pending further research into their properties, we leave them aside here.

2.3 . Diachronic evidence

Absolute synchronic constraints are expected to have diachronic consequences. Thus if FOFC represents an absolute universal, we expect word-order change to proceed along certain pathways, specifically:

Head-final to head-initial ("OV" to "VO") change must proceed "top-down":
(8) [[[O V] I] C] → [C [[O V] I]] → [C [I [O V]]] → [C [I [V O]]].

Head-initial to head-final ("VO" to "OV") change must proceed "bottom-up":
(9) [C [I [V O]]] → [C [I [O V]]] → [C [[O V] I]] → [[[O V] I] C].

Any other route entails FOFC violations at intermediate stages. Biberauer, Newton & Sheehan (2009a,b) present case studies from the history of Germanic and Ethiopian-Semitic, showing that directionality changes in languages belonging to these families conform to the expected FOFC-determined pathways. Further, it appears that Niger-Congo languages that have undergone varying amounts of initial to final change have likewise done so in the predicted "bottom-up" fashion (cf. Nikitina 2008 for recent discussion); similarly, the Sami languages within Finno-Ugric, appear to have undergone the reverse change "top-down".

3. Accounting for the asymmetry: a closer look at linearisation

The previous section has shown that there appears to be a striking asymmetry in the domain of disharmonic word orders: while initial-over-final orders involving elements on a single projection line are relatively common, final-over-initial orders fail to surface. The same skewing is notably absent where structures involving elements associated with different projection lines occur together. Consider German (10):

(10) … dass sie gerne [$_{DP}$ ein Täschen Kaffee] trinkt
that she gladly a cup-DIM coffee drinks
"… that she enjoys drinking a cup of coffee"

Here a head-initial DP is dominated by a head-final VP, a pattern which is just as common among the world's languages as its inverse (cf. BNS 2009b for discussion and references). Since nouns define extended projections independently of the verbs with which they combine, (3) leads us to expect the absence of an asymmetry in this cross-categorial domain. A similar explanation may also account for the availability of head-initial PPs in V-final languages. Crucially for present purposes, the fact that the asymmetry in disharmonic word orders is not an across-the-board phenomenon suggests that an "external" account in terms of processing constraints is likely to be problematic (see,

however, Cecchetto 2009, for a proposal along these lines[2]). Similarly, the observed facts and the added complication introduced by the non-total nature of the asymmetry make it unclear how a Head Parameter (HP)-based account would be able to rule out the problematic orders without stipulation. In the minimalist context, this is significant: as noted in the introduction, the view that linearization information, like phonological specifications more generally, has no place in NS and should therefore only be imposed at PF, possibly via a PF parameter, is widespread (cf. Biberauer 2008a and Richards 2009 for recent overview discussion and references). It is our contention, however, that the empirical facts mentioned above and the apparent universality of (3) fatally undermine the validity of this assumption. In what follows, we outline an analysis which facilitates a new and, importantly, FOFC-compatible perspective on linearization.

3.1. Theoretical background: the Probe-Goal-Agree system

In terms of the Probe-Goal-Agree approach to syntactic derivations developed since Chomsky (2001), NS-internal movement is triggered by (generalized) EPP-features. Crucially, these features must be thought of as distinct from the formal features involved in Agree operations: unvalued features on a given head (loosely designated the *Probe*) may probe corresponding valued features on one or more heads (loosely designated the *Goal*) in their c-command domain, thereby effecting Agree operations. Importantly, feature valuation, which is the outcome of Agree, is therefore not dependent on the creation, via movement, of specific local configurations (Spec-Head or Head-Head), as was the case in earlier checking-based theories. Agree-driven movement, instead, only takes place if a given probe is associated with an EPP-feature. As pointed out by Pesetsky & Torrego (2001), movement triggers may therefore essentially be viewed as "a feature-of-a-feature", i.e. as diacritics.

Movement need, however, not always be Agree-related; phase-heads specifically are assumed to be able to trigger *non*-Agree-mediated movement of elements to their edge, via so-called Edge Features/EFs[3], which they may or may not "spread" to the heads they select. We assume these EFs to be identical to the generalized EPP-features mentioned above and henceforth represent movement triggers as ^.

3.2. Linearization and movement

The apparatus outlined in the previous section leads us to expect the following types of movement:

(11)a. Agree-driven movement: e.g. v [ϕ^], where v's ϕ-probe is associated with a movement trigger.

[2] John Hawkins (p.c.) confirms that his influential processing theory (Hawkins 1994, 2004) would not seem to offer a ready explanation for the observed facts.

[3] Worth noting here is that the phase head-related EFs discussed here should not be confused with the generalised Merge features, also designated *Edge Features*, ascribed to every lexical item in Chomsky (2006 *et seq.*): as languages do not differ in respect of the fact that their lexical items may undergo External Merge/EM, whereas they do differ in respect of whether already-merged, and thus EF-bearing, items can trigger movement (Internal Merge/IM), it may be necessary to draw a distinction (*contra* Chomsky 2006:17, 2008:144). We leave open the possibility that non-Agree-driven movement simply involves a head associated with two EFs, i.e. an EM-triggering EF which bears a further IM-triggering EF as a secondary feature.

b. Non-Agree-driven movement: e.g. v^, where ^ is a free-standing trigger not specifically associated with any of a head's contentive features (see note 3).

Building on insights in Rizzi (2008), we suggest that there is in fact a third species of movement, namely Selection-driven movement (cf. also Holmberg 2000 and Julien 2002 for early proposals along these lines; Pesetsky & Torrego 2006 and Cecchetto & Donati 2009 also assume Selection to involve probing, although their proposal differs from that made here). For Rizzi, Agree may be viewed as Internal Search, whereas Selection is External Search; a head can therefore be thought to probe either the structure which it c-commands or the Lexical Array which is at that time feeding the derivation. Since the features triggering Internal Search are uncontroversially assumed to have the option, subject to parametric variation, of being associated with ^, the question arises why the same should not be possible for those triggering External Search. More specifically, if External Search is in fact driven by c-selection features, we might expect these features, like their Agree-triggering counterparts, also to have the parametrically determined option of being associated with ^ or not. Our contention is that this option does in fact exist, and that the non-availability of this mode of movement, just like the non-availability of movement more generally (cf. Chomsky 2005), would have to be *stipulated*. Specifically, we propose that c-selection-driven movement triggers comp-to-spec movement, with the selected XP raising into the specifier of its selector.[4] Further, we argue that interpreting ^ in the usual manner as a trigger for *leftward* movement paves the way for a principled account of the FOFC constraint, one which has important implications for our understanding of the architecture of the grammar.

3.3 Accounting for the asymmetry

Assuming the movement options outlined in (11) plus the existence of Selection-driven movement, we are led to expect that languages may differ in respect of:

(a) whether given heads feature or lack ^; and, if ^ is present,
(b) whether ^ is free-standing or associated with Selection or with Agree features.

If ^-distribution were completely free, with heads being able to bear or lack ^ independently of one another and independently of the nature of ^'s association, the crosslinguistic occurrence of "harmonic" patterns would reduce to an unexplained coincidence: in the context of the system assumed here, "harmony" falls out from heads systematically lacking or bearing ^ (head-initial and head-final systems, respectively). Similarly, the discrepancy that lies at the heart of FOFC cannot be accounted for if heads may either bear or lack c-selection-related ^ independently of one another. To capture the observed skewings, a formal constraint on the distribution of (c-selected) ^ (henceforth: ^) along the lines of (12) appears to be necessary:

[4] C-selection-driven movement therefore violates anti-locality (cf. i.a. Pesetsky & Torrego 2001 and Abels 2003). To the extent that anti-locality still holds of *non*-c-selection-related movements, earlier arguments contra anti-locality stand, with the anti-locality violation in the c-selection case being justified in SMT terms as it entails that an already required movement diacritic (^) may also be harnessed to signal directionality information (see section 4 for further discussion).

(12) If a non-lexical head X^n in the extended projection E of a lexical head L has ^ associated with its selection feature for a lower head X^{n-1}, then so does X^{n-1}.

In terms of (12), higher heads on a given projection line may only bear ^ if the lower heads on that projection line do so. If v is v^, V will therefore also have to be V^. Where auxiliaries are v-elements, this constraint ensures that VOAux orders will remain unattested, this order requiring v^ to select V, in contravention of (12). By transitivity, the same is true of cases where auxiliaries are T-elements. VOAux orders derived via c-selection-driven movement are therefore ruled out, as desired. By contrast, the inverse disharmonic order – AuxOV – is ruled in since this order results when V bears ^, but v lacks this diacritic. Assuming C to be part of the V's extended projection, VOC is likewise ruled out: this case would involve C^ dominating ^-less lower clausal heads, in contravention of (12). Frequently attested COV (cf. Latin, West Germanic, Turkish, etc.) is, however, expected to be permitted since this ordering entails (a) lower head(s) bearing ^, while C lacks this diacritic. (12), then, offers a formal account of the synchronically attested FOFC asymmetries discussed in sections 2.1 and 2.2 above. The diachronic facts noted in section 2.3 likewise follow since we expect (12) to determine the shape of all synchronic grammars including the successive grammars involved in change scenarios; intermediate grammars may not, therefore, entail a violation of (12).

(12) also allows us to understand why cases in which FOFC appears to be violated would arise. Consider first the case of V selecting DP. Unlike V and v/T/C, V and D are not part of the same projection line: while the former are all heads on the clausal projection line, – the main "spine" in a clausal structure – D represents a functional head associated with a distinct "spine", the extended projection of N. As such, (12) does not lead us to expect V^/v^ dominating D to be any more problematic than V/v dominating D^, precisely what the typological record suggests.

To the extent that Ps are lexical categories which therefore initiate extended projections independently of N and V, we are also led to expect both V^/v^ and P-containing grammars, i.e. grammars in which initial PPs are dominated by final V/vPs, and the inverse, non-FOFC-violating word order, i.e. initial V/vPs with final PPs. This seems to be correct (cf. Haspelmath et al. 2008), although it is worth noting that P-directionality does appear to harmonise very strongly with V-directionality (cf. also Dryer 1992, 2009a). Also worth noting in connection with Ps is the non-uniform nature of the elements ascribed to this class: while some Ps exhibit formal properties more typical of lexical categories, others appear to instantiate "light"/functional elements (cf. van Riemsdijk 1998, the contributions in Asbury et al. 2008, and much recent work by Peter Svenonius). This discrepancy is particularly evident in the context of circumpositional structures, where the difference in the linearization properties of the two Ps coincides with differences in their semantic, phonological and grammatical properties (essentially, one P is "light"/more functional head-like, the other is "strong"/more lexical head-like). The expectation in the present context is, then, that (more) lexical Ps may exhibit directionality at odds with the nominal and/or verbal heads they dominate and/or are dominated by – since they count as the bottom of a new extended projection – whereas functional Ps may not – since

only lexical heads count as bottoms of projections. This prediction remains to be fully tested, but seems correct for familiar West Germanic circumpositional structures.

As noted in sections 2.1 and 2.2, there are numerous contexts in which so-called *particles* – roughly, non-inflecting "little words" – appear to violate FOFC.[5] The question is why this should be so? Given how little is presently understood about the formal properties of particles, it is difficult to answer this question with any degree of confidence. We, however, take data of the type illustrated in (5) and (7) to indicate that particles should not simply be viewed as exponents of the same functional heads as those realised by composite elements, e.g. an auxiliary which expresses not only tense, but also agreement and possibly mood or voice or evidentiality, etc., or a C-element which expresses not just subordination, but also finiteness and possibly also mood and/or evidentiality, etc. Particles, instead, appear to realise sub-heads associated with "cover-term" heads like v, T, C and D (consider, for example, Aboh's detailed (2004, 2006) illustrations of this state of affairs in Gungbe). If particles are indeed a (sub)type of functional head, however, we would expect them to be FOFC-respecting elements, which cannot therefore bear ^ in structures featuring lower heads lacking ^. Worth noting here is that two aspects of the formal realisation of particle elements suggest that a functional-head analysis may not be correct. To see this, it is necessary to clarify what is meant by 'lexical' and 'functional' category in the context of the theoretical framework adopted here.

Taking canonical cases like V and N as our point of departure[6], a reasonable interpretation would be that lexical categories are elements which may only probe externally, i.e. whose NS-relevant featural make-up entails at most a categorial specification (see note 6) and c-selection features, with Internal Agree-related features being entirely absent; in turn, functional categories are those which may probe both internally and externally, in the manner usually assumed. Against this background, particles emerge as a rather unusual type of functional head since their formal realisation systematically fails to give any evidence of the Internal Agree operations they are expected to be involved in: although there is no requirement for PF to spell out NS-internal Agreement operations, it is clear from examples such as those given in (5) and (7) that it is meaningful to draw a distinction between agreement- and non-agreement-reflecting elements, with the latter exhibiting peculiar behaviour that seems to be absent with the former. The extent to which particles are involved in Internal Agree (i.e. standard probing) operations is therefore unclear. Secondly, it is notable that the semantics (and pragmatics) of particles is more idiosyncratic and difficult to pin down than that of non-particle functional elements, a state of affairs which to some extent resembles the situation with lexical elements. In the cases where this is less obviously true (e.g. Focus and Negation particles), it is worth noting that the particles in question appear to lack not only Internal

[5] Worth noting here is the fact that Greenberg (1963), similarly, observed that particles frequently emerge as outliers in the context of the typological word-order generalisations he established. He therefore disregarded them.

[6] In referring to *N* and *V* here, we leave aside the possibility that N and V may in fact be complex heads derived via prior merger with nominalizing and verbalizing heads (cf. Myler 2009 for discussion which suggests that verbalizing v and transitivity, etc-determining v cannot be one and the same entity). The point here is crucially that we assume lexical categories to be categorially specified.

Agree-triggering probes, but also c-selection-related (External Agree-triggering) properties: these elements may combine with XPs of any type. As such, the only possible "point of attachment" for ^ would be the EFs of the relevant elements (cf. section 3.1 above). Particles of this type, then, would not violate (12) since their ^ is not c-selection-related. Assuming particles not to be a homogenous category, with the absence of both internal and external probes not being definitive of the entire class, we are left with the question of how particles which do appear to c-select (i.e. those which seem to surface in fixed hierarchical positions) can be accounted for. The proposal here is that these particles may in fact be lexical rather than functional elements, i.e. elements bearing only c-selection, but not Agree-related probes. As lexical elements, they cannot count as part of the extended projection of the structure they dominate, with the result that (12) is once again respected. We leave the details of this matter to future research, noting here only that current theoretical assumptions may facilitate valuable, but until now, unexplored insights into the nature of syntactic categories.

What we have seen so far is that (12) appears to fare well in accounting for the asymmetry discussed in section 2. A question that arises given the discussion of particles, which highlights that head-finality need not only result from c-selection-driven movement, is how unattested orders derived via Agree- or EF-related movement (cf. section 3.2) can be ruled out. Why, for example, is it not possible for SVOAux orders to be derived via one of these alternatives modes of movement, neither of which violates (12)? Starting with EF-related movement, we follow BHR in assuming SVOAux orders derived in this way to be ruled *in*, but, crucially, to be associated with typical A' interpretive properties (focus, etc.). This seems to be correct (see BHR for discussion). As far as Agree-related movement (involving piedpiping) is concerned, we again follow BHR, this time ruling *out* this possibility on the grounds that the phase-based way in which derivations proceed, with material in the complement domain of phase heads undergoing Radical Spellout and therefore being unavailable for subsequent movement operations, precludes the generation of Agree-driven SVOAux structures (again, see BHR for discussion). This last case highlights the important fact that FOFC effects are not uniquely the consequence of (12), but that they in part also follow from independently motivated architectural considerations.

4. Implications and conclusions

The preceding discussion has argued for a model of the language faculty in terms of which linearization information is present in NS. At first sight, this proposal might seem to conflict with (1) since a system in which purely hierarchical syntactic structure is converted into linear structures at the PF interface, i.e. at the point at which it is first *needed*, may intuitively seem like the most economically designed one; having the information available throughout the derivation, where it serves no purpose, seems unnecessary (another instance of "look ahead"), particularly if a principled mechanism can be uncovered to govern hierarchy-linearisation conversion.

We have argued, however, that a striking skewing in the typological record suggests that the language faculty cannot in fact be constructed in this way: head-directionality options are subject to the constraint in (12), which entails

that the directionality of individual heads is dependent on the directionality of certain others. It is not clear how the effects of this constraint may be imposed at PF, other than by stipulation. One could, of course, interpret ^ as a PF diacritic, interpreted as signalling that the complement of a ^-bearing head be linearised to its left. This would, however, entail the postulation of a specifically PF-legible diacritic, i.e. a special device relevant to PF only. Furthermore, it would leave unexplained why ^ should signal leftward and not rightward linearization, with the question of whether this system implies that head-final structures are "more marked" than head-initial ones also arising. By contrast, (12) viewed as an NS-internal constraint, drawing on devices evidently required by the computational system, emerges as a very natural constraint.

Firstly, it references c-selection features and the movement diacritic (^), both of which are independently required, the latter to enable the computational system to construct both discourse-neutral and discourse-marked structures (cf. the so-called *duality of semantics* property of natural language syntax). Secondly, since movement is always leftward (cf. Kayne 1994 and Abels 2008 for overview discussion), the fact that ^ should signal leftward placement of complements also follows directly: linearization is just another movement-derived effect. Thirdly, the constraint in (12) in its essence states that the distribution of ^ is subject to a "no skipping" constraint of the type that is familiar from Relativised Minimality (RM, Rizzi 1990, 2001): just like other movement types (Agree-driven, non-Agree-driven, etc.) cannot "skip" an intermediate position of the same type, the distribution of c-selection-related ^ cannot "skip" an intermediate c-selecting head within the same extended projection. All three of the movement types discussed in section 3.2 and 3.3 above therefore respect RM, which appears to be a syntax-internal constraint, though undoubtedly one imposed by third-factor considerations (cf. BHR 2009 for more detailed discussion). Furthermore, viewing linearization as the consequence of a species of movement operation opens the possibility of moving beyond the view that (partially) head-final languages are somehow "more marked" than their head-initial counterparts: if linearization-related movement is simply one species of movement, it is clear that the "calculation" as to how "marked" a language is in movement terms should include not just linearization movements, but movement operations *tout court*. In this context, the oft-observed fact that OV languages tend to be *wh*-in situ takes on a new significance.

The picture that emerges, then, is of a system which satisfies the SMT by harnessing the movement diacritic it independently requires to facilitate "duality of semantics" not only to fulfil this design requirement on natural language, but also to solve a further design requirement, namely that of ultimately delivering linearised strings that can be externalised in a temporal dimension. Viewed from this perspective, the NS-internal presence of linearization information can be viewed as the reflex of a system which is constructed so as to make maximally economical use of its necessary components, the diametric opposite of the standardly held view. Evidently, many aspects of the proposal outlined here require more detailed, systematic working out, something which space constraints preclude in the present context (but cf. BHR 2009). The aim here was simply to outline some low- and high-level architectural consequences of rejecting the currently dominant minimalist view that linearization information has no place in syntax; if the ideas in this paper are on the right track, there

would appear to be no need to assume the currently much-discussed "LF bias" in the context of the SMT.

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Bantu verbal extensions: a cartographic approach

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In this work I am going to discuss the nature, productivity and combinatory possibilities of verbal extensions in Bantu languages, considering some Tshiluba data. I will argue that this phenomenon is best accounted for within a cartographic approach to sentence structure.
Though verbal extensions are generally treated as a unitary phenomenon in the literature on Bantu, several important differences can be observed; hence I will argue that extensions should be divided into two main groups, 'syntactic' and 'lexical' extensions, and the latter into two sub-groups. I will assume that syntactic extensions are merged under specialized functional heads in the predicative domain, while truly lexical extensions are merged with the verb stem in the lexicon.
Finally, the analysis of the so-called 'lexical-argumental' extensions will lead to the assumption of a second vP projection immediately above VP, in whose head these extensions are merged. Therefore, the two phase heads, C° and v°, will exhibit a similar behaviour, in that they both consist of two separate heads, between which other functional projections are generated.

1. Introduction. Bantu verbal extensions

Verbal extensions, namely suffixes placed between the stem and the final inflection of a verb, in order to "extend" the radical and form verbal derivates, are a phenomenon that typically characterizes Bantu languages (cf. Alexandre 1981). However, the number, type and form of verbal extensions varies considerably among languages. For modern Tshiluba – one of the most conservative Bantu languages – I have highlighted eleven different suffixes (cf. Cocchi 1990, 2008), morphological variants aside[1]:

[1] In Table 1, some extensions exhibit different forms, which generally arise from the application of regular vowel and consonant harmony rules to the basic form. Thus [i] > [e], and [u] > [o], if the preceding syllable contains a middle vowel; analogously, [l] > [n] if the radical ends with a nasal sound (cf. Willems 1949). However, I have found no principled explanation for the alternation of voiceless and voiced palatal fricative consonant in the causative extension.
The reconstructed forms in Proto-Bantu are taken from Guthrie (1967-71).

Table 1: Verbal extensions in Tshiluba

Tshiluba extensions	Definitions	Reconstructed forms in Proto- Bantu
-il- / -el- / -in- / -en-	Applicative	* -ID-
-ish- / -esh- / -ij- / -ej-	Causative	* -I- / * -ICI-
-angan-	Reciprocal	* -AN-
-ibu- / -ebu-	Passive	* -U- / * -IBU-
-ik- / -ek-	Neutro-Passive	* -IK-
-ik- / -ek-	Neutro-Active	* -IK-
-am-	Stative	* -AM-
-ul- / -ol- / -un- / -on-	Reversive	* -UD-
-ulul- / -olol- / -ununun- / -onon-	Repetitive	* -UDUD-
-akan-	Extensive	?
-at-	Contactive	* -AT-

2. A preliminary classification

Though verbal extensions are generally treated as a unitary phenomenon in the descriptive literature on Bantu languages (e.g. Guthrie 1967-71, Alexandre 1981, Schadeberg 1983), several important differences concerning function, productivity, combinatory possibilities and mutual exclusion patterns can be observed. In particular, I will assume that, as a start, extensions should be divided into two groups, which share an analogy of behaviour; I will call them, respectively, 'syntactic' extensions and 'lexical' extensions.

2.1. Syntactic extensions

In this group we find causative, applicative, passive and reciprocal, exemplified in (1) to (4) below[2]:

(1)	mukaji	u-sumb-**ish**-a	muana	tshimuma	Causative
	woman	1-buy-CAUS	boy	fruit	
	'the woman makes the boy buy fruit'				
(2)	mukaji	u-sumb-**il**-a	mfumu	tshimuma	Applicative
	woman	1-buy-APPL	chief	fruit	
	'the woman buys fruit for the chief'				
(3)	tshimuma	tshi-sumb-**ibu**-a	(kudi muana)		Passive
	fruit	7-buy-PASS	(by boy)		
	'the fruit is bought (by the boy)'				
(4)	baledi	ba-nang-**angan**-a			Reciprocal
	parents	2-love-REC			
	'parents love each other'				

[2] Bantu verbal forms are composed of several parts, as indicated in the glosses (cf. Alexandre 1981): a subject prefix (glossed with a number, which indicates the noun class the subject belongs to), the radical, verbal extensions (if any), and the final inflection (often simply a vowel), which I will neglect in the glosses. I have purposefully abstracted away from more complex forms, which may involve a Tense/Aspect affix between the prefix and the radical, and eventually one or more object affixes between the radical and the extension, as their discussion would be immaterial for the present purpose.

These extensions have several properties in common: they are highly productive, in that they virtually attach to any verb[3], they easily combine with other extensions in multiple derivations (always in a fixed order), and, most importantly, their presence deeply influences the argument structure of the verb, and causes a change in the grammatical functions of the constituents of the non-derived sentence.

Indeed, passive and reciprocal convert a transitive sentence into an intransitive one, by removing one argument, while causative and applicative add an extra argument, respectively called causee and applied object. Crucially, these new arguments acquire "real" object properties, as in Baker's (1988) definition: they can be expressed by an object pronominal affix, and become the subject of the corresponding passive sentence.

In many Bantu languages, such as Swahili or Chichewa (the so-called 'asymmetrical' languages; cf. Bresnan and Moshi 1990), the presence of the new argument causes the 'demotion' of the theme-DP, which loses the above-mentioned object properties. This does not happen in Tshiluba and the other 'symmetrical' languages (among which Kinyarwanda and Kichaga), where the theme maintains such properties, with the consequence that a derived transitive verb becomes ditransitive, and even 'tritransitive', if applicative and causative apply to the same stem. Likewise, a derived intransitive verb becomes transitive[4].

As an example of the symmetrical behaviour of DP-objects in Tshiluba, the causative sentence in (1) above is made passive in (5a-b) below: notice how either the causee or the theme may be promoted to the subject position and control subject agreement:

(5) a. muana u-sumb-**ish**-**ibu**-a tshimuma (kudi mukaji)
boy 1-buy-CAUS-PASS fruit (by woman)
'the boy is made to buy fruit (by the woman)'
b. tshimuma tshi-sumb-**ish**-**ibu**-a muana (kudi mukaji)
fruit 7-buy-CAUS-PASS boy (by woman)
'fruit is made to buy to the boy (by the woman)'

2.2. Lexical extensions

In this group we find neutro-passive, neutro-active, stative, reversive, repetitive, extensive and contactive, exemplified in (6) to (12) below:

(6) tshibi tshi-kang-**ik**-a Neutro-passive
door 7-close-NP
'the door closes /the door is shut'

(7) muntu u-shik-**ik**-a muana Neutro-active
man 1-sit-NA boy
'the man seats the boy'

(8) muana u-shik-**am**-a Stative
boy 1-sit-STAT
'the boy sits'

[3] Quite obviously, the passive extension may attach only to transitive verbs, and the reciprocal one to transitive verbs with a plural or conjoined subject.

[4] Only in symmetrical languages like Tshiluba it is possible to derive an intransitive verb with an applicative extension (Cocchi 1992). On the contrary, causative may apply to intransitive verbs in both groups of languages (cf. also Baker 1988).

(9)	muana	u-kang-**ul**-a	mulangu	Reversive
	boy	1-close-REV	bottle	
	'the boy opens/uncorks the bottle'			
(10)	muana	w-amb-**ulul**-a	bulelela	Repetitive
	boy	1-say-REP	truth	
	'the boy repeats the truth/tells the truth again and again'			
(11)	bidia	bi-kwat-**akan**-a		Extensive
	maize pudding	8-stick-EXT		
	'the maize pudding sticks completely'			
(12)	kamelo	ka-lam-**at**-a	ku mutshi	Contactive
	camel	12-tie-CONT	to tree	
	'the camel is tied to the tree'			

Typically, these extensions are not very productive, in that they are typically found, in an almost idiosyncratic way, together with certain verbs or certain semantic classes of verbs (some of which hardly ever appear in the simple non-derived form). Moreover, they are always adjacent to the verb stem: they may combine with syntactic extensions – always preceding them – but not among themselves[5]. Finally, they change the meaning of the radical in a regular and often predictable way.

The preliminary conclusion that can be drawn at this point is the following: lexical extensions are simply suffixes which add an extra significance to the semantic import of the verbal radical, while syntactic extensions do not only change the semantic meaning of a verb, but also have important implications on argument structure, as seen in (5) above.

3. The position of syntactic extensions

In the spirit of a cartographic approach to sentence structure[6], I will propose that Bantu syntactic extensions represent the lexicalization of different functional heads. In particular I argue that syntactic extensions, whose presence influences the number and thematic role of the arguments of a clause, are functional heads generated in the predicative/thematic domain, i.e. between v° and V°[7]. The fact that they are rigidly ordered, as in (13) below, confirms that the hypothesis of a hierarchy of functional projections, where extensions are merged, is on the right track[8]:

(13) Verb stem > Causative > Applicative > Reciprocal > Passive > Final vowel

[5] See Section 6, ex. (22), for an exception.

[6] The literature on the cartographic approach to sentence structure is nowadays very vast and articulated. For a good compendium of the history and main features of this approach, as well as its relation to minimalism, see Cinque and Rizzi (2008) and the references cited therein.

[7] On theta-related functional heads see also Cinque (2006), whose assumptions may (partially) overlap with what is hypothesized in the present work.

[8] An analogous hierarchy is found in Damonte (2007) for Pular, an African non-Bantu language. Besides, double causatives and double applicatives are also possible (Cocchi 1990, 2008), hence these projections can be recursive. See again Damonte (2007) for other examples of double applicatives in Pular (often with a different function, as the applicative suffix may convey different meanings, such as benefactive and instrumental).

The sentences which follow provide examples of the rigid order of verbal extensions, in obedience to the hierarchy in (13); the order of DPs following the complex verb is likewise rigid:

(14) mukaji u-sumb-**ish**-**il**-a mfumu muana tshimuma
woman 1-buy-CAUS-APPL chief boy fruit
'the woman makes the boy buy fruit for the chief'

(15) baledi ba-nang-**il**-**angan**-a muana
parents 2-love-APPL-REC boy
'parents love each other for the boy'

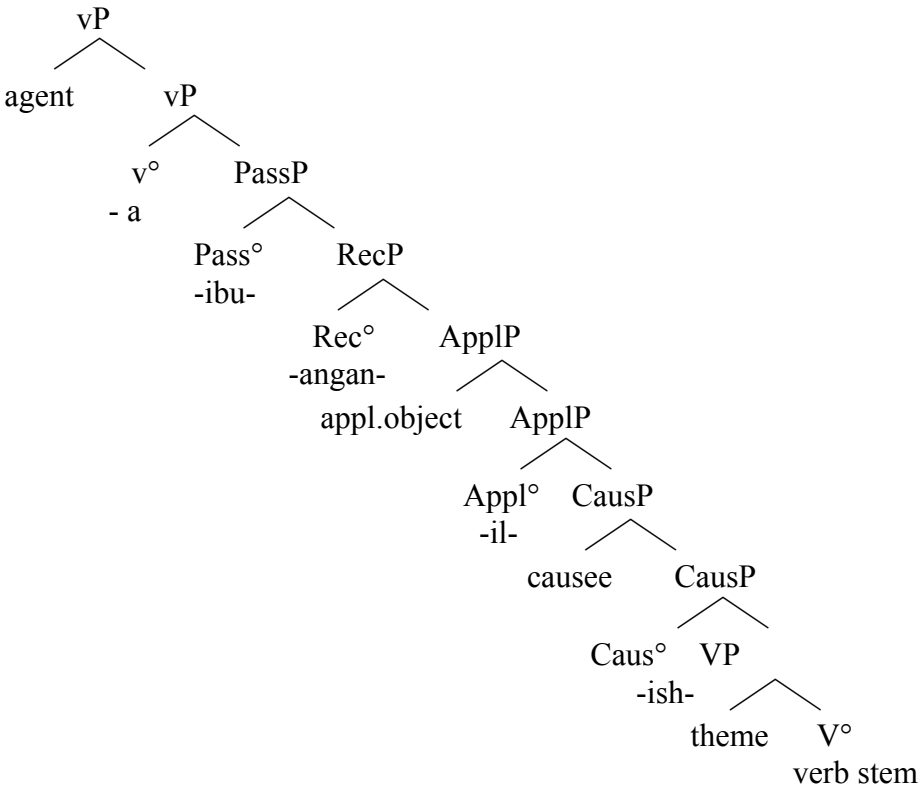
(16) baledi ba-nang-**ish**-**angan**-**ibu**-a kudi muana
parents 2-love-CAUS-REC-PASS by boy
'parents are made to love each other by the boy'

(17) tshimuma tshi-sumb-**ish**-**id**-**ibu**-a[9] mfumu muana (kudi mukaji)
fruit 7-buy-CAUS-APPL-PASS chief boy (by woman)
'fruit is made to buy to the boy for the chief (by the woman)'

Looking at the examples in (14) to (17), we immediately notice that the DPs following the complex verbal form are rigidly in the reverse order with respect to verbal extensions. In line with Baker's (1985, 1988) Mirror Principle, as well as its feature-based version proposed in Cinque (2006: 44), I will thus (provisionally) assume the structure in (18) to account for the hierarchy seen in (13). Accordingly, the verb stem is generated in the lowest V°-head; it then raises head-to-head and incorporates the extension suffixes, when present, until it reaches the final vowel/inflection in v°, which always follows all extensions and closes the verbal form:

[9] In Tshiluba, [l] > [d] whenever [i] follows (thus the suffix -il- > -id- when followed by -ish- or -ibu-, as in the example). The sequence -di- is always pronounced as a voiced palatal affricate.

(18)



The structure in (18) will crucially enable us to account for the rigid order of the DPs following the complex verb[10]. In fact the DP-theme, which is regularly generated within VP, follows all of the other DP-objects. The causee is generated in Spec(CausP): it will then precede the theme and follow the applied object, as in (14). The latter is generated in Spec(ApplP); hence it is adjacent to the complex derived verb and precedes all of the other DP-objects.

The DP-agent, which precedes the whole complex verb, is generated in Spec(vP), as assumed in recent theory (Chomsky 1995, 1998 and related work); in the following phase of the derivation (which will not be discussed here), it will first move to Spec(TP) to become the sentence subject, and then further upwards[11].

The presence of the passive extension renders the sentence unaccusative. This fact was already captured by Baker, Johnson & Roberts (1989), who assumed that the passive morphology "absorbs" the external theta role. In modern terms, we can rephrase this intuition by claiming that, when the passive extension is present, no DP is base-generated in Spec(vP). As a consequence, one of the DP-objects will have to become the sentence subject and agree with the complex verb (by means of the subject

[10] Indeed, a structure where the suffixes were generated in the order we see them in the derived verb, i.e. with the causative suffix on top and the passive one at the bottom, would not account (unless with extra speculations) for the order of the DPs observed in examples (14) to (17).

[11] In previous studies (Cocchi 2000 and following work) I have argued that the Tense/aspect affix, which is present in most Bantu verbs, is generated in a C°-type head; hence the subject prefix, which always precedes this affix, will also be a head in the C°-domain. The DP-subject will presumably end its derivation in the specifier of such a head, thus preceding the whole complex verbal form.

prefix, as seen in (5a-b) above). According to phase theory, the DP in question might first have to move to the edge of the phase, on its way to Spec(TP)[12].

Similarly, we may assume that the reciprocal extension (which detransitivizes the verb) 'absorbs' the internal theta-role. As a consequence, VP has no theme-object, when the reciprocal extension is present.

4. The position of lexical extensions

As for lexical extensions, I will assume that they do not represent the lexicalization of independent functional heads, but rather are derivational suffixes which merge together with the verb stem in the lexicon, prior to syntax. Indeed, these suffixes are always adjacent to the verb stem and, together with it, contribute to the semantics of the complex verb. This recalls the regular, purely morphological processes of verbal derivation in other languages, such as Italian and English, also exemplified in (19)[13]:

(19)	ku-kang-a	vs.	ku-kang-**ul**-a	(cf. (9) above)	similar to :		
	15-close		15-close-REV		tapp-are	vs.	**s**-tapp-are
	'to close'		'to open'		cork	vs.	**un**-cork

The different status of lexical extensions, with respect to syntactic ones, and their stricter relationship with the verb stem is confirmed by the fact that many stems always need a lexical extension, or different ones, and are not grammatical as bare forms (e.g. **kushika* vs. the derived forms *kushikika* 'to seat' and *kushikama* 'to sit' seen in (7)-(8) above; **kulama* vs. the derived form *kulamata* 'to attach (intr.)' in (12)). Cross-linguistically, a phenomenon like this is not unknown: see, for instance, the existence of Italian derived verbal forms like *s-gombrare* 'to clear away' and *in-gombrare* 'to obstruct', vis-à-vis the non-existence of either an underived verb **gombrare*, or a noun or adjective **gombro*.

The same conclusion is also suggested by the intuitions of native speakers, which are reflected by the compilers of dictionaries (e.g. Willems 1960): a verb + lexical extension, like *kukangula* 'to open' in (19), is listed in dictionaries as an independent entry (as is the case for Italian *stappare* and its English counterpart *uncork*), while this does not hold for a verb + syntactic extension, unless lexicalised. Indeed, syntactic extensions may undergo a morphological process of lexicalization: in this case, the extension must be adjacent to the verb stem (irrespectively of its usual position), and the complex verb + extension acquires a new idiosyncratic meaning, as shown in (20) for a lexicalised causative suffix:

[12] The Phase Impenetrability Condition states that operations like Move and Agree cannot look into a strong phase below its head. Hence only the head and its specifier – but not its domain – are accessible to such operations (Chomsky 2001). Strong phases are assumed to be C and v*, namely v with a specifier.
In passive clauses, like the one under discussion, v° is assumed to be present (Chomsky 2001), but it does not project a specifier, hence it should not count as a strong phase. However, it has been recently suggested that any v should count as a phase; things being so, the DP-object should first move to the edge of v° - Spec(vP) - otherwise it would not be accessible for further operations.
However, this issue lies beyond the scope of the present paper and I will postpone its discussion to future research.

[13] Since the infinitive represents the nominal form of a verb, as traditionally assumed, in Bantu the infinitival inflection is expressed with a noun class prefix, which is class 15 '*ku*-' in Tshiluba.

(20) mfumu u-long-**esh**-a muana
the chief 1-learn-CAUS boy
'the chief teaches the boy' < lit. 'the chief makes the boy learn'

5. A finer-grained distinction: 'Lexical-argumental' extensions

However, in spite of what they have in common, within lexical extensions a non-negligible distinction should also be drawn. Indeed, while contactive, extensive, reversive and repetitive suffixes provide a purely semantic contribution, the presence of neutro-passive, neutro-active and stative is instead linked to the number of arguments of the clause. Specifically, neutro-passive converts a transitive verb into an intransitive one (cf. *kukangika* 'to be open/to open (intr.)', in (6) above, vs. *kukanga* 'to open (tr.)'), while neutro-active and stative attach to intrinsically intransitive stems − often the same ones − giving as output a transitive verb in the former case (*kushikika* 'to seat', in (7)) and an intransitive in the latter (*kushikama* 'to sit', in (8)).

Things being so, why have these extensions been grouped together with lexical – rather than syntactic − extensions, in the present work?

The main reason lies in an extremely different degree of productivity with respect to syntactic extensions, coupled with the already mentioned fact that most of the stems they attach to are never observed without any extension (e.g. **kushika*), thus underlying the strict, almost idiosyncratic relationship between stem and suffix that we have observed to hold also for some truly lexical extensions (cf. **kulama* vs. *kulamata* 'to attach (intr.)/to be tied to').

This strict relationship, vis-à-vis the higher degree of autonomy shown by syntactic extensions, is also reflected in the fact that the extensions in question are always adjacent to the verb stem and precede the eventual syntactic extensions in multiple derivation:

(21) muana u-kang-**ik**-**ish**-**il**-a mfumu tshibi
boy 1-close-NP-CAUS-APPL chief door
'the boy has the door shut for (the benefit of) the chief'

Therefore, we may conclude that, while syntactic extensions are genuine and productive derivational suffixes, neutro-passive, neutro-active and stative extensions represent part of the lexical entry (on a par with truly lexical extensions), a part devoted to signal the (in)transitivity of a verb, as their contribution reduces to this. I will call them 'lexical-argumental (L/A) extensions'.

6. The position of lexical/argumental extensions

At this point we should discuss where lexical-argumental extensions are generated. Two hypotheses are available.

On the one hand, we might argue that, like the other lexical extensions, they represent part of the lexical entry, and are consequently merged with the verb stem in the lexicon, prior to syntax. This explanation would best account for their scarce productivity, as well as for their obligatory presence together with some specific stems. Conversely, this hypothesis raises some non-negligible problems. First, truly lexical extensions never interfere with argument structure, unlike L/A extensions; second, truly lexical extensions are always mutually exclusive, as L/A ones are, but

we may (though seldom) observe one lexical and one L/A extension together, the former always preceding the latter:

(22) tshibi tshi-kang-**uk**-a (< tshi-kang-**ud**-**ik**-a)[14]
door 7-close-REV+NP
'the door stays open'

On the other hand, and in order to overcome the aforementioned problems, we may hypothesize a specialized functional head situated immediately above VP, different from those already postulated for syntactic extensions, where the mutually exclusive lexical-argumental extensions are generated. Hence L/A extensions would precede all syntactic extensions, and eventually follow lexical extensions, which we presume to be part of V°, as discussed above.

We may now wonder what the nature of such a head is. Notably, L/A suffixes do not provide a well-defined semantic contribution, unlike truly lexical extensions − but also syntactic ones − in the sense that they simply signal an (in)transitive reading.

Therefore, I will propose that L/A suffixes are generated under a v°-type head. This looks appropriate, in that light verbs are not semantically salient, as L/A extensions are not either, but crucially contribute to the argument structure of a predicate; indeed their existence has first been proposed (see Larson 1988 and related work) in the analysis of ditransitive predicates, where the presence of two internal arguments would otherwise clash with a binary branching requirement (since Kayne 1983).

7. Two v°'s

The hypothesis put forward in the previous section, namely that Bantu L/A extensions are generated under a v°-type head, inevitably leads to the conclusion that there are two v°'s in the structure, one immediately above V°, and the other immediately below T°. Bantu languages indeed provide a morphological realization for both: the upper one is lexicalized by the final vowel/inflection (as seen in (18)), while the lower one is available for L/A extensions. All syntactic extensions discussed in Section 2.1. above are thus functional heads comprised between them.

However, if we recast Larson's (1988) analysis in more modern terms, we might hypothesize, for independent reasons, the presence of two v°-heads in the structure, independently of their morphological realization.

Actually, in the minimalist program, most of the functional heads assumed in a P&P model, which did not have a specific semantic content − such as AGRs° and AGRo° − were eliminated from the inventory (Chomsky 1995 and subsequent work). Nonetheless, the so-called light verb, now labelled small v°, not only survives, but its function is considerably extended with respect to the P&P model. In fact in recent studies (cf. Chomsky 1995, 1998 and subsequent work) we find v° not only in the structure of ditransitive verbs, as in P&P, but also in the structure of simple transitive verbs, where it has the important function of introducing the external argument, which is generated in its specifier position[15]. Even more recently (since Chomsky 2001), all

[14] A verb like *tshikangudika* (with -udik- < -ul- + -ik-) can indeed be acceptable as an obsolete form. Anyway, this does not represent the sole case of morphological blending of extensions; see e.g. -uluj- < REP -ulul- + CAUS -uj-, -akibu- < EXT -akan- + PASS -ibu-, etc. (Cocchi 1990). Schadeberg (1983), however, considers *-uk-* as an independent suffix.

[15] Originally, v° would represent a causative light verb, in whose specifier the agent (= causer) was merged. Hence it would be present in all clauses with an agentive subject.

verbs, unaccusatives included, are assumed to consist in a v-VP template; the difference between transitives and unaccusatives simply reduces to the fact that, in the latter case, Spec(vP) is empty.

Things being so, and in the spirit of a universal hierarchy of functional projections, we might always need to posit two v°'s in the structure: the upper v°, generated below T°, in whose specifier the DP-agent is merged (in transitive and unergative clauses), and the lower v°, generated above the lexical head V°, whose specifier will host the indirect object in ditransitive clauses[16].

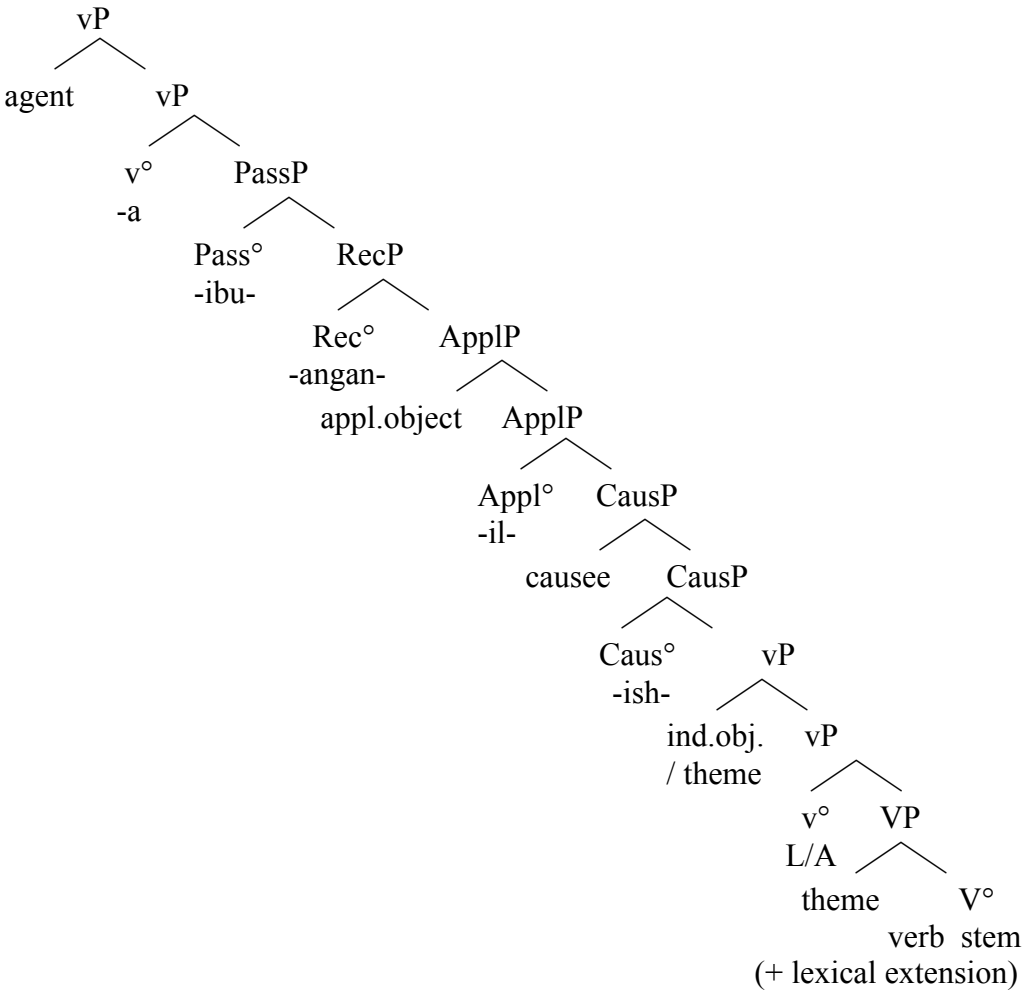
In addition, in Bantu languages the lower v° can be available for an L/A extension. In case the L/A extension converts an intransitive verb into a transitive one (as for neutro-active *-ik-* in (7) above), the theme-argument it introduces (*muana* 'the boy' in (7)) will be merged in its specifier. If the reverse holds (as for neutro-passive *-ik-* in (6) above), we may suppose that the extension absorbs the internal theta-role of the transitive verb, as assumed above for the reciprocal extension. It goes without saying that, in Bantu ditransitive clauses, the lower v°-head will be phonologically empty, and the indirect object will regularly be merged in its specifier[17].

The structure seen in (18) above for Tshiluba should thus be slightly refined with the addition of a second vP, as in (23):

[16] Alternatively, we might argue that the direct and indirect objects are merged, respectively, in the complement and specifier of V°. However, the fact that a second v° must be assumed for Bantu languages (and see also D'Alessandro (2009), who argues for the existence of two v°'s for totally independent reasons), would favour the hypothesis that the indirect object is generated in its specifier, in line with Larson's original proposal.

[17] See Baker (1988), Cocchi (1992) for an analysis of ditransitive verbs and Dative shift in Bantu.

(23)



Anyway, in my opinion, the presence of two v°-heads in the universal structure of functional projections is not only empirically, but also theoretically justified. Indeed in recent studies (Chomsky 2001, 2005, and related work), C° and v° have been recognised a special status among functional heads, in that they qualify as phases. However, since Rizzi's (1997) work, it has been universally accepted that C° is split in (at least[18]) two separate heads − that Rizzi calls Force and Finiteness − with other functional projections in-between (e.g. Focus, Topic), all pertaining to the modal domain. 'C°' thus becomes a label for an entire domain, not just for a single head.

Consequently, something similar can rightfully be assumed for the other phase head, v°. Indeed, according to the present proposal, also v° gets split into two separate heads, between which several functional projections pertaining to the predicative domain (Caus, Appl, etc.) are generated. Therefore, just like 'C°' for the modal domain, also 'v°' does not simply indicate a head, but rather becomes a label which comprehends the whole predicative domain.

[18] See Manzini & Savoia (2003) on more than two C°-heads in the modal domain.

8. Conclusion

To sum up, in this work we have argued that Bantu verbal extensions should firstly be divided into two groups, here labelled 'syntactic' and 'lexical' extensions; the former are very productive and significantly contribute to the argument structure of the complex verb, while the latter are generally idiosyncratic and essentially add semantic information.

In the spirit of a cartographic approach to sentence structure, hence of a universal hierarchy of functional projections, I have assumed that syntactic extensions qualify as independent heads pertaining to the predicative domain, where theta-roles are assigned; the arguments they introduce are generated in their specifiers, in line with Cinque (2006) and related work. The order of both the suffixes and the arguments following the complex verbal form is rigid, with the arguments in the reverse order with respect to the suffixes, and this is best accounted for by positing a structure like (18)/(23), which complies with Baker's (1985, 1988) Mirror Principle.

Conversely, I have claimed that lexical extensions are attached to the verb stem in the lexicon, prior to syntactic derivations; their presence/absence indeed affects semantics and morphology, but not syntax. However, not all lexical extensions seem to behave alike in this regard, hence a further distinction is needed. In particular, some lexical extensions − here called 'lexical-argumental' (L/A) extensions − have a peculiar function, in that they hardly provide any semantic contribution at all, but crucially signal (in)transitivity.

I have assumed that L/A extensions should be generated under a v°-head immediately above V°; like light verbs, in fact, they do not change the semantic content of verbs but only their argument structure, by converting a transitive verb into an intransitive one or vice versa. Indeed, in most languages of the world we can find verbs which have either a transitive or an unaccusative reading; see for instance *sink* or *break* in English. In the latter case the two readings are morphologically identical, but it is perfectly reasonable that other languages, like Tshiluba or Bantu in general, may diverge on this point and use a morpheme to mark one of the two different readings, or both[19].

This proposal has as a consequence that two v°'s must be assumed in the structure, which both have a morpho-phonological realization in Bantu: the upper one contains the final inflection, i.e. the rightmost morpheme of a complex verbal form, while the lower one, besides introducing the indirect object in ditransitive clauses, in line with Larson (1988), may host a lexical/argumental extension, namely a suffix which is always adjacent to the stem and precedes syntactic extensions, and which provides no other contribution than signalling (in)transitivity, a function generally ascribed to light verbs.

This amounts to saying that, just as C° has been supposed to split into (at least) two independent heads, which delimit the modal domain, so v° should also be split into two heads, which delimit the predicative domain. Since C° and v° have a special status, in that they qualify as phases, an analogy of behaviour is not unexpected.

[19] See in this regard also the alternation between *rompere* 'to break (tr.)' and *rompersi* 'to break (intr.)' in Italian: what is generally analysed as a reflexive pronoun (*si*) is in this case nothing else than a marker of unaccusativity (cf. Burzio 1986). Indeed, a sentence like *il vaso si è rotto* gets interpreted as 'the vase has broken', and certainly not literally as 'the vase has broken itself'!

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TopicPs and Relativised Minimality in Mòcheno left periphery

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In this work I will take into consideration the high left periphery of the Tyrolean dialect Mòcheno, showing that in this language, unexpectedly under the latest version of Relativised Minimality in terms of features (Rizzi 2004), Relativised Minimality effects are found between a topic and a focus, but not between a wh-element and a topic. In my work I will show that this asymmetry inside the Quantificational class is due to the structure of Mòcheno left periphery and should not be taken as evidence in favour of the need of a split inside the Quantificational class. Looking at the structure of the topic fields activated by operators in Mòcheno, I will propose that in this language Relativised Minimality effects between two XPs belonging to two different featural classes do not occur if two conditions are met: i) the two XPs belong to two different featural classes; ii) TopicPs dedicated to constituent categories (strictly ordered one with respect to the other) are available. In the last part of the work I will bring evidence in favour of the idea that also in Romance (Italian) TopicPs are strictly ordered, even if this is not immediately visible due to topic free order.

1. Introduction*

In this paper I will propose, taking into consideration the left periphery of the Tyrolean dialect Mòcheno, that Relativised Minimality (RM) effects cannot be captured only in terms of features (Rizzi 2004) or subfeatures (Friedmann, Belletti and Rizzi 2009), but that belonging of the XPs to two different featural classes has to co-occur with a condition on the structure, namely the availability of TopicPs dedicated to constituent categories. This condition can only be met if the structure allows for multiple Topics.

In Mòcheno RM violations are found between a focus and a topic but not between a wh-element and a topic, which is unexpected under Rizzi's (2004) latest version of RM, according to which RM effects can arise only among XPs belonging to the same featural class, listed in (1).

(1) a. **Argumental**: person, number, gender, case...
b. **Quantificational**: wh-, neg, measure, focus...
c. **Modifier**: evaluative, epistemic, Neg, frequentative...
d. **Topic**

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As we will see, the distribution of RM effects between Topics and XPs belonging to the Quantificational class is one property of a cluster distinguishing foci and wh- elements and involving: i) number of TopicPs available above the Operator; ii) specialization of TopicPs for constituent categories.

The article is organised as follows. In section 2., after a brief sketch of Mòcheno left periphery, I will introduce the relevant data concerning RM. In section 2.3. I will discuss the asymmetries concerning the distribution of RM proposing a refinement of the structure of Mòcheno left periphery; in particular I will propose that foci and wh-elements show up in two OperatorPs. In this way, no split inside the Quantificational class will be called for. In section 3, capitalizing on the findings of section 2, I will tackle the question of RM, analysing the different structural configurations activated by the two operators. I will show that in Mòcheno belonging to two different featural classes is not a sufficient condition in order for RM not to arise, but has to co-occur with the availability of TopicPs dedicated to constituent categories. In subsection 3.4, I will face the question of whether this structural requirement is found only in Mòcheno or could be valid also for Romance. In section 4. I will sum up the main results of the paper.

2. RM violation and OpPs in Mòcheno left periphery

In this section I will introduce the main data concerning RM between XPs belonging to different featural classes in Mòcheno. Before doing so, I will briefly sketch the main characteristics of Mòcheno left periphery.

Mòcheno is a V2 language of Old Romance type (Benincà 2006, Cognola 2009b); this means that more than one XP can precede the one triggering subject-verb inversion (2a,c). What is more, in Mòcheno subject-verb inversion seems to be optional (but see below) with NP subjects (2b), and obligatory only with pronouns (2d).

(2) a. *Gester vour de kirch van Nane hot der Mario klofft*
yesterday in front of the church of-the John has Mario spoken
b. *Gester vour de kirch der Mario van Nane hot klofft*
yesterday in front of-the church the Mario of-the John has spoken
'Yesterday in front of the church Mario spoke of John.'
c. *Gester vour de kirch van Nane hot-er klofft*
yesterday in front of the church of-the John has-SUBJ PRON spoken
d. **Gester vour de kirch van Nane er-hot klofft*
yesterday in front of the church of-the John SUBJ PRON-has spoken
'Yesterday in front of the church he spoke of John.'

Sentences involving an operator (focus or interrogative wh-element) are V2 as well (3).

(3) a. *A PUACH hot-er gem en Nane (ont net a penna)*
a book has-SUBJ PRON given to John (and not a pen)
b. **A PUACH er hot gem en Nane*
a book SUBJ PRON-has given to John (and not a pen)
'It was a book that he gave John, not a pen.'

c. *Bos hot-er kaft en de boteig?*
what has-SUBJ CL bought in the shop
d. **Bos er-hot kaft en de boteig?*
what SUBJ CL-has bought in the shop
'What did he buy in the shop?'

Topicalised XPs have to show up before the Operator (4); resumption of topicalised arguments is obligatory (4b,d).

(4) a. **A PUACH de Maria$_j$ hot-sa$_j$ gem en Nane (ont net a penna)*
a book the Mary has-SUBJ CL given to John, and not a pen
b. *De Maria$_j$, A PUACH hot-*(sa$_j$) gem en Nane (ont net a penna)*
the Mary a book has-SUBJ CL given to John, and not a pen
'It was a book that Mary gave John, not a pen.'
c. **Gester benn der Nane$_j$ hot-er-en$_j$ pakemmt?*
when the John has-SUBJ CL-ACC CL met
d. *Gester der Nane$_j$, benn hot-er-*(en$_j$) pakemmt?*
yesterday the John when has-SUBJ CL-ACC CL met
'When did he meet John yesterday?'

We can summarise the data seen so far in the structure in (5), which are in line with the proposals made in the literature concerning the structure of the left periphery (among others Rizzi 1997, Benincà/Poletto 2004). The V2 constraint is triggered by an XP with Operator properties (either a contrastive focus or an interrogative wh-element, as in (4) or a new information focus, as in (3)) which moves into one position of the Focus field. Topicalised XPs precede.

(5) [$_{\text{TOPICFIELD}}$ [**XP**] [**XP**] [**XP**] [$_{\text{FOCUS-FIELD}}$ [$_{\text{FOCUSCONTRP}}$ **XP**][**V$_{+\text{fin}}$**]/[$_{\text{NEWINFOFOCUS}}$ **XP**][**V$_{+\text{fin}}$**] /[$_{\text{INTERRP}}$ **wh-**] [**V$_{+\text{fin}}$**]]]]

In what follows, I will present the data concerning RM violations, which are found between a focus and a topic, but not between a wh-element and a topic. These data will lead to reconsider the structure of Mòcheno left periphery given in (5) and to propose a refinement of it.

2.1. RM violations between a topic and a focus

Surprisingly under the definition of the conditions under which RM applies given in (1), RM violations arise between a Focus and a Topic. RM effects between a focused and a topicalised argument arise starting out from the reconstructed underlying order of arguments given in (6)[1]:

(6) [$_{\text{TOPIC}}$ [$_{\text{FOCUS}}$ [... [$_{\text{FP}}$ **SUBJ** [$_{\text{FP}}$ **IO** [$_{\text{FP}}$ **DO**]]]]]]

As shown in (7a,b), a focused DO can be preceded by both topicalised arguments. The XP showing up in the position above highOpP has to be considered a Topic; evidence in this direction comes from both pragmatics, since the XP preceding a focus has to have already been introduced in the conversation and corresponds to an aboutness Topic (Reihnart 1981,

[1] This order does not correspond to the unmarked order of DO and IO in an unmarked sentence.

Frascarelli/Hinterhölzl 2007) or a hanging Topic, and from syntax, since pronominal doubling is obligatory[2].

(7) a. *En de Maria$_i$ A PUACH hot-er-*(en$_i$) kaft (ont net a penna)*
to the Maria-IO a book-DO has-SUBJ CL-DAT CL bought (and not a pen)
'It was a book that he bought Mary and not a pen.'
b. *Der Nane$_i$ A PUACH hot-*(er$_i$) kaft en de Maria (ont net a penna)*
the John-SUBJ a book-DO has-SUBJ CL bought to the Mary and not a pen
'It was a book that John bought Mary, not a pen.'

In the case it is the IO to be focalised, it can only be preceded by a topicalised subject (8a) and not by a DO (8b), as predicted by the underlying order of the arguments given above.

(8) a. *Der Nane$_i$ EN DE MARIA hot-*(er$_i$) kaft s puach (ont net en Luca)*
the John to the Mary-IO has-SUBJ CL bought the book (and not to Luca)
'It was for Mary that John bought a book, and not for Luca.'
b.**A puach$_i$ EN DE MARIA hot-er-*(z$_i$) kaft (ont net en Luca)*
a book-DO to the Mary-IO has-SUBJ CL-ACC CL bought
(and not to Luca)
'It was for Mary that he bought a book, and not for Luca.'

The last prediction made from the order of arguments given above is that a focused subject cannot be preceded by any topicalised argument; this prediction is borne out, as shown in (9).

(9) a.**Z puach$_i$ DER MARIO hot-z$_i$ kaft (ont net der Nane)*
the book-DO the Mario-SUBJ has-ACC CL bought (and not the John)
'It was Mario who bought the book, and not John.'
b.**En de Maria$_i$ DER MARIO hot-en$_i$ kaft a puach (ont net der Nane)*
to the Mary-IO the Mario has-DAT CL bought a book (and not the John)
'It was Mario who bought Mary a book, and not John.'

The data above (7 to 9) have shown that RM violations arise between two XPs belonging to two diffenent subclasses, even though they clearly bear different features. In the next subsection, I will take into consideration the co-occurrences of a topic and a wh-element, showing that in this case no RM violations arise.

2.2 Lack of RM violations between a wh-element and a topic

In this subsection I will show that no RM violations are found between an interrogative wh-element and a topic starting out from the same underlying order of arguments given above in (6) and repeated below in (10).

[2] In this work I will not consider the similarities between the highest TopicP and the hanging-topic position (see Cognola 2009a on this), since this matter is not central for the discussion here. Considering the highest TopicP the hanging-topicP would not help shed light on the RM facts, since both an analysis of hanging-topics in terms of base-generation (Cinque 1977) and in terms of movement (Belletti 2008) do not predict, on the basis of different arguments, that RM between the hanging-topic and an operator might take place.

(10) [TOPIC [INTERRWH- [... [FP **SUBJ** [FP **IO** [FP **DO**]]]]]]

A wh-element with DO theta role can be preceded by both topicalised arguments[3]; the same is found also with a wh-phrase[4].

(11) a. *Gester der Mario$_j$ ber hot-er$_j$ pakemmt?*
yesterday the Mario-SUBJ who-DO has-SUBJ PRON met
'Who did Mario meet yesterday?'
b. *Gester en de Maria$_j$ ber hot-er$_i$-en$_j$ vourstellt der Nane$_i$?*
yesterday to the Mary who-DO has-SUBJ PRON-DAT PRON introduced the John
'Who did John introduce to Mary yesterday?'
c. *Gester der Mario$_j$ s bail dierndel hot-er$_j$ pakemmt?*
yesterday the Mario the which girl-DO has-SUBJ PRON met
'Which girl did Mario meet yesterday?'
d. *Gester en de Maria$_j$, s bail dierndl hot-er$_i$-en$_j$ vourstellt der Nane$_i$?*
yesterday to the Mary the which girl-DO has-SUBJ PRON-DAT PRON introduced the John
'Which girl did John introduce to Mary yesterday?'

A wh-element (12a,b) or a wh-phrase (12c,d) with IO theta role can be preceded by both topicalised arguments.

(12) a. *Gester der Mario$_j$, en bem hot-er$_j$ vourstellt der Nane?*
yesterday the Mario to whom-IO has-SUBJ PRON introduced the John
'Who did Mario introduce John to yesterday?'
b. *Gester der pustin$_j$, en bem hoso-en$_j$ vourstellt?*
yesterday the postman to whom-IO have-SUBJ CL-ACCCL introduced
'Who did you introduce the postman to yesterday?'
c. *Gester der Mario$_j$, en s bail diernel hot-er$_j$ vourstellt der Nane?*
yesterday the Mario to the which girl-IO has-SUBJ PRON introduced the John
'Which girl did Mario introduce John to yesterday?'
d. *Gester der pustin$_j$, en s bail diernel hoso-en$_j$ vourstellt?*
yesterday the postman to the which girl-IO have-SUBJ CL-ACC CL introduced
'Which girl did you introduce the postman to yesterday?'

A wh-element (13a,b) or a wh-phrase (13c,d) with SUBJ theta role can be preceded by both topicalised arguments.

(13) a. *Gester der Mario$_j$, ber hot-en$_j$ zechen?*
yesterday the Mario, who-SUBJ has-ACC PRON seen
'Who saw Mario yesterday?'
b. *Gester en der pustin$_j$, ber hot-en$_j$ gem a puach?*
yesterday to the postman who-SUBJ has-DAT PRON given a book
'Who gave the postman a book yesterday?'

[3] I consider only sentences beginning with a scene setter in order to avoid the hanging topic.
[4] Wh-phrases are taken into consideration in order to check for RM violations due to subfeatures, as proposed by Friedmann, Belletti and Rizzi (2009).

c. *Gester der Mario$_j$, s bail dierndel hot-en$_j$ zechen?*
yesterday the Mario, the which girl-SUBJ has-ACC PRON seen
'Which girl saw Mario yesterday?'
d. *Gester en der pustin$_j$, s bail dierndel hot-en$_j$ gem a puach?*
yesterday to the postman the which girl-SUBJ has-DAT PRON given a book
'Which girl gave the postman a book yesterday?'

In this subsection I have shown that no RM violations are found between wh-elements and topics and that all combinations predicted from the structure in (10) are possible. This finding is unexpected both under the definition of RM given in (1) and from the structure of Mòcheno left periphery given in (6). In what follows I will propose a solution for this latter question, namely for the asymmetry inside the Quantificational class.

2.3. On the position of Operators

We saw in the previous two subsections that RM violations arise between a focus and a topic but not between a wh-element and a topic. I do not think that this has to be taken as a piece of evidence in favour of the necessity of a split inside the Quantificational class, but for the fact that in Mòcheno Operators show up in two different positions in the left periphery and build a different configuration with their topics. This idea is not new, since it has already been noticed (Poletto (2002) on the V2 Rhaetoromance dialect of S. Leonardo) that foci can trigger V2 in a different, namely higher, position than wh-elements. The claim that foci and wh-elements show up in different OperatorPs (OpPs) does not make sense of the distribution of RM effects in Mòcheno, but allows at least to get rid of one problem, namely the asymmetry inside the Quantificational class, and to better define the area of the structure involved in determining RM.

In order to support the claim that foci and wh-elements show up in two different OpPs in Mòcheno, I will bring two pieces of evidence. The first one is the possibility for Operators of co-occurring with several topics, which, according to the structure given in (10), should not be ruled out. As shown in (14), wh-elements can co-occur with several topics on their left.

(14) a. *[Gester][der Luca$_i$][en de Maria]* ***bos*** *hot-er$_i$ trog?*
yesterday the Luca to the Mary what has-SUBJ CL brought
'What did Luca bring Mary yesterday?'
b. *Gester der Luca$_j$ petn Nane bo hot-er$_j$ kaft s puach?*
yesterday the Luca with-the John where has-SUBJ CL bought the book
'Where did Luca buy the book with John yesterday?'

Foci, on the contrary, are grammatical with only one topicalised XP on their left (15).

(15) a.**[Gester][der Luca$_i$]* ***EN DE MARIA*** *hot-er$_i$ trog s puach, ont net en Nane*
yesterday the Luca to the Mary has-SUBJ CL brought the book and not to John
'It was to Mary that Luca brought the book yesterday, not to John.'

b. *En de Maria Z PUACH hone-en trog, ont net de penna*
to the Mary a book have-SUBJ CL-DAT CL brought, and not a pen
'It was a book that I brought Mary, not a pen.'

The second piece of evidence in favour of the idea that foci and wh-elements show up in two different OpPs comes from the syntactic behaviour of NP subjects. Only foci allow for an NP subject (without clitic doubler) to show up immediately after the finite verb (16a), even though this is not obligatory (16b)[5]; wh-elements on the other hand only allow for the dislocated[6] NP subject (16c,d).

(16) a. *EN DE MARIA hot der Nane kaft s puach ont net en Mario*
to the Mary has the John bought the book and not to Mario
b. *EN DE MARIA hot-er$_j$ kaft s puach der Nane$_j$ ont net en Mario*
to the Mary has-SUBJ PRON bought the book the John and not to Mario
'It was to Mary that John bought the book, and not to Mario.'
c. *En bem hot-er$_j$ kaft s puach der Nane$_j$?*
to whom has-SUBJ PRON bought the book the John
d.**En bem hot der Nane kaft s puach?*
to whom has the John bought the book
'Who did John buy the book for?'

I take the two arguments presented above, together with the asymmetries concerning RM, as evidence in favour of the claim that foci and wh-elements show up in two different positions; precisely the former in a higher OpP (highOpP) and the latter in a lower OpP (lowOpP)[7] separated by the topic field, as shown in (17).

(17)[$_{\text{TOPIC}}$ [**XP**][$_{\text{HIGH-OPP}}$ [**XP**$^{\textbf{+foc}}$] [**V**$_{\textbf{+fin}}$] [$_{\text{TOPICFIELD}}$ [**XP**] [**XP**] [**XP**][$_{\text{LOW-OPP}}$[**wh**] [**V**$_{\textbf{+fin}}$]]]]]

After showing that the distribution of RM effects is related to a structural difference between foci and wh-elements and not to a split inside the Quantificational class, in the next section I will take into examination the structure of the TopicPs activated by the two operators, in order to detect the differences relevant to the question of the distribution of RM effects.

3. On the properties of TopicPs

In order to examine the characteristics of the TopicPs activated by the two OpPs, I will start with lowOpP, which hosts wh-elements and where no RM are found (as in Romance). Then, I will examine the properties of the TopicP above highOpP and compare the two of them.

[5] Also in this latter case, the claim is that the focussed item shows up in highOpP; this claim is supported by the examples in (15), in which only one topicalised XP can precede the focus, even if the subject is pronominal.
[6] The NP subject could be either left- or right-dislocated, even if the latter option is judged more natural by speakers.
[7] Whether this OpPs correspond to positions identified in the literature (such as ForceP for highOpP) will not be pursued in this work.

3.1. Structure of the Topic field above wh-elements

Topicalised items above wh-elements show up in a fixed order according to the constituent category they belong to. The higher positions are specialised for the frame: time and locative adverbials cannot be separated by a topicalised argument (18a,b) and an argument cannot precede them (18c,d)[8].

(18) a. *Gester vour de kirch der Mario$_i$ ber hot-er$_i$ zechen?*
yesterday in front of the church the Mario who has-SUBJ CL seen
b. **Gester der Mario$_i$ vour de kirch ber hot-er$_i$ zechen?*
yesterday the Mario in front of the church who has-SUBJ CL seen
'Who did Mario see yesterday infront of the church?'
c. *Gester vour de kirch en de Maria$_i$ ber hot-en$_i$ gem a puach?*
yesterday in front of the church to the Mary who has-DAT CL given a book
d. **En de Maria$_i$ gester vour de kirch ber hot-en$_i$ gem a puach?*
to the Mary yesterday in front of the church who has-DAT CL given a book
'Who gave Mary a book yesterday in front of the church?'

Arguments occupy a higher position in comparison to other XPs that can be topicalised above a wh-element, such as comitative PPs (19).

(19) a. *Gester der Mario$_i$ petn Luca abia hot-er$_i$ gahondelt der pustin?*
yesterday the Mario with-the Luca how has-SUBJ CL treated the postman
b. **Gester petn Luca der Mario$_i$ abia hot-er$_i$ gahondelt der pustin?*
yesterday with-the Luca the Mario how has-SUBJ CL treated the postman
'How did Mario with Luca treat the postman yesterday?'
c. *Verten de dai kamaroten$_i$ pet de dai muam bo hon-sa$_i$ pakemmt der Nane?*
last year the your friends with the your aunt where have-SUBJ CL met the John
d. **Verten pet de dai muam de dai kamaroten$_i$ bo hon-sa$_i$ pakemmt der Nane?*
last year with the your aunt the your friends where have-SUBJ CL met the John
'Where did your friends with your aunt meet John last year?'

The same pattern is found also with an instrumental PP (20). Notice that both comitative (19 above) and instrumental PPs do not need for a pronominal doubler.

(20) a. *Hait der papa$_j$ petn staupsauger benn hot-er$_j$ putzt s hauz?*
today the dad with-the hoover when has-SUBJ PRON cleaned the hause

[8] I give here examples beginning with a scene setter in order to avoid having a hanging topic in the left-most projection, which would be of course possible.

b.**Hait petn staupsauger der papa$_j$ benn hot-er$_j$ putzt s hauz?*
today the dad with-the hoover when has-SUBJ PRON cleaned the hause
' When did dad clean the hause with the hoover today?'

The structure of the Topic field activated by wh-elements is summarised in (21):

(21) [$_{\text{FRAME}}$ [**Scene setter**] [**loc.PP**] [$_{\text{TOPIC-ARG}}$ [**XP**] [**XP**] [$_{\text{TOPIC-ADJ}}$ [**com.PP**]/ [**inst.PP**] [$_{\text{OPP}}$ [**wh**]]]]]

What we have seen in this subsection is that the lack of RM effects between a wh-element and a topic correlates with two other properties, namely i) the availability of multiple topics above lowOpP and ii) the strict order of the TopicPs above lowOpP according to constituent category.

In the next subsection, I will examine the characteristics of the TopicP above highOpP and compare them with those discussed here for lowOpP.

3.2. Properties of the TopicP above high OperatorP

First of all, it has to be noticed that the TopicP above highOpP is not selective with respect to constituent categories. As shown in (22), in fact, this TopicP can host verb arguments (22a), comitative PPs (22c) and scene setters (22e); the only ban is on the number of topics (22b,d,f)[9].

(22) a. *En de Maria A PUACH hone-en kaft gester, ont net a penna*
to the Mary a book have-SUBJ CL-DAT CL bought yesterday and not a pen
b.*(*Gester) en de Maria (gester) A PUACH hone-en kaft, ont net a penna*
yesterday to the Mary a book have-SUBJ CL-DAT CL bought and not a pen
'It was a book that I bought Mary yesterday, and not a pen.'
c. *Petn Luca A PUACH hone kaft gester pet im, ont net a penna*
with-the Luca a book have-SUBJ CL bought yesterday with him and not a pen
d.*(*Gester) petn Luca (gester) A PUACH hone kaft pet im, ont net a penna*
yesterday with-the Luca a book have-SUBJ CL bought with him and not a pen
'It was a book that I bought with Luca yesterday and not a pen.'
e. *Gester A PUACH hone kaft petn Luca, ont net a penna*
yesterday a book have-SUBJ CL bought with-the Luca and not a pen
f.*(*Petn Luca) gester (petn Luca) A PUACH hone kaft, ont net a penna*
with-the Luca yesterday a book have-SUBJ CL bough and not a pen
'It was a book that I bought yesterday with Luca, and not a pen.'

The second asymmetry with respect to the properties TopicPs available before lowOpP concerns doubling of the topicalised item. We saw above that in Mòcheno all topicalised arguments need to be doubled by a pronoun, but topicalised semiargumental PPs do not need to in the case of lowOpP, see (19)

[9] I deliberately illustrate the lack of specification for constituent category with the same focussed constituent.

and (20) above. Now, in the case of a sentence involving highOpP, a topicalised comitative PP has to obligatory be doubled by a pronominal form[10], as shown in (23).

(23) a. *Petn Luca$_i$ A PUACH hone kaft *(pet im$_i$), ont net a penna*
with-the Luca a book have-SUBJ CL bought with him
'With Luca I bought a book and not a pen.'

What is more, an instrumental PP cannot show up in the highest TopicP, even though it is doubled by a pronominal form.

(24) a.**Petn staupsauger$_i$ Z HAUZ hone putzt (ont net der auto)*
with-the hoover the house have-SUBJ CL cleaned (and not the car)
b.**Petn staupsauger$_i$ Z HAUZ hone putzt pet im$_i$ (ont net der auto)*
with-the hoover the house have-SUBJ CL cleaned with it (and not the car)
'It was the house that I cleaned with the hoover and not the car.'

The possibility of having a pronominal doubling seems to be the only requirement on XPs for showing up above a focus. As shown in (25), in fact, also a locative PP is incompatible with a focus (25a); even if a pronominal resumption as "there" were inserted, the sentence would not be acceptable (25b,c,d).

(25) a.**Vour de kirch A PUACH hone trog en de Maria ont net a penna*
in front of the church a book have-SUBJ CL brought to the Mary and not a pen
b.**Vour de kirch$_i$ A PUACH hone trog zem$_i$ (ont net a penna)*
in front of the church a book have-SUBJ CL brought there (and not a pen)
c.**Vour de kirch$_i$ zem$_i$ A PUACH hone trog*
in front of the church a book there have-SUBJ CL brought
d.**Vour de kirch$_i$ A PUACH hone zem$_i$ trog*
in front of the church a book have-SUBJ CL there brought
'It was a book that I brough in front of the church, not a pen.'

The only exception to this state of affairs is found with scene setters, which are always compatible with a focussed XP, as shown in (26).

(26) a.*Gester A PUACH hone trog en de Maria ont net a penna*
yesterday a book have-SUBJ CL brought to the Mary and not a pen
'Yesterday I brought Mary a book and not a pen.'
b. *Gester EN DE MARIA hone trog a puach ont net en Nane*
yesterday to the Mary have-SUBJ CL brought a book and not to John
'It was to Mary that I brought a book yesterday, and not to John.'

What we have seen in this subsection is that the TopicP found above highOpP has two main characteristics: i) it can host XPs belonging to different

[10] Mòcheno cannot use a clitic here.

categories, that is arguments, comitative PPs (semiarguments) and scene setters; ii) only XPs allowing for pronominal doubling can show up in the prefocal topic position.

3.3. Partial conclusions

In the previous subsections we saw that operators showing up in lowOpP activate a topic field hosting i) multiple TopicPs ii) strictly ordered according to the constituent category of the topicalised XP; iii) no RM effects between wh-elements and topics are found. The TopicP above highOpP i) lacks specification for constituent category and ii) can host XPs with pronominal doubling; iii) RM violations between topic and focus arise.

I think that the main difference between the two configurations activated by wh-elements and foci is to be found in the nature of TopicPs, namely in their being dedicated to a category of constituents. I do not consider relevant of the RM facts the obligatory doubling in the TopicP above highOpP, especially because all topicalised arguments are resumed also with wh-elements.

The availability of TopicPs for constituent categories is the relevant condition for RM violations between a topic and an XP from the Quantificational class not to arise. In (27) I summarise these conditions, which in Mòcheno are only met in the topic field activated by wh-elements.

(27) a. the two XPs have to belong to two different featural classes (1);
b. the topicalised XP needs a dedicated position for the constituent category it belongs to;
c. the dedicated position is made visible by hierarchical relations between topics.

In the next subsection I will take a look at Romance and see if the proposal made in (27) can be considered universal and be applied also to Romance.

3.4. A note on Romance

There are two important differences to mention between Romance (Rizzi 1997, 2004; Benincà/Poletto 2004) and Mòcheno: i) in Romance no split concerning OpPs is found: all operators show up in the lowest part of the left periphery; ii) topics show up in free order.

The first characteristic of Romance is responsible for the lack of RM violations between a focus and a topic: if both foci and wh-elements show up in the lower portion of the left periphery and are preceded by multiple topics, condition b. in (27) is immediately met. Only in a topic field composed by multiple TopicPs can, in fact, dedicated TopicPs be found.

The second characteristic is more problematic, since condition c. in (27) says that TopicPs are strictly ordered according to constituent category. In order to solve this problem, I would like to claim, capitalising on an idea originally proposed by Benincà/Poletto 2004, that also in Italian TopicPs are ordered, even though this is not immediately visible.

In order to bring evidence for this, I will look at the occurrences in Mòcheno of wh-elements bearing different theta roles with topics, showing that: i) wh-elements with different theta roles show up in different OpPs (see also Munaro 1997 and Aboch/Pfau 2008 on a similar idea); ii) these OpPs are presumably ordered, just like in Slavic languages allowing for multiple wh-fronting

(Krapova/Cinque 2008); iii) OpPs hosting wh-elements are ordered with their topic fields. This is summarised in (28).

(28)[$_{\text{TOPIC+ARG}}$ [**XP**][$_{\text{OP}}$**WHERE**]/[$_{\text{TOPIC+ARG}}$ [**XP**][**XP**][$_{\text{OP}}$**WH-SUBJ**]/
[$_{\text{TOPIC+ARG}}$[**SUBJ**] [**IO**][$_{\text{OP}}$ **WH-DO**]]]]]

If we assume that in Italian only one OpP is available, namely the lowest one identified for Mòcheno, and that all TopicPs are present, we end up with a detailed map of several dedicated TopicPs. Free order is then to be considered a consequence of the availability of several dedicated positions to which topics can move, and not the result of recursion.

3.4.1. On the presence of dedicated OpPs for wh-elements

Due to reasons of space I will limit myself to a few examples involving only topicalised arguments (more in Cognola 2009a), from which it is though clear that in Mòcheno wh-elements occupy different OpPs according to their thematic role and activate a dedicate topic field.

In (29) I show that a wh-element with DO theta role can be preceded by two topicalised arguments, whose order can only be SUBJ-DO.

(29) a. *Gester der Mario$_j$ en Nane$_i$ bos hot-er$_j$-en$_i$ trog?*
yesterday the Mario-SUBJ to John-IO what-DO has-SUBJ CL-DAT CL brought
b.**Gester en Nane$_i$ der Mario$_j$ bos hot-er$_j$-en$_i$ trog?*
yesterday to John-IO the Mario-SUBJ what-DO has-SUBJ CL-DAT CL brought
'What did Mario bring John yesterday?'

A wh- with SUBJ theta role allows for the two topicalised arguments in both orders, as shown in (30).

(30) a. *Gester s puach$_j$ en Nane$_i$ ber hot-z$_j$-en$_i$ trog?*
yesterday the book-DO to John-IO who-SUBJ has-DO CL-DAT CL brought
b. *Gester en Nane$_i$ s puach$_j$ ber hot-z$_j$-en$_i$ trog?*
yesterday to John-IO the book-DO who-SOGG has-DO CL-DAT CL brought
'Who bough John the book yesterday?'

Finally, a wh-element with temporal theta role only allows for one topicalised argument on its left, as in (31).

(31) a. *Vour de kirch en Mario$_j$ benn hoso-en$_j$ trog s puach?*
infront of the church to Mario-IO when have-SUBJ CL-DAT CL brought the book
b.**Vour de kirch en Mario$_j$ s puach$_i$ benn hoso-z$_i$-en$_j$ trog?*
in front of the church to Mario the book when have-SUBJ CL-ACC-CL-DAT CL brought
'When did you bring Mario the book in front of the church?'

c. *Vour de kirch der Mario$_j$ benn hot-er$_j$ trog s puach?*
in front of the church Mario when has-SUBJ CL-DAT CL brought the book
'When did Mario bring the book in front of the church?'

I think that the data are extremely clear in showing that i) wh-elements do not show up in the same OpP (otherwise they would allow for the same type and number of topicalised arguments) and ii) each wh-element activates its own dedicated topic field. If we assume that in Italian only one OpP, namely the lowest one of Mòcheno, is available, we have a detailed map of TopicPs dedicated to topicalised arguments, as sketched in (32).

(32)[$_{\text{TOPIC+ARG}}$ [**XP**][$_{\text{TOPIC+ARG}}$ [**XP**][**XP**][$_{\text{TOPIC+ARG}}$[**SUBJ**] [**IO**][$_{\text{OP}}$ **WH-**]]]]]

Topic free order in Italian is the result of the availability of all TopicPs in all sentences, whereas in Mocheno only a portion of the Topic field is "visible", namely the one activated by operators.

4. Conclusions

In this work I brought evidence in favour of the idea that the distribution of RM effects cannot be accounted for only in terms of features (Rizzi 2004; Friedmann, Belletti, Rizzi 2009), but that also a condition on the structure has to co-occur together with the featural make-up of the constituents involved. Main evidence in this direction was provided looking at the distribution of RM effects between foci and topics in Mòcheno, which arise even though the two XPs clearly belong to two featural classes. The lack of RM effects between wh-elements and topics and the asymmetries in the position of operators in Mòcheno left periphery allowed to detect the relevant structural conditions under which RM do not arise. RM violations are blocked if TopicPs dedicated to constituent categories are available: this can take place only iff i) there are multiple topics and ii) they are strictly ordered.

In the last part of the work I tried to show that the same structural condition for RM can be assumed also for Romance and Italian in particular, for which I sketched, following ideas by Benincà/Poletto (2004) and basing on Mòcheno, a preliminary cartography of the topic field. Under this prospective, topic free order would be the consequence of the presence of several dedicated TopicPs and only one OpP.

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Focus Fronting in Sardinian and Sicilian

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This paper analyses the common properties and differences in the interpretation as well as in the syntax of Sardinian and Sicilian Focus Fronting (FF) phenomena. In both varieties, FF is a syntactic device used to mark not only Contrastive Focus (CF), but also Informational Focus (IF). The fronted IF is often associated with a "special interpretation", such as a mirative value or *verum*. Fronting is not limited to DPs or PPs, but may also involve predicates. However, while Sardinian allows FF for all kinds of predicates, predicate fronting in Sicilian is only possible in copulative constructions, and marginally possible with infinitives. We claim that FF is always XP-fronting and that the difference between Sardinian and Sicilian emerges because in Sicilian the verbal predicate in the form of the active past participle is outside the VP and cannot thus be XP-fronted, whereas participles are always inside the VP in Sardinian.

1. Introduction

There seems to be general agreement that the interpretive effect associated with FF in Romance is contrast. According to this assumption, contrast is an essential requirement for FF in Italian and Spanish, and also in other Romance languages, where only CF can undergo FF (cf. Rizzi 1997, Frascarelli 2000, Belletti 2004, for Italian; Zubizarreta 1998, 1999, for Spanish; Motapanyane 1998, Alboiu 2002, for Romanian; Quer 2002 for Catalan).[2] IF must appear in a postverbal position, triggering subject-verb inversion when the subject is the focus constituent.

In the following examples, the context does not allow for a contrastive interpretation of the focus subject *Gianni* in (1)c' and the focus direct object *manzanas* in (2)c', since in these interrogative contexts only IF is appropriate:[3]

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[2] For recent alternatives to this view, see Leonetti & Escandell Vidal (in press) for Spanish, as well as Brunetti (in press) and Cruschina (2008) for Italian.

[3] In all examples non-contrastive fronted elements are indicated in bold, and contrastive fronted elements are set in capital letters.

(1) a. A GIANNI l' ho dato (non a Piero). *Italian*
to Gianni it.CL have.PRES.1SG give.PP not to Piero
'I gave it to John (not to Piero).'
b. Chi è partito / ha parlato?
who be.PRES.3SG left / have.PRES.3SG speak.PP
'Who left / spoke?'
c. È partito / ha parlato **Gianni**.
be.PRES.3SG leave.PP / have.PRES.3SG speak.PP Gianni
'John left / spoke.'
c'. #**Gianni** è partito / ha parlato.
Gianni be.PRES.3SG leave.PP / have.PRES.3SG speak.PP

(2) a. MANZANAS compró Pedro (y no pera *Spanish*
apples buy.PAST.3SG Piero (and not pears)
'Peter bought apples (and not pears).'
b. ¿Qué compró Pedro?
what buy.PAST.3SG Pedro
'What did Peter buy?'
c. Pedro compró **manzanas**.
Pedro buy.PAST.3SG apples
'Peter bought apples.'
c'. #**Manzanas** compró Pedro.
apples buy.PAST.3SG Pedro

Among the Romance languages, Sicilian and Sardinian share a peculiar word order pattern that features a more extensive use of the sentential left periphery in focus constructions. A contrastive interpretation of the focus constituent is not necessary in order for movement to the left periphery to be licensed, and thus FF is also possible in non-contrastive contexts. So, while in Italian and Spanish only CF can undergo movement to the left periphery of the sentence, in Sardinian and in Sicilian such a restriction does not hold and IF also commonly appears within the left periphery:

(3) *Sard.* a. **Custu libru** appo lessu. [Jones 1988: 185]
this book have.PRES.1SG read
'I read this book.'
b. **Fatu** l' at. [Conrad/Falconi 2002: 51]
do.PP it.CL have.PRES.3S
'He did it.'

(4) *Sic.* a. Iddu **picciliddu** è. [Rohlfs 1969: 323]
he child be.PRES.3SG
'He is a child.'
b. **A frevi** aju. [Rohlfs 1969: 323]
the fever have.PRES.1SG
'I have a temperature.'

An important difference between FF in Sicilian and in Sardinian lies in Sardinian's ability to focalise past participles dependent on an auxiliary. However, we believe this difference to be connected to specific properties of the

two languages, rather than to different properties concerning the FF process proper. Verbal predicate fronting is very common in Sardinian (cf. (3)b), but marginal or impossible in Sicilian (cf. *infra*). For these reasons, the similarities of FF in the two languages have sometimes been overlooked. Despite this difference, we claim that FF in Sardinian and FF in Sicilian are the same phenomenon. The differences between Sardinian and Sicilian with respect to verbal predicate fronting result from independent differences in the syntactic behaviour of Sicilian vs. Sardinian participles.

2. The position of the focus constituent: contexts and interpretation

In Sicilian and Sardinian, any syntactic category is in principle amenable to focalisation and movement to the left periphery of the sentence, not only (negative) quantifiers (cf. (5)a), but also predicative categories (cf.(5)b, (6)a), complements of lexical verbs (cf. (5)c and (4)b above), or other types of arguments (cf. (6)b and also (3)a above):

(5) *Sic*. a. **Nenti** jè chissu!
nothing be.PRES.3SG this
'That's nothing.'
b. Sissi, **cuntenti** sugnu! [Pirandello 2002, II: 203]
yes glad be.PRES.1SG
'Yes indeed, I am glad!'
c. **Ragiuni** aviti [Pirandello 2002, II: 91]
reason have.PRES.2PL
'You are right!'

(6) *Sard*. a. **Troppu grassu** est Juanne. [Jones 1993: 18]
too fat be.PRES.3SG Juanne
'Juanne is too fat.'
b. **A domo mea** venis. [Jones 1988: 185]
to house my come.PRES.2SG
'You come to my house.'

Despite the frequency of FF in these languages, the postverbal IP-internal position is still an available option for IF, cf. (7)b' and (8)b':

(7) *Sard.* a. Ita as bistu? [Sa-Limba 1999-2008]
what have.PRES.2SG see.PP
'What did you see?'
b. **Unu mariane** appo bistu.
a fox have.PRES.1SG see.PP
b'. Appo bistu unu mariane.
have.PRES.1SG see.PP a fox
'I saw a fox.'

(8) *Sic.* a. Chi ci dasti a Mario?
what to-him.CL give.PAST.3SG to Mario
'What did you give to Mario?'
b. **Un libbru** ci detti.
a book to-him.CL give.PAST.1SG
b'. Ci detti un libbru (a Mario).
to-him.CL give.PAST.1SG a book to Mario
'I gave him a book.'

In answers to wh-questions, the post-verbal position is associated with a neutral interpretation of the new information conveyed by the focus constituent. FF, instead, is generally associated with a special interpretation and typically employed to convey a mirative value, expressing new and unexpected information (cf. *Mirative-Fronting*, Cruschina 2008), and/or an interpretation of *verum*, conveying emphasis on the truth-value (polarity) of the proposition (cf. Jones 1993: 256, Mensching and Remberger in press a, b, Remberger in press, Leonetti & Escandell Vidal 2008, in press, as well as Höhle 1992). With this interpretation, FF proves very common in answers to questions and in declarative and interrogative sentences with an exclamative flavour:

(9) *Sic*. **Na casa** s' accattà! [Cruschina 2006: 371]
a house REFL.CL buy.PAST.3SG
'He bought a house!'

(10) *Sic*. Chi **viglianti** sì? [Cruschina 2006: 372]
INT awake be.PRES.2SG
'Are you awake?'

(11) *Sard*. a. **Comporatu** l' as? [Jones 1993: 355]
buy-pp it.CL have.PRES.2SG
'Did you buy it?'
b. Emmo, **comporatu** l' appo.
yes buy.PP it.CL have.PRES.1SG
'Yes, I did buy it.'

Questions like those above are generally non-canonical yes/no-questions expressing either surprise and incredulity in relation to an unexpected constituent (rhetorical questions), or a request for confirmation against the unexpected information offered by the fronted constituent.

3. Predicate Fronting

As seen in the previous section, in Sardinian and Sicilian fronting involves not only DPs and PPs, but also predicates (cf. (3)b, (4)a, (5)b, (6)a, (10)-(11)). However, in this respect an important difference between Sardinian and Sicilian emerges: Sardinian allows FF of all kinds of predicates, i.e. nominal and adjectival predicates in copular constructions (cf. (12)a and (12)b), as well as verbal predicates like infinitives (cf. (12)c) and participles (cf. (12)d and (12)e) in auxiliary constructions:

(12) *Sard.* a. **Mannus** sunt is pipius? [Lecca 1999: 30]
big be.PRES.3PL the children
'Are the children big?'
b. Ma **utopia** est? [Sa-Limba 1999-2008]
but utopia be.PRES.3SG
'But is it a utopia?'
c. **Cantare** keres? [Jones 1993: 144]
sing.INF want.PRES.2SG
'Do you want to sing?'
d. **Andada** si ch' este. [Archivi del Sud 1996: 35]
go.PP REFL.CL there.CL be.PRES.3SG
'She went there.'
e. **Torrande** sezis? [Pittau 1991: 142]
coming-back.PRES.PP be.PRES.2PL
'Are you coming back?'

In Sicilian, predicate fronting is only possible in copular constructions (cf. (13)a and (13)b). Verbal predicate fronting is marginally possible with infinitives (cf. (13)c), and completely disallowed with participles (cf. (13)d) or gerunds ((13)e):

(13) *Sic.* a. **Troppu bedda** jè a figglia di Mariu!
very nice be.PRES.3SG the daughter of Mariu
'Mario's daughter is very beautiful!'
b. **A figlia di Mario** jè chissa.
the daughter of Mariu be-3SG she
'She is Mario's daughter.'
c. ?**Nesciri** voli.
go-out.INF want.PRES.3SG
'S/he wants to go out.'
d. ***Mangiatu** assà aju!
eat.PP too-much have.PRES.1SG
e. ***Vinennu** sta!
come.GER stay.PRES.3SG

In what follows, we will give an account of the contrast in (12) and (13). In particular, we will put forward an analysis of the copular constructions (such as (12)a and (12)b vs. (13)a and (13)b), cf. 3.1, and then offer an explanation for the differences in grammaticality of the auxiliary + past participle constructions (such as (12)c and (13)c), cf. 3.2. Finally, we will sketch a possible solution for the difference involving the progressive construction (such as (12)e and (13)e), cf. 3.3.

3.1. Copular constructions

Since Stowell (1978) copular sentences have been analysed as expanded small clauses, with the copula *be* behaving as a raising verb that takes a small clause complement (SC). From this SC-complement, according to Moro (1997), one of the two constituents of the small clause must raise in order to eliminate the original symmetric configuration {XP, YP}. In nominal copular constructions it is the subject DP that raises, with the exception of inverse copular sentences for which Moro proposes the 'predicate raising' analysis. In the latter case, the

small clause subject remains in situ and the small clause predicate raises instead. Moro (2008) expands this idea and discusses the possibility for either DP to raise to a Focus position (Belletti's 2004 clause-internal FocP), rather than to the subject position (which is filled through *pro*-insertion). This would be sufficient to eliminate the original symmetric configuration of the small clause and to resolve labelling problems: "there is no necessity to raise either DP to the copula: it is sufficient that either one is raised to *any* head that merges with {XP, YP}, neutralizing the problem given by the absence of a label. This prediction appears to be borne out, once we assume that the process of focalization involves raising to a specialized Foc° head, available in Italian in postverbal positions as suggested by Belletti (1999)" (Moro 2008: 2).
Adopting this unified analysis of copular sentences, we assume that in copular constructions in Sardinian and Sicilian the small clause predicate (be it a DP or an AP) can raise to FocP in the left periphery of the sentence, cf. (14) a and b:

(14) a. [$_{FocP}$[$_{AP}$ **Mannus**]] sunt [$_{SC}$ [$_{DP}$ is pipius] *t*] (cf. (12)a)
b. [$_{FocP}$[$_{AP}$ **Troppu bedda**]] jè [$_{SC}$ [$_{DP}$ a figglia di Mariu] *t*] (cf. (13)a)

3.2. Auxiliary + past participle
We believe that the difference between Sardinian and Sicilian concerning auxiliary + past participle constructions should not be attributed to different properties of the FF process per se, but must be instead connected to specific properties of the verbal system in the two languages. In Sardinian, there is no synthetic past; the compound perfect is the only past tense with a perfective value. There are only a few dialects that have a past perfective paradigm but these are "very untypical of the language as a whole" (cf. Jones 1993:80). In Sicilian, on the other hand, the use of the auxiliary *have* plus past participle is restricted to a particular aspect of the verb and does not serve any temporal distinction. Unlike Sardinian, Sicilian always employs the simple past form to express the past tense, regardless of the time and the relevance of the past event or action described (cf. Mocciaro 1978, Squartini and Bertinetto 2000). The present perfect compound form is instead used with a resultative value (cf. (15)a) or, more often, to make reference to a generic event in the past in order to highlight the temporal frame occurring between that time and the present time (including the Speech Time) within which the event could have happened once, several times, or continuously (cf. (15)b):

(15) *Sic.* a. Un ci aju jutu mai.
not there.CL have.PRES.1SG go.PP ever.
'I have never been there.'
(intended meaning: 'I don't know the place.')
b. L' amu circatu tutta a matinata.
him.CL have.PRES.1PL look-for.PP all the morning
'We have been looking for him all morning.'

As for Sardinian participle fronting, it has been claimed (first by Jones 1988, 1993, but see also Mensching & Remberger in press a, b, and Remberger in press) that it is movement of a maximal projection even in those cases where it looks like pure head movement (as e.g. in (11) or (12)d). Indeed, if the VP has a

complement, this almost always moves along with the non-finite verbal form (as also noted by Jones 1993):

(16) *Sard.* [$_{VP}$ **Mandatu sa líttera**] appo *t*. [Jones 1993: 338]
send.PP the letter have.PRES.1SG
'I sent the letter.'

In a canonical Sardinian declarative clause, the participle raises, but only to a VP-internal position. This means that it always raises past the adverb *bene*, see (17)a and (17)b, but need not raise any higher (Jones 1993: 208-209, Cinque 1999: 46, 146). So in (17)c it is below the floating quantifier *tottu*, whereas in (17)d it is above:

(17) *Sard.*
a. *Appo bene mandicatu.
have.PRES.1SG well eat.PP
b. Appo mandicatu bene.
have.PRES.1SG eat.PP well
'I ate well.'
c. Appo tottu mandicatu.
have.PRES.1SG all eat.PP
d. Appo mandicatu tottu.
have.PRES.1SG eat.PP all
'I ate everything.'

It has also been observed that the past particle cannot raise above adverbs like *semper* 'always' and *fintzas* 'also, even':

(18) *Sard.*
a. An semper / fintzas / tottu ballatu. [Jones 1993: 154]
have.PRES.3PL always / even / all dance.PP
'They always/also/all danced.'
b. *Maria fintzas at cantatu. [Jones 1993: 156]
Maria even have.PRES.3SG sing.PP
'Maria even sang.'

Moreover, in Sardinian we can see that, with FF of a verbal predicate, these VP-internal adverbs also move along with the verbal participle, thus inside and together with the whole VP (cf. (19) and (20)):

(19) *Sard.* [$_{VP}$ **Tottu arrivatos**] deven éssere. [Jones 1993: 155]
all arrive.PP must.PRES.3PL be.INF
'They must all have arrived.'

(20) *Sard.* [$_{VP}$ **Bènniu torra**] sesi? [Lepori 2001: 96]
come.PP again be.PRES.2SG
'Did you come back?'

In Sicilian VP-fronting is possible with infinitives (cf. (13)c), but participles are excluded from FF. This is because in Sicilian the participle raises to a higher VP-external position and thus is no longer within the VP. Once again, direct evidence comes from the position of the participle with respect to adverbs. As the following examples in (22) show, the participle must raise at least to the left

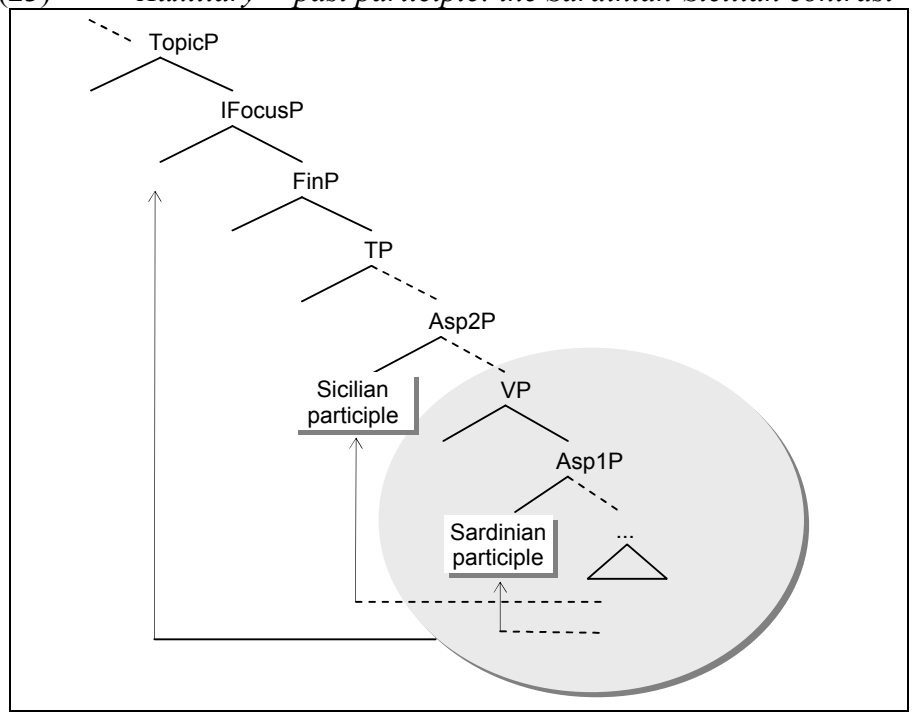
of the adverb *completamenti*, cf. the hierarchical order, following Cinque (1999), as given in (21):

(21) già > cchiù > ancora > sempri > completamenti > tutti cosi > beni/bonu

(22) *Sic.* a. Annu (già) ballatu (già).
have.PRES.3PL already dance.PP already
'They have already danced.'
b. Unn' annu (cchiù / ancora) ballatu (cchiù / ancora).
not have.3PL anymore yet dance.PP anymore / yet
c. Annu (sempri) mangiatu (sempri) dintra.
have.PRES.3PL always eat.PP always at-home
'They have always eaten at home.'
d. Unn' ha (*completamenti) scumparutu completamenti.
not have.3SG completely disappear.PP completely
'It hasn't completely disappeared.'
e. Annu (*tutticosi / *bonu) mangiatu tutti cosi / bonu.
have.3PL all things / well eat.PP all things / well
'They have eaten everything / well.'

The Sardinian-Sicilian contrast with respect to the extension of the movement of the past participle is illustrated in (23):

(23) *Auxiliary + past participle: the Sardinian-Sicilian contrast*



Verbal predicate fronting is fronting of the VP to the left-peripheral focus position in Sardinian. In Sicilian, by contrast, the participle has left the VP and thus can no longer be moved along with the VP.[4]

[4] Recent theories on Past Participle (PstPrt) agreement assume that it occurs within the VP. Belletti (2006) follows Kayne's (1989) idea that PstPrt agreement with preceding clitics results

3.3 Progressive constructions

As far as the contrast in the progressive constructions (12)e vs. (13)e is concerned, where verbal predicate fronting is possible in Sardinian but not in Sicilian, three observations can be made. First, in Sicilian we have the auxiliary *stari* 'stand' + gerund whereas in Sardinian we have *èssere* 'be', i.e. the same verb as in the copular constructions for which FF is possible in both varieties. Second, in Sicilian the main verb *vinnennu* is in the form of the gerund, whereas the morphological form *torrande* in Sardinian is still a true present participle which can also be used e.g. in perceptive constructions (cf. Jones 1993: 286). The third observation concerns the interpretation of the Sardinian periphrasis which "is extremely common and is often used in preference to the simple present or imperfect when describing actual (rather than typical or habitual) situations in the present or past, sometimes even with stative verbs" (Jones 1993: 83-84). This means that the interpretation of the construction copula + present participle in Sardinian does not have the same interpretation as the true progressive of the Sicilian *stari* + gerund construction. Although we do not have a detailed analysis, we suggest that two solutions are possible and that the Sardinian construction is analysable either (i) as a sort of copular sentence involving the copula *be* and an adjectival Small Clause (SC) including the present participle, which then has an adjectival meaning, or (ii) as involving the raising of the present participle to a special VP-internal (progressive) AspP ([$_{VP}$ … [$_{AspP}$ …]]), but again not to an VP-external position. Either solution is compatible with our analysis.

4. IF-CF Distinction

Let us now come to another interesting observation. As has already been shown, Sicilian and Sardinian allow not only contrastive FF, but also informational FF. Whereas IF simply evokes a set of alternatives, which includes the focus itself, CF identifies by contrastive exclusion the complement of the focus within the set of alternatives (cf. Cruschina 2008). We claim that when fronted, these elements occupy two distinct positions within the left periphery of the sentence. According to Rizzi (1997), CF targets a dedicated position within the left periphery of the sentence, and we assume that IF also moves to such a position. If we compare the syntax of CF vs. IF in Sicilian and Sardinian, two main differences can be established. Firstly, non-contrastive focus fronted elements, including wh-phrases, must always be adjacent to the verb, whereas contrastive

from a Spec-Head configuration: the clitic, on its way to a functional projection adjacent to the finite verb, passes by the specifier of the projection headed by the PstPrt and triggers agreement. Under this view, Belletti claims that AgrPstPrt, i.e. the landing position for the PstPrt where agreement obtains, is a projection within the VP (possibly connected to the perfective aspectual projection identified by Cinque (1999)). This analysis predicts that if the PstPrt moves out of the VP, the Spec-Head configuration in AgrPstPrt will not be created and agreement will not obtain. This prediction is borne out by our analysis. Indeed, in no contexts does PstPrt agreement obtain in Sicilian (except with passives, see below), whereas, in Sardinian, as well as in Italian, where the PstPrt remains within the VP, agreement is present. In addition, in passive constructions the PstPrt is assumed to be very low within the VP (cf. Cinque 1999, Belletti 2006) and agreement is therefore expected to be obligatory. Although passives are very rarely used in Sicilian, they do show agreement on the PstPart; and indeed, Sicilian passive participles, which obviously remain in a VP-internal position, can be fronted together with the VP.

focus fronted elements, need not to be adjacent. In the case of IF-fronting, the verb is endowed with the relevant focus feature. Thus, verb movement to FocP has to take place in order to bring the focus feature into a specifier-head configuration with the fronted focus constituent (in the same manner as for wh-phrases, cf. Rizzi 1991). As for CF-fronting, there is no verb movement since the focus projection is inherently endowed with the relevant feature; this analysis has been formulated by Rizzi (1997) for Italian, but can be easily extended to Sicilian and Sardinian to explain the lack of adjacency requirement with CF, cf. (24)b and (25):

(24) *Sic.* a. A: Chi cci riciisti a tò niputi?
what to-him.CL say.PAST.2SG to your nephew
'What did you say to your nephew?'
B: **A virità** (*a mè niputi) cci rissi.
the truth to my nephew to-him.CL say.PAST.1SG
'I told the truth (to my nephew).'
b. NA LITTRA, a Pina, cci scrissi (no un pizzinu)
a letter to Pina to-her.CL write.PAST.1SG not note
'I wrote a letter to Pina (not a note).' [Bentley 2007]

(25) *Sardinian*
SOS DURCHES, a su pitzinnu, appo comporadu, no sos puliches.
the sweets to the child have.1SG buy.PP not the fleas
'I bought sweets for the child, not fleas.' [Sa-Limba 1999-2008]

Secondly, only CF can stay in the left periphery of a complement clause, whereas IF cannot be partially moved to the intermediate periphery, but must move on to the left periphery of the matrix clause:

(26) *Sicilian*
a. Dissi ca NA MACHINA s' accattà, no un muturinu.
say.PAST.3SG that a car REFL.CL buy.PAST.3SG not a moped
'He said he bought a car, not a moped.'
b. *Dissi ca **na macchina** s' accattà.
say.PAST.3SG that a car REFL.CL buy.PAST.3SG
c. **Na machina** dissi ca s' accattà.
a car say.PAST.3SG that REFL.CL buy.PAST.3SG
'He said he bought a car.'

(27) *Sardinian*
a. Appo nadu chi SA MÀCCHINA mi comporat, no sa bricicheta
have say.PP that the car me buy.PRES.3SG not the bicycle
'I said he would buy me the car, not the bicycle.'
b. *Appo nadu chi sa **màchina** mi comporat.
have.1SG say.PP that the car me.CL buy.PRES.3SG
c. **Sa màchina** appo nadu chi mi comporat.
the car have.1SG say.PP that me buy.PRES.3SG
'I said he would buy the car.' [Sa-Limba 1999-2008]

There is also cross-linguistic evidence for this claim. The characterisation of IF-fronting as a matrix phenomenon, as it is, has been independently discussed and argued for in Frascarelli (2005) and Frascarelli and Puglielli (2008), mainly for other languages that allow IF-fronting (e.g. Hungarian, Somali). Frascarelli (2005: 17-18) explicitly argues that the focus constituent within an embedded C-domain is inappropriate as an answer to a wh-question, i.e. where IF would apply, and states that "languages that realize Focus in a fronted position do not allow informational Focus in embedded C-domains." These differences thus provide crosslinguistic evidence for the claim that IF and CF, when fronted, must be kept separate not only on an interpretive level, but also on a syntactic level, i.e. they target distinct projections within the left periphery of the sentence. As pointed out by several researchers, there is a higher projection for CF (cf. also Benincà & Poletto 2004, Frascarelli & Hinterhölzl 2007, Cruschina 2008).

5. Conclusions

We have analysed the common properties and differences both in the interpretation and in the syntax of Sardinian and Sicilian FF-phenomena. We have shown that FF in Sicilian and Sardinian need not be contrastive, that FF is associated with a special interpretation, and that FF is always movement of a maximal projection, that is, verb-fronting is always VP-fronting. Contrary to Sardinian, Sicilian does not allow past participle fronting given that the past participle moves out of the VP for independent reasons. Finally, we presented and discussed some strong pieces of evidence in favour of the claim that Contrastive FF and Informational FF target two distinct positions within the left periphery of the sentence**.**

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On bare nominals and argument structure*

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This paper aims at focusing on a set of phenomena related to the syntax and semantics of bare count nominals: bare count nominals (BNs) in argument position, BNs in predicate position, and the relationship between argument structure and the interpretation of bare nominals. The novelty of this paper is to relate the occurrence of bare nominals with the argument structure position in which they may occur at a syntactic level of representation.

1. Introduction

Although some authors such as Chierchia (1998) have claimed that BNs are not found in the Romance languages, ample data (cf. Schmitt and Munn 1999, Dobrovie-Sorin et al. 2006, among others) show that they are in fact a well-attested and productive phenomenon. However, there are some well-known puzzles that have to be solved on the distribution of BNs in Romance.

One of these puzzles, on which we will focus in this paper, is that not all argument structure positions allow BNs: internal object positions of unaccusative (1a) and causative transitive verbs (1b), as well as external subject positions (1c) are not appropriate recipients of BNs (cf. Suñer 1982). In Espinal & McNally (2007) it is hypothesized that BNs can only be found in unergative-like argument structures, as bare objects of verbs, a hypothesis that has been extended to existential *haver-hi* 'there be' sentences. See the contrasts between the Catalan examples in (1) and (2). The Spanish examples in (3) further illustrate the presence of BNs in object position of (birelational) prepositions (cf. Bosque 1996, Laca 1999).

(1) CATALAN
a. *Va morir *nen*
PAST die child
b. *Hem tancat *finestra*
have closed window
c. **Gat* miola
cat mews

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(2) a. Té *cotxe.*
has car
'(S)he has a car.'
b. Busquem *dependenta.*
look for shop-assistant
'We are looking for a shop-assistant.'
c. Hi ha *piscina.*
there has swimming pool
'There is a swimming pool.'

(3) SPANISH
a. Está en *prisión.*
is in prison
'(S)he is in prison.'
b. Voy a *casa.*
go.1sg to home
'I'm going home.'

Second, not all BNs can occur in predicate position. Only capacity nominals such as *director* 'director' / *candidate* 'candidate' (De Swart et al. 2007), and relational nominals such as *primo* 'cousin' / *padre (de alguien)* 'father of somebody', when occurring with their complements, are allowed in this position, as shown in (4). Occasionally, bare abstract nouns and BNs are also allowed in postcopular predicate position, as illustrated in (5), similar to adjectives, past participles and adverbs.

(4) SPANISH
a. Juan es *director / candidato / noble / atleta.*
Juan is director / candidate / noble / athlete
'Juan is a(n) director …'
b. Juan es *primo* *(de mi cuñada) / *padre* *(de Luisa)
Juan is cousin of my sister-in-law / father of Luisa
'Juan is the cousin of my sister-in-law / the father of Luisa.'

(5) a. Juan es muy *hombre* / está muy enamorado.
Juan is very man / is very in-love
'Juan is very manlike / very much in love.'
b. Es *verano / invierno.*
is summer / winter
'It's summer / winter.'
c. Dios es (todo) *Amor.*
God is all love

Other BNs such as *periódico* 'newspaper', and event nominals, such as *respuesta* 'answer', which differ lexically from capacity and relational nominals, are discarded in postcopular position, but are allowed in other predicate contexts such as those preceded by the particle *como* 'as' (Munn & Schmitt 2005). See the contrasts in (6) and (7)[1].

[1] In contrast with the claim just made, see the following text, which include two uses of non-relational nouns in predicate position. We think that the BNs in italics that occur in the second

(6) SPANISH
a.* El País es *periódico.*
El País is newspaper
b. Como *periódico* suele comprar El País.
as newspaper is-used-to buy El País
'As a newspaper (s)he usually buys El País.'

(7) a.* Lo que me ha dicho es *respuesta.*
what that me has said is answer
b. Como respuesta me ha dicho …
as answer me has told
'What (s)he told me as an answer …'

With this presentation in mind, in this paper we intend to provide an answer to the following two questions:

1. Why is it the case that BNs seem to be allowed only in V+N argument structures (as illustrated in (2)), in object position of Prepositions (see (3)), and in predicate position (see (4-5)).
2. Do all these three possibilities have anything in common from the perspective of their syntactic argument structure?

Assuming a syntactic approach to argument structure (Hale & Keyser 2002, Mateu 2002) and its extension from lexical-syntax to sentential-syntax, we are going to show that the syntactic structures underlying the examples in (2), (4), and (5) have a crucial syntactic pattern in common: they all introduce bare NPs in complement position.

Following these assumptions we will argue for the next two hypotheses:

H1. BNs can only occur as internal arguments of relational categories (V, P) to which bare nouns can move and conflate at some point during the syntactic derivation.
H2. BNs can never occur as internal arguments of unaccusative or complex transitive verbs due to a structural constraint on subjects / specifiers: they must be properly licensed by appropriate functional categories.

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paragraph are licensed, because (i) they keep a discourse relationship with previously quoted nominals, and (ii) they are under the scope of negation.

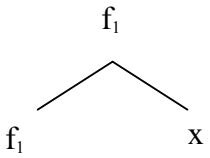
"el 20 de marzo de 2003 empezaron a morir iraquíes bajo las bombas y los misiles estadounidenses. Era lo que Bush llamaba y sigue llamando "ataque preventivo" o "guerra contra el terrorismo", pero que no es ni lo uno ni lo otro.

No es preventivo porque … Y no es *guerra* porque un ataque con medios aplastantes, sin defensa enfrente, no es una batalla sino una masacre impune, que avergonzaría a auténticos guerreros (…). Tampoco es *combate* contra el terrorismo pues nadie en su sano juicio puede creer que el mejor sistema de lucha contra grupos terroristas dispersos consiste en arrasar países enteros." (José Luis Sampedro, *Los mongoles en Bagdad*, Madrid: Destino, 2003, p.114).

2. Theoretical framework

Following previous syntactic approaches to argument structure (Hale & Keyser 2002, Mateu 2002), we assume the following structures: the unergative (8), exemplified in (9), the unaccusative (10), exemplified in (11), and the transitive (12), exemplified in (13).

(8) Unergatives

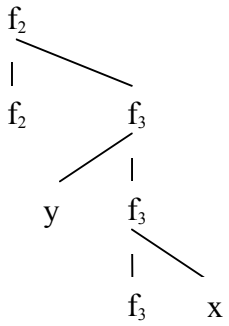


In (8) f_1 stands for an eventive relational category, which can be associated to two "semantic flavors" (DO and HAVE). x is a non-relational slot that can be occupied by different nominal-like expressions: i.e., x = {N, NP, NumP, DP}.

(9) a. John {danced/did a dance}
b. The cow {calved/had a calf}

The external argument ('Originator') is not introduced in the lexical argument structure (see Hale & Keyser 2002, i.a.), whereas the internal argument *x* is assumed to be conflated with the head f_1 giving then an intransitive denominal verb.[2] For our present purposes, two important restrictions put forward by Hale & Keyser (2002) will be the following ones: (i) only bare roots can be conflated; (ii) specifiers cannot conflate at l-syntax, only complements can.

(10) Unaccusatives



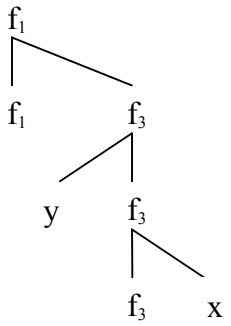
In (10) f_2 stands for an eventive relational category that can take two basic semantic flavors: BE and BECOME. No external argument will then be required in s-syntax. f_3 is a non-eventive birelational category, i.e., with specifier and complement; if stative, it corresponds to a *central coincidence relation*; if

[2] According to Hale & Keyser (2002:11): "an empty phonological matrix must be eliminated from the morphosyntactic representation of sentences. This is accomplished, we assume, through conflation. *Conflation* may be a specific kind of incorporation, conforming to an especially strict version of the *Head Movement Constraint*, according to which the phonological matrix of a complement replaces the empty matrix of the governing head".

dynamic, it corresponds to a *terminal coincidence relation.*[3] Finally, *y* and *x* are read off from (10) as 'Figure' and 'Ground', respectively. Since *y* is a specifier, those nominal expressions occupying this position will be shown to have functional features that must be appropriately valued: i.e., *y* = {DP, NumP}.

(11) John is in prison / John went to prison / John got imprisioned.

(12) Transitives



In (12) f_1 stands for an eventive relational category, which can be associated to CAUSE and HAVE. Accordingly, unlike (10), an external argument will be required in s-syntax. On the other hand, as in (10), f_3 in (12) is a non-eventive birelational category: it relates a Figure with a Ground. Crucial to our analysis will be to show that, although both *y* and *x* are nominal categories, specifiers of relational categories cannot be bare nominals (i.e., *y* = {DP, NumP}), whereas complements can (i.e., *x* = {N, NP, NumP, DP}).

(13) Peter put John into prison / Peter had John in prison / Peter imprisoned John.

3. Postverbal nominals in unergative-like structures

As is well-known, bare abstract nouns can occur in object position and have been postulated to be incorporated into either V or P at the syntactic level of representation standardly known as Logical Form. See the Spanish data in (14) (e.g., Masullo 1996).

(14) SPANISH

a. hacer mención, tener afecto, tomar cariño
do mention have affection take affection
'to mention, to show affection to grow fond of'

b. en oposición (a), a pesar (de), en práctica
in opposition to in spite of in practice

[3] Roughly, a terminal coincidence relation (e.g. cf. *to, out of, from*, etc.) involves a coincidence between one edge or *terminus* of the theme's path and the place, while a central relation (e.g. cf. *with, at, on*, etc.) involves a coincidence between the center of the theme and the center of the place. See Hale & Keyser (2002), for further discussion.

See also Mateu (2002) for the claim that Adjectives involve an abstract relational element similar to f_3 (see Kayne 2008 for a similar claim). Accordingly, 'Adjective' is not a primitive l-syntactic category but is the result of conflating *x* with f_3: e.g., *John went to prison* & *John went crazy* are claimed to involve the same argument structure in (10).

More recently, in the linguistic literature on Spanish and Catalan (cf. Bosque 1996, Laca 1999, Espinal 2001, Dobrovie-Sorin et al. 2006, Espinal & McNally 2007), the incorporation of object complements at a later stage of the derivation has also been postulated for data such as the examples in (15), which include both non-idiomatic expressions (see (15a)) and idiomatic ones (see (15b)).

(15) CATALAN
a. portar barret, tenir pis, necessitar cangur, buscar metge
wear hat, have flat, need baby-sitter, look-for doctor
'to wear a hat, to have an apartment, to need a baby sitter, to look for a doctor.'
b. tenir cap, fer forat.
have head, make hole
'to be intelligent, to impress.'

Interestingly, those verbs in (15a) can be regarded as instantiations of so-called 'characterizing *have* predicates' (Espinal & McNally 2008), which have been argued to involve unergative structures headed by a light HAVE[4]. Similarly, the following Catalan examples with *fer-ho* 'do so' seem to lead us to conclude that the relevant light verb in (15a) is not DO but rather HAVE[5].

(16) a. ??En Joan *porta barret* i la Maria també *ho fa.*
Det John wears hat and Det Maria also does so
b. *En Joan *necessita cangur* i la Maria també *ho fa*.
Det Joan needs babysitter and Det Maria also does so
c. ??En Joan busca metge i la Maria també ho fa.
Det Joan looks-for doctor and Det Maria also does so

However, for our present purposes, what should be noticed is that the nominal head, no matter whether it is an abstract noun (see (14)) or a sortal / count noun (see (15)), can form a complex unit with f_1 at some level of representation if, and only if, the basic argument structure in which they occur is the one that corresponds to what we call unergative-like structures: see (8). Accordingly, the relevant generalization that can be drawn from the analysis of the data presented so far is the following one:

(17) If a BN expression is allowed in syntactic complement position of a HAVE relation, a full NP, NumP or DP can also occur in that position. [6]

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[4] See also Harves & Kayne (2008) for the claim that transitive *need* involves incorporation of a bare nominal root NEED into an abstract light verb HAVE.

[5] In contrast to (16a) and (16c) notice the well-formedness of (i a-b).

(i) a. En Joan porta *el/un* barret a la Maria i en Pere també *ho fa*.
Det John wears the/a hat and Det Maria also does so
'Joan takes the / a hat to Mary, and does so too.'
b. En Joan busca *el/un* metge de capçalera i la Maria també *ho fa*.
Det Joan looks-for doctor of family and Det Maria also does so
'Joan is looking for a family doctor, and Maria does so too.'

[6] In complement position of a DO relation BNs can never occur (e.g., **fer polca* lit. do polka, **ballar polca* lit. dance polka), and this parallels the fact that cognate and hyponymous objects always require either NumP or DP (e.g., *balla la/una polca* 'dance the / a polka').

To summarize, postverbal nominals of unergative-like structures can be BNs, because they merge with the complement position of a relational head, and can incorporate (either syntactically or semantically) into this relational head at some point of the derivation (either at l-syntax, at s-syntax, or at the syntax-semantics interface). This is possible because BNs in complement position are not canonical arguments: syntactically, they lack a specification of Number and Determiner, and are nor bearers of a referential index; semantically, they are property-denoting expressions (Espinal & McNally 2007, 2008).

4. Postverbal nominals of unaccusative / causative transitive verbs

Let us now consider the contrasts in (18) and (19). *Morir* 'to die' is an unaccusative verb, and *netejar* 'to clean' is a causative transitive verb since it denotes a caused change of state. None of them allows a BN in postverbal position, as illustrated in (18c) and (19c).

(18) CATALAN
a. Van venir {trens, nens}.
PAST.PL come trains children
'Some {trains, children} came.'
b. Va venir {l'avi, un canari, en Pere, gent}.
PAST.SG come the grandfather a canary Det Pere people
'{The grandfather, a canary, Pere, people} came.'
c. * Va venir {tren, nen}.
PAST come train child

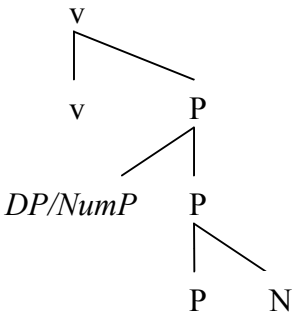
(19) a. Aquest producte neteja {taules, finestres}.
this product cleans tables windows
'This product cleans {tables, windows}.'
b. Aquest producte neteja {les taules, unes superfícies, el vidre, greix}.
this product cleans the tables some surfaces the glass grease
'This product cleans {the tables, some surfaces, the glass, grease}.'
c. * Aquest producte neteja {taula, finestra}.
this product cleans table window

These examples, and further data that we have extracted from a *Corpus of the Use of Catalan at the Web* (Cucweb), show that the nominal expression occurring in postverbal position of an unaccusative verb can be either a proper name, a bare plural, a bare mass term, and a definite or indefinite DP, but not a BN. This distribution correlates with a particular semantic denotation: the postverbal nominal of an unaccusative verb like *venir* 'to come' can denote an entity (this is clearly the case when the nominal expression is a proper name, a definite DP, a bare plural or a mass term), or a generalized quantifier expression (in the case of a singular indefinite), but not a property (which, following Espinal & McNally 2007, we assume to correspond to the denotation of BNs in object argument position in Romance), as illustrated in (18c) and (19c).

Examples of the sort exemplified by Catalan *fer tesi* lit. do thesis 'make progress in the thesis' are legitimate because the nominal has a mass interpretation, one which allows a degree modifier: *fer molta tesi* lit. do much thesis 'make quite a lot of progress in the thesis'.

Following Mateu (2002), we assume for unaccusatives an argument structure such as the one represented in (10). This structure, repeated in (20), makes explicit that the subject position of the small clause-like PP must be filled up by a DP/NumP, whereas the object position can be filled by a bare count nominal. For our present purposes, we will assume that mass nouns are NumPs, since they are inherently plural.

(20)



The fact that the postverbal nominal in (18c) and (19c) actually corresponds to the external argument of a PP or small clause-like projection is derived from the lack of BNs in specifier position. Those nominals that occur in specifier positions are subjects of predication relationships, and require an appropriate syntactic domain (i.e., a functional information, either encoded in a Number or Determiner projection), in order to be properly valued. We assume, following Baker (2003:26), that the "agent <our Originator: MTE & JM> and theme <our Figure> roles can only be assigned to specifier positions".[7] Notice that in (20) the specifier of P corresponds to the theme or figure.

Some apparent counterexamples to this analysis of the distribution of BNs with unaccusative verbs appear in (21):

(21) CATALAN

a. Cau *pedra.*
falls stone
'Hailstones are falling.'

b. …s'evitarà que caigui *producte* damunt la taula de treball…
CL avoid that falls product on the table of working
'One should avoid that some product drops on the working table.'
Cucweb http://ramsesii.upf.es/cgi-bin/cucweb/search-form.pl(13.02.08)

c. M'ha arribat *correu*.
me has arrived mail
'I've received some mail.'

d. Vam aconseguir que arribés *senyal* a l'altaveu. (Brucart 2002:1455)
PAST manage that arrive signal to the loudspeaker
'We managed that some signal arrived to the loudspeaker.'

However, the Catalan examples in (21) contain nominal expressions that have been lexically massified and are similar to the mass nouns in italics in (22). An

[7] In contrast to Mohawk (where subjects of unaccusative verbs can incorporate), Romance non-complements cannot incorporate, because they require some sort of syntactic valuation.

argument in support of the mass-like status of these BNs that occur in postverbal position of unaccusative verbs is the fact that these nominals allow some degree quantifiers (e.g., *massa* 'too much') and some number non-agreeing adnominal quantifiers (e.g., *molt* 'much', *força* 'quite a lot', *una mica de* 'a little of', etc.) in prenominal position. See the data in (23).

(22) a. Cau *calamarsa / pluja / neu.*
falls hail rain snow
'It is {hailing, raining, snowing}.'
b. …s'evitarà que caigui *líquid / oli / lleixiu* damunt la taula.
CL avoid that falls liquid oil bleach on the table
'One should avoid that some {liquid, oil, bleach} drops on the working table.'

(23) a. M'ha arribat *força* correu.
me has arrived quite a lot mail
'I've received quite a lot of mail.'
b. Vam aconseguir que arribés *una mica de* senyal a l'altaveu.
PAST manage that arrive a little of signal to the loudspeaker
'We managed that some amount of signal arrived to the loudspeaker.'

This test contrasts the nominals in (22), which are mass nouns, with the ones in (15) above, which cannot be preceded by degree and non-agreeing adnominal quantifiers, as shown in (24).

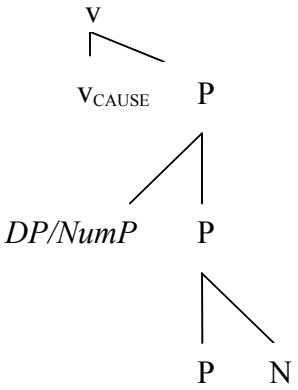
(24) a. *Avui porta *molt* barret.
today wears much hat
b. *Aquest noi té *força* pis.
this boy has quite-a-lot apartment
c. *Busca *una mica de* metge.
looks-for a little of doctor

Mass and massified nouns have the formal properties of being cumulative and having no quantized reference (Krifka 1989). In this respect the nominals in (21) as well as the ones in (22) share these two properties.

Regarding causative transitive verbs such as *netejar* 'to clean', we have also observed (see (19)) that the postverbal object cannot be a BN, but must be either a BP, a bare mass term, or a full-fledged DP. That is, the object of a complex transitive verb must be specified by number and/or definiteness. This behaviour is explained exactly in the same way as has already been done with unaccusatives.

The argument structure postulated for a causative transitive verb (initially represented in (12) and repeated in (25)) subordinates a PP under a causative-like verbal head. This structure consists of two functional / relational projections. Below this v_{CAUSE} we find a PP predication-like complement. As above, this small clause-like structure requires a NumberP or full-fledged DP in subject position, in order to guarantee appropriate valuation of the subject in the syntactic domain.

(25)



Once again the question is: why a BN cannot be licensed in specifier position? BNs, being roots, do not have any formal feature that requires to be checked: if merged in complement position, nothing justifies their movement to subject position; if merged in subject position, they cannot value any formal feature of a functional projection because they lack formal features. On the other hand, BNs cannot be interpreted as semantic arguments; they are interpreted as neither agents nor themes, which are the thematic roles normally associated with specifier positions (Baker 2003).

In other words, if we conceive causative transitive structures as complex structures that combine a v_{CAUSE} relational head with a P relational category, BNs are never allowed in the immediate postverbal position, since postverbal BNs correspond to the theme / figure argument, and as such they must be licensed by a Determiner or a Number head[8]. See (26).

(26) CATALAN
a. *La Maria ha netejat *taula*.
Det Maria has cleaned table
b. *Hem tancat *finestra*.
have closed window

Finally, let us consider what is the argument structure corresponding to those nominals that occur as complements of the inner birelational projection P postulated in (25). Consider the examples in (3), repeated here for convenience.

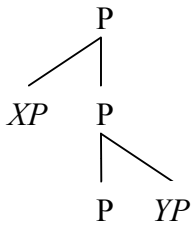
(27) SPANISH
a. Está en *prisión*.
is in prison
'(S)he is in prison.'

[8] Here we hypothesize that there are two transitive structures: those unergative ones that show the V+N pattern (that include 'have'-predicates), and those proper transitive ones that have a canonical argument in a V+DP/NumP pattern. The former allows non-massified BNs in complement position, the latter only allows massified BNs in specifier position, as represented in (25).

b. Voy a *casa.*
go to home
'I'm going home.'

These prepositions either denote a central coincidence relation (27a) or a terminal coincidence relationship (27b), and project the dyadic structure in (28) characteristic of the lexical category P (cf. Hale & Keyser 2002:218). For those prepositions that express central coincidence, the entity in subject position (i.e., pro) has the attribute denoted by the prepositional complement (being in prison). For those prepositions that express terminal coincidence, the entity in subject position (i.e., pro) is related dynamically to a place (at home).

(28)



However, what should be remarked is that whereas the external argument (specifier) of P must be a nominal category different from a bare nominal (i.e., it cannot be N; see (29)), the internal argument (complement) of P can be a BN, independently of the fact that P might denote either central coincidence or terminal coincidence.

(29) SPANISH
a. Desde el principio la asociación ha servido a *los inmigrantes en prisión*.
from the beginning the association has served to the immigrants in prison
'From the very beginning the association helped the immigrants in prison.'
b. Así, de esta manera expresas tu parecer, que es totalmente aceptable, y dejas a *los políticos en casa*.
thus of this manner express your opinion that is totally acceptable and leave to the politicians at home
'Thus, you express by this means your opinion, which is absolutely acceptable, and leave politicians at home.'
http://www.google.es (24.06.08)

To sum up, BNs are not allowed as objects of unaccusative and causative transitive verbs because – under an argument structure analysis – these apparent objects are, in fact, internal subjects of a small clause like PP predication, and subjects need to be licensed by some functional projection (either one that expresses number, or definiteness, or both).[9]

[9] Following Munn & Schmitt (2005:825), we assume that those apparent BNs in (i) "are DPs with an empty determiner, and no number projection".
(i) a. Criança lê revistinha. Munn & Schmitt (2005: ex. (1b))
child read.3sg comic book
'Children read comic books.'

5. Conclusions

In this paper, we have argued for two hypotheses. On the one hand, BNs have been shown to occur only as internal arguments of relational categories (V, P) to which bare nouns can move and conflate at some point during the syntactic derivation. On the other hand, BNs have been shown to be unable to occupy the direct internal argument position of unaccusative or complex transitive verbs due to a structural constraint on subjects/specifiers: they must be properly licensed by appropriate functional categories.

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b. Chegaram criança. Munn & Schmitt (2005: ex. (4b))
arrived child
'A child / children arrived.'

For the time being we do not have an explanation of the crosslinguistic variation between Catalan and Spanish on the one hand, and Brazilian Portuguese on the other regarding the legitimacy of null determiners.

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Stylistic Fronting: a comparative analysis*

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Stylistic Fronting (SF) is a syntactic phenomenon present in modern Insular Scandiavian languages, probably as a residue of Old Icelandic word order. Mainland Scandinavian languages have lost SF, but diachronic studies show that Old Scandinavian languages display SF (cf. Falk 1993, Trips 2003). SF is also found in Old Romance varieties, among which is Old Italian (cf. Benincà 2006). Despite the considerable number of proposals, SF has not received a satisfactory account. It is difficult to find a theory of SF compatible with the idea that the left periphery of the clause has general structural properties.
In section 1. I give a brief overview of the properties and distribution of SF in contemporary Icelandic. In section 2. I present some comparative data showing that the same phenomenon is attested in Old Italian. In section 3. I focus on the syntactic conditions licensing SF, and identify the target position of fronted items by observing the Old Italian SF distribution with respect to overt subjects. In section 4. the distribution of SF is observed with respect to CP expletives (cf. Poletto 2005) and enclisis/proclisis (cf. Benincà 1993). In section 5. I propose a unifying analysis of SF for Old Romance and Icelandic as a potential strategy to extract/drop the subject, based on an integrated synchronic/diachronic perspective and adopting a derivation of SF in terms of remnant movement to the CP (cf. Franco 2009).

1. SF in Icelandic

SF is a quite common syntactic phenomenon in modern Icelandic. It is also found in Faroese, but in this case it is much less productive and preferred in the written language. Basically, SF is generated by a mechanism which fronts a lexical item to a preverbal position. The peculiarity of this operation is due to the fact that a considerably great variety of lexical categories can be fronted. Maling (1980; 1990), who first identified the phenomenon in Icelandic, proposes a hierarchy of frontable categories including phrasal adverbs and negation; and "items from the verbal complex" (verbal heads, particles; predicative adjective and nominal predicates). Holmberg (2000) argues that also

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complement NPs and PPs can undergo SF. Because of the promiscuous nature of frontable elements and movement types (head or phrasal?) characterizing SF, this phenomenon has not received a satisfactory account. Following the analysis of complement NP and PP SF proposed by Franco (2009) as ambiguous cases of either SF or topicalization[1] according to the syntactic licensing context, I do away with this type of fronting for the sake of the present proposal's clarity. In addition, I do away with another type of SF which does not lend itself to a good comparative analysis, namely phrasal adverb or negation SF. SF of phrasal adverbs is excluded because adverb fronting does not unambiguously identify SF, but can also characterize topicalization, which I want to keep separate from the investigated phenomenon. For the same reason, SF of negation is excluded. Because the present paper proposes a comparative analysis of SF based on facts from Icelandic and Old Italian, SF of negation cannot be considered for the additional reason that Old Italian (and Italian) negation has a different status with respect to Scandinavian negation, and cannot undergo SF (or topicalization).
As a consequence, the analysis proposed here refers exclusively to the "third" type of SF among those mentioned above, namely SF of "items from the verbal complex", to use Maling's (1990) definition. In the following examples, some relevant cases of SF in Icelandic are illustrated:

(1) Hann spurði hver **sullað** hefði bjórnum (Icelandic) *past participle*
He asked who spilt had beer.the
"He asked who had spilt the beer"

(2) Hann syndi mér flóskunnar sem **inn** verið smygglað ___ *verb particle*
He showed me bottles.the that in were smuggled
"He showed me the bottles that were smuggled in" [Hrafnbjargarson 2003]

(3) Sá sem **fyrstur** er __ að skora mark fær sérstök verðlaun *nominal predicate*
he that first is to score goal gets special prize
"He who is first to score a goal gets a special prize" [Jónsson 1991]

Mainland Scandinavian languages have lost SF, which was instead present in older varieties until about the first half of XVI century. Compare examples (4)-(6) of Old Mainland Scandinavian to (7)-(9), illustrating the impossibility of SF in the modern varieties:

(4) som **sagd** er __ ved Propheten (Middle Danish)
as said is with prophet-the
"as is told by the prophet" [1550, *The Bible*, Falk & Torp 1900:296]

(5) þæn sum **fangit** haær ____ uininum (Old Swedish)
he who caught has friend.the
"He who has caught the friend" [Delsing 2001]

[1] Franco (2009) shows that, on the one hand, Icelandic SF of complement NPs and PPs is sometimes similar to English locative inversion (LI) , but the syntactic properties of SF and LI differ in significant ways. On the other hand, NP/PP SF has a more restricted distribution than SF of adverbs or "items from the verbal complex" in subordinate contexts. I cannot illustrate the details of the analysis here, but see Franco (2009).

(6) eina dottur er **Droplaug** hét __ (Old Norse)
one daughter who Droplaug.N was.called
"One daughter who was called Droplaug" [Faarlund, 2008, 237, 104c., Dpl]

(7) *den, som **först** är ___ att göra mål (Swedish)
he who first is to score goal
"he who is the first one to score a goal"

(8) *Hvem tror du **stjålet** har ___ sykkelen? (Norwegian)
Who think you stolen has bike.the
"Who do you think has stolen the bike?"

(9) *Kvinden som **hjem** gik ___ var hans soster (Danish)
Woman.the who home went was his sister
"The woman who went home was his sister" [Thrainsson 2007, 377, 7.86]

SF is a much debated issue in the current approaches to generative grammar. The syntactic phenomenon of SF represents a puzzle for the economy of syntax because of its allegedly optional character. Instead of SF, a gap is also possible in many syntactic environments, e.g. in the cases of subject extractions in (1)-(3) above. Alternatively, SF substitutes the preverbal pronoun *það*, used in expletive constructions[2].

(10) a. **Það** hefur komið fram að... (Icelandic)
it has come forth that

b. **Fram** hefur komið___ að
Forth has come that
"It has been reported that…" [Thrainsson 2007]

The problematic aspects of SF can be grouped under three main points:

1) The syntactic conditions licensing SF, e.g. (arguably) the lack of an overt preverbal subject, are still unclear and basically unexplained. Some such conditions have been presented by Maling (1990) as identification criteria (cf. Table 1. below), but their relevance to SF has not been syntactically motivated in a satisfactory way and the present accounts of SF are fundamentally descriptive.

In Table 1. the criteria considered as most effective for the identification of SF were marked in bold. A brief explanation of the methodology of analysis is given in section 2.

[2] A detailed presentation of the properties and distribution of *það* with respect to SF would require much more than a paper section. For a proposal see Rögnvaldsson (1994) and Thráinsson (2007) for data.

Table 1. (adapted from Maling (1990))

TOPICALIZATION	**STYLISTIC FRONTING**
Objects NPs; PPs, etc.	**Items from verbal complex**
Emphasis/focus on fronted constituent	Emphasis/focus not necessarily present
Uncommon in embedded clauses	**Common in embedded clauses**
Subject gap not required	**Subject gap required (SGC)**
Unbounded (cyclic)	Clause bounded
Judgments vary wrt clause type	Accepted by all speakers

2) In addition, the interpretive properties of SF are mysterious and their accounts are controversial. Some argue that SF is a pragmatically marked phenomenon: Hrafnbjargarson (2003) proposes that SF is movement to a FocusP in the CP. This hypothesis is disregarded here, because FocusP is a position dedicated to quantificational phrases (cf. Rizzi 1997; 2001), but SF behaves in a significantly different way from topicalization and focalization (cf. Table 1. above). For instance, SF is not an island to extraction whereas topics and foci are, in Icelandic.

A more "moderate" view suggesting that SF contributes to some extent to the information structure is that of Fisher and Alexiadou (2001) and Fisher (to app.) for Old Romance languages. In this perspective, the stylistically fronted material receives discourse prominence and, consequently, a slightly different interpretation from analogous sentences where SF has not taken place. This view is in apparent contrast with the idea that SF does not bear emphasis and does not contribute to the information structure put forward by Maling (1980; 1990) and shared by Holmberg (2000) and Thráinsson (2007) a.o., for Icelandic. Along these lines, the characterization of SF as a mechanism void of any pragmatic import is a point of distinction of SF from the type of topicalization taking place in V2 clauses. The present proposal solves the dispute on the (lack of) interpretive properties of SF by adopting a diachronic perspective. Basically, it is argued that SF was related to discourse prominence properties in Old Romance as well as in Old Scandinavian languages. Due to specific changes in the parameter setting happening at successive stages of these languages, SF was either lost (as in Modern Romance[3] and Mainland Scandinavian languages) or reanalyzed as a syntactic mechanism maintaining only part of its original properties, i.e. as a strategy to extract/drop the subject (as in Icelandic). In this reanalysis process, SF loses its pragmatic import, which fits the analysis of Maling (1990); Holmberg (2000) and Thráinsson (2007), a.o. Nonetheless, the diachronic perspective put forward here leaves room for a differentiated interpretation of SF according to its context of occurrence. As pointed out by Jónsson (1991), the interpretive properties of SF are subject to a fine distinction

[3] Cardinaletti (2003) argues that SF is productive in Modern Italian. I do not agree, since many (of her) sentences with SF are ungrammatical to my (and various other native speaker's) ear. Nonetheless, SF of some specific expressions is possible at a formal register in Modern Italian and has an "emphatic flavor" as a consequence of the fact that the few instances of SF in Modern Italian are basically a residue of the Old Italian style.

related to the main vs. subordinate status of the clause where SF occurs. Specifically, the fact that main clause SF is "more restricted to literary language" (Jónsson 1991) possibly indicates the residual character of this type of SF, where a pragmatic contribution is not completely excluded[4].

3) The major syntactic consequence for the missing identification of the SF interpretive properties (cf. point 2) above) is the impossibility to determine its exact target position. Cardinaletti (2003) proposes that Modern Italian SF[5] targets a position below the IP-peripheral subject positions, i.e. a position below Spec,AgrSP. This hypothesis is disconfirmed not only for Modern Icelandic SF but also for Old Italian, as the data presented in the following sections show. By contrast, Modern Italian SF, as identified by Cardinaletti (2003), is disregarded for the following reasons: (i) it is not really productive; (ii) when attested, it is ambiguous with topicalization (which, in Italian, is different from V2 topicalization, since Italian is not V2); i.e. it does not display the characteristics identified by Maling (1990) given in Table 1.

Next section presents some facts from Old Italian, where SF is attested and analogous to the Scandinavian counterpart of this phenomenon. The comparative analysis of SF in the two language groups permits to identify the proper target position of the stylistically fronted material.

2. SF in Old Italian

As noted by Fisher and Alexiadou (2001); Roberts (1993) and Mathieu (2006), SF is attested also in Old Romance languages such as Old Catalan and Old French. By analogy with such varieties, the distribution and properties of SF were explored in three different Old Italian corpora dated between 1250 and 1330. The three corpora consist of the following texts:

- FF = Anonimous (1271-1275), *Fiori e vite di Filosafi e d'altri savi e d'imperadori*,
- FR = Bono Giamboni (1292 (1260?)) *Fiore di Rettorica* (β corpus),
- N = Anonimous(1281-1300), *Il Novellino*, XIII century.

Due to the promiscuous nature of the frontable items in SF constructions, the texts had to be excerpted manually, by means of a paper version. Specific searching was done through the OVI online database (http://gattoweb.ovi.cnr.it(S(d5xfwv55drcqzs55tcvzd13w))/CatForm01.aspx).

Before illustrating the facts related to SF, it is worth spending a few words on the main syntactic properties of Old Italian. Old Italian is a verb-second language of the Romance type, i.e. the verb can be preceded by more than one constituent even where it is expected to have raised to the CP. For this reason, Romance V2 is labeled here as "relaxed V2", by contrast with the Germanic "strict V2", meaning that the verb raises to the CP in both language groups, but can be preceded by a different number of constituents (one in Germanic; more than one in Romance). The productivity of V-to-C in Old Italian is attested by the presence of subject-verb inversions as illustrated in (11) below. Assuming that the verb targets the CP domain in all Old Italian main clauses, the relaxed

[4] In main clauses, discourse prominence features can in principle be associated with SF because the same environment licenses V2 topicalizations.

[5] Modern Italian SF seems a much more limited phenomenon than Cardinaletti (2003) argues.

character of V2 is showed by cases like the one in (12), where the verb is preceded by several constituents (and the subject is left dislocated):

(11) [Anche] diceva *Iscipio* che… (Old Italian)
Also said Iscipio that…
"Scipio also said that…" [FF, 141.10]

(12) [*Carlo*] [nobile re di Cicilia e di Gerusalem] [quando era conte d'Angiò]
Carlo noble king of Sicily and of Gerusalem when was earl of Angiò
[sì] amò per amore..
SI loved.3s for love
"Carlo, noble king of Sicily and Gerusalem, when he was earl of Angiò, he truly loved…" [N, LX, 1, 2]

Another characteristic of Old Italian is the partial nature of pro-drop which displays a main/embedded asymmetry. As discussed by Benincà (1984) a.o., Old Romance pro-drop is licensed by V-to-C. Since the verb does not move to the high left periphery in most embedded clause-types, overt pronominal subjects are found, differently from modern Italian where overt pronominal subjects are possible only with a contrastive reading (or trigger a disjoint reference effect). This is shown in (13) below:

(13) a. Lo figliuolo lil domandò tanto ch'*elli* l'ebbe (Old Italian)
The son 3sDAT+ACC.cl asked much that he 3s.ACC.cl had
"The son asked it to him so that he got it" [N, 18, 166.8]
b. Il figlio$_i$ glielo chiese tanto che egli$_{*i/j}$ l'ebbe (Modern Italian)
The son 3sDAT+ACC.cl asked much that he 3s.ACC.cl had
c. Il figlio$_i$ glielo chiese tanto che *pro$_i$* l'ebbe
The son 3sDAT+ACC.cl asked much that pro 3s.ACC.cl had
"The son asked it to him so that he got it"

Contrary to Modern Icelandic, Old Italian (and Italian) pro-drop is not limited to expletives and quasi-arguments but regards argumental subjects as well. As a consequence, it is difficult to tell whether the subject gap condition required by SF (SGC, as indicated in Table 1. above) is satisfied by a null pro or by a real subject extraction/extraposition. For the present purposes, it is simply assumed that both pro subjects or subject traces in Spec,AgrSP (or lower positions, cf. Cardinaletti 2004) are valid options to satisfy the SGC, as long as the subject is not frozen in its "criterial" position, i.e. Spec, SubjP[6], along the lines of Rizzi (2004); Rizzi and Shlonsky (2007). However, part of the investigation of Old Italian SF was devoted to the identification of the SF type based on the fronted category in V-to-C and non-V-to-C contexts. The details of this analysis are given in section 4.
Let us now turn to SF in Old Italian. Below are some examples of SF: cases of adverb; negation and argument fronting were not considered in the investigation for the reasons provided above.

[6] Recall from Cardinaletti (2004) that SubjP is the highest subject position identified in the IP domain against which the "subject-of-predication" features are checked.

(14) almeno quello che **detto** è __ non è inutile a sapere *Past participle SF*
at.least which that said is not is useless to know.INF
"At least what is said isn't useless to know" [FR, 72, 25]

(15) Col guadagno che **far** se ne dovea __ *Infinitive SF*
with.the gain that do.INF IMP of.it must.3sPAST
"With the gain that one should make of it" [N, XCVII, 16-17]

(16) **Più legier** è al pover fugire le schernie… *Nominal predicate SF*
More light is to.the poor escape.INF the mockeries
"To avoid mockeries is easier for the poor…" [FF, XXIV, 44]

(17) **signore** *pro* t'ho fatto __ di molte dilizie *Predicative adjective SF*
lord *pro* 2s.CL.ACC have.1s made of many delicacies
"I have made you lord of many delicacies" [N, LXXII, 10]

(18) e niuno era ardito che **su** vi sedesse *Particle SF*[7]
and no-one was brave who on LOC would.sit
"and there was no one who dared to sit on it" [N, XLI, 8-9]

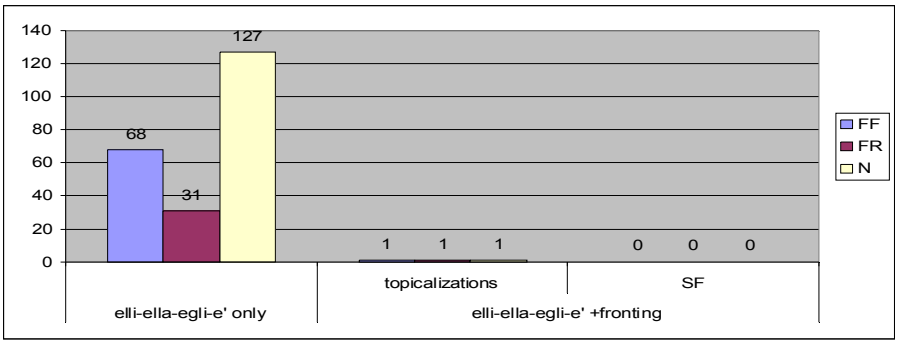
Old Italian SF illustrated in (14)-(18) above respects the characteristics identified by Maling (1990) for Icelandic given in Table 1. As can be observed, Old Italian SF appears to be the same syntactic phenomenon attested in Icelandic and Old Scandinavian, cf. (1)-(6) above.

3. SF and preverbal pronominal subjects

In order to understand to which extent the SGC is a valuable criterion for identifying SF, the distribution of SF and overt preverbal pronominal subjects was observed. All pronominal subject forms in Old Italian are ambiguous between weak and strong (cf. Renzi and Salvi, to app.). As a consequence, pronominal subjects are not unambiguous signposts because they can be dislocated when used as strong forms (contrary to modern Italian weak *tu* (you) and *egli* (he), targeting specific positions in the IP, according to Cardinaletti 2004). Specifically, no exclusively weak forms are attested in Old Italian, since even *egli*, which in Modern Italian is only weak, can be dislocated. As expected, SF is in complementary distribution with overt preverbal pronominal subjects in IP, either with 1st or 2nd person pronouns (Graph. 2) or with 3rd person pronouns (Graph. 1).

[7] Particle SF is rare because (Old) Italian has very few instances of phrasal verbs, which are more common in substandard Italian, which has an informal register where SF is not productive (see Franco 2009 for details).

Graph. 1



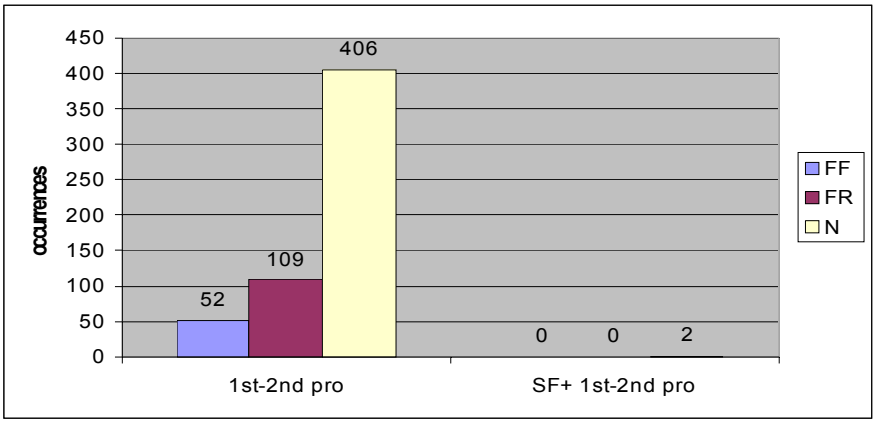
As indicated by Graph 1. there is only one case of topicalization per each corpus preceding the overt preverbal 3rd person subject pronoun[8].
Among all clauses with an overt 1st or 2nd person pronominal subject there are just two instances of where a fronted constituent precede the overt subject (cf. Graph 2. below). These instances are reported in (19) below:

(19) a. allora m'avidi cui **figliuolo** *voi* foste
then self realized.1s of whom son you.p were
"I then realized who you were son of"

b. Io voglio che tu mi dichi cui **figliuolo** *io* fui
I want that you 1s.DAT.cl say of.whom son I was
"I want you to tell me who I was son of" [N, 2,127.20-21]

[8] Among 229 total occurrences of the 3rd person singular pronouns, only 3 cooccur with topicalizations, and they are reported below (topicalization is in bold; pronouns in italics):
(i) nell'animo suo, el quale egli abbia tuttavia inanzi li occhi e
in.the soul his, the which he has.SUBJ continuously before the eyes and
viva sì com'*egli* **tuttavia** lo riguardasse
lives.SUBJ so as he continuously 3s.cl.ACC looked.at.SUBJ
"In his soul, that he had continuously before his eyes and lived as if he looked at it continuously"
(ii) *Egli*, **in questo mezo, pieno d'inganni e di sozi pensieri**, uscì della chiesa
He in this mean full.of deceits and of filthy thoughts went.out of.the church
"He came out of the church in that moment, full of perfidy and bad thoughts"
(iii) «Pensa, guiglielmo, che **per la tua follia** *e'* ti conviene morire».
think guiglielmo, that for the your folly it 2s.cl.DAT is.convenient die.INF
"May you realize, Guiglielmo, that because of your folly it is more convenient for you to die" [FF, 132.6; FR, cap. 51, 55.14; N, 42, 224.16]
Topicalization may either precede (as in (iii)) or follow (as in (i) and (ii)) the pronoun, in accordance with its weak or strong status. By contrast, the results of Graph. 1 and 2. with respect to SF only refer to the order where SF precedes the subject pronoun and they both precede the verb (SF-subj pro-V). This word order would obtain if SF could coexist with weak subject pronouns in preverbal position. Instead, a pronominal subject preceding SF (subj pro – SF –V) could result from subject dislocation, given that the same pronominal forms could be strong. Moreover, no cases of the SF- V- subject pro order obtain in Old Italian.

Graph. 2.



The examples in (19) may as well be cases of topicalization of *figliuolo*, depending on the adopted analysis of copular inversion. Therefore, I do not consider (19) as counterevidence to the SGC. In contrast to the linear order of (19), cases of order Subj pro – SF – V are found with first and second person pronouns as in (20) below:

(20) a. io obligo l'anima mia a perpetua pregione
I force the soul my to everlasting prison
[infino a tanto che *voi* **pagati** siate]
until to much that you.s payed are.2p.SUBJ
"I force my soul to everlasting imprisonment until you get payed"
[N, 19, 98-100]

b. Messere, *io* **lavato** l'hoe
Sir, I washed 3s.CL.ACC have
"Sir, I did wash it" [N, XLIII, 10]

Cases like those in (20) were analyzed as clauses where the pronominal subject is dislocated to a position in the CP, and it is not an unambiguous signpost of SubjP for the following reasons:
(i) the order subject pro- SF- V (cf. 20) is only found with 1st and 2nd person subjects. The equivalent forms in Modern Italian are only strong, thus it is plausible that also Old Italian ones are used in such a way in (20).
(ii) there are no cases of subject pro- SF- V order with 3rd person pronouns (like *egli*, which is weak in Modern Italian).
In line with her (2003) facts and proposal for Modern Italian, Cardinaletti (p.c.) suggests that the presence of a weak pronominal subject *followed* by SF (and verb) would clearly indicate that the stylistically fronted element targets a position in the IP, lower than SubjP, under the assumption that this is where certain weak pronouns (like *egli*) move.[9,10]Because Old Italian lacks

[9] Strong subjects, on the contrary, cannot be used as signposts as they can occur in different positions, with a free use. For instance, preverbal strong subjects might as well be dislocated in CP in Old and Modern Italian.
[10] The evidence that Cardinaletti (2003) adopts in support of the idea that "Modern Italian SF" targets an IP position consists of the alleged possibility to have preverbal pronominal subjects preceding the stylisitically fronted item. Such evidence is similar to a possibility that occurs in Icelandic, according to Hrafnbjargarson, namely that the stylistically fronted item be preceded

unambiguously weak forms, and also *egli/ella/esso/essa* may be strong pronouns, this hypothesis cannot be proved with certainty. Nonetheless, *at least some* occurrences of third person singular pronouns must be weak forms, since they diachronically lose their strong property and only weak forms are available in Modern Italian. Since the order subject pro- SF- V is not attested with 3rd person subjects, there is no support to the idea that SF targets a position in the IP. Moreover, the absence of clauses with order SF – subject pro – V (at least with 3rd person pronouns[11], cf. Graph 1.) indicates that SF is really in complementary distribution with pronominal subjects.
A plausible interpretation of these facts is that SF functions like a subject to some respect, as I propose below. This idea can also account for the general scarcity of contexts where an overt pronominal subject (any person) cooccurs with SF. Syntactically speaking, the presented results speak against the possibility that SF target a position in the inflectional field, because there are no cases where the stylistically fronted item linearly follows a subject that is unambiguously and necessarily in SubjP (at the highest). An alternative, then, is that SF targets a higher position, in CP: because this hypothesis needs support of further data, relative order of SF with clitics was observed.

4. SF and verb clitics

Benincà (1993) shows that enclisis and proclisis in Old Romance languages are triggered in different syntactic/pragmatic contexts. Enclisis on the verb results from verb movement to a position in CP higher than Focus. Benincà shows that enclisis is possible only when FocP is empty. Following Benincà analysis, Poletto (2005) accounts for the distribution of some CP fillers found in Old Italian: *e* and expletive *sì*. *E* can be followed by a V-clitic sequence and is thus considered a topic marker, whereas *sì*, when moved to the left periphery, must occupy Spec, FocP as witnessed by its complementary distribution with enclisis (it is only found in clitic – verb sequences).
In the three Old Italian corpora under examination, the distribution of SF with respect to enclisis and proclisis results as reported in Graph 3. below:

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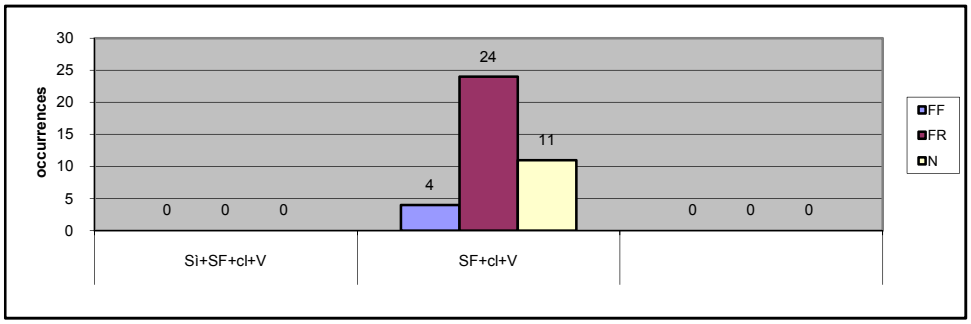
by a weak subject pronoun. Despite reaching different conclusions on the target position of SF, the two arguments are based on the controversial claim that the order pronominal subject – SF – V is (marginally) possible in Italian and Icelandic respectively. While I do not agree with the idea that Italian has productive SF, Thráinsson (2007) and p.c. maintains that the cooccurrence of SF and subjects in Icelandic, as described by Hrafnbjargarson is ungrammatical.

[11] It is worth pointing out that even the 3rd person reduced form *e'*, patterns like other 3rd person pronouns and never cooccurs with SF. The reduced form is not clitic on the verb, and it can be separated from it by other syntactic material as in (i):

(i) ed *e'* cortesemente / mi disse immantenente
and he kindly 1s.DAT.cl told immediately
"And he kindly told me immediately" [Brunetto Latini, Tesoretto, vv. 155-160]

Graph 3.



The distribution of SF was observed in clauses with the expletive *sì* particle followed by proclisis (1st column, Graph 3.); by cl-V only (2nd column); and by enclisis (3rd column). Following Benincà's (1993) and Poletto's (2005) observations, the results in Graph 3. indicate that
- SF does not target a very high position in CP (enclisis is not possible);
- SF is in complementary distribution with *sì*: even assuming that SF and *sì* do not target the very same position, the hypothesis that SF targets a position in IP is unexplained under its incompatibility with *sì* (cf. Franco 2009 for facts and details).

Accordingly, SF can be assumed to target a position in CP, below FocP and above the highest IP subject position, SubjP, as illustrated in the following scheme:

(21) FocP ≥ SF > SubjP

5. A unifying analysis

Given the analogies between Old Italian and Icelandic SF shown in section 1., the account of the Old Italian facts presented above can be potentially extended to Icelandic SF. One advantage of the comparative approach proposed in this paper consists of the possibility to carry out a finer investigation on the syntactic properties of SF. Romance languages, represented here by Old Italian, have clitics, which function as clear signposts for both verb movement and the positioning of preverbal material (cf. Section 4.). Under the assumption that Old Italian and Icelandic SF are the same phenomenon, the syntactic analysis of the first, as suggested in the previous sections, can be extended to the latter. To sum up, facts presented in Section 3. show that SF is in complementary distribution with overt preverbal pronominal subjects allegedly occupying the specifier of SubjP. These facts also support the claim that SF does not target a position in IP, but one in CP. This hypothesis is corroborated by the facts presented in Section 4. Icelandic, as well as other Scandinavian languages, does not have clitics, therefore a fine-grained analysis of SF based on the distribution of V-clitic/clitic-V order as the one conducted on the Old Italian corpora sheds new light on the investigated phenomenon. In conclusion of Section 4. it has been argued that SF targets a position in the low CP area, with FocP as upper bound and SubjP as lower bound. Given the lack of specific (subject) features of stylistically fronted items, SubjP itself is not considered as a proper target for SF (i.e. it is an excluded lower bound). Given this syntactic positioning of SF, why are subjects in SubjP in complementary distribution with stylistically

fronted items? Unfortunately, space restrictions do not allow to enter the details of the proposal, thus the reader is addressed to the full treatment of this issue as is presented in Franco (2009). The basic idea of this analysis is that SF functions as a strategy to extract/drop the subject, similarly to what Rizzi and Shlonsky (2006) have proposed for English locative inversion, although with proper modifications of their system in order to account for the SF facts. On the basis of evidence like the one presented in Sections 3.- 4. as well as of facts revealing a differentiation of SF types in root vs. non-root contexts, Franco (2009) argues that SF moves to/through FinP, which locally c-commands the criterial subject position, SubjP. By doing so, the stylistically fronted checks the uninterpretable subject features on FinP, which in the case of SF constructions are not fully specified phi-features, but rather a formal, default counterpart. This mechanism enables subject drop or extraction (e.g. relativization, extraposition, wh-extraction…). In this proposal, SF is derived as movement of a remnant phrase (e.g. VP) from where all elements but the fronted head have been evacuated. Despite the apparent complexity of a remnant movement approach, this proposal can account for both Old Italian and Icelandic facts. Moreover, the analysis of SF as a strategy to extract/drop the subject provides an explanation for the function of this syntactic phenomenon and accounts for its distribution with respect to the setting of other parameters. Indeed SF is found only in languages where the pro-drop and V2 parameters have a positive setting.[12]

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[12] In addition, languages with SF also have an OV order, as Old Italian and Old Scandinavian languages (or at least a residual OV, as Icelandic). According to Rögnvaldsson (1996) the coexistence of SF and OV may be explained in acquisitional terms, as SF recreates an OV order in V2 structures. Following Poletto's (2006) idea, a cross-phasal uniform setting of a parameter affecting the left-periphery could explain the correlation between SF (CP periphery) and OV (vP periphery). See Franco (2009) for a deeper investigation of this issue.

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The Adnominal Form in Japanese as a Relativization Strategy

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This article focuses on two aspects of relative clauses in Japanese: its syntactic structure and the special form ("adnominal form") that the embedded predicate must take. It has been assumed that Japanese relative clauses are base-generated and are D-IP structures (Murasugi 2000a,b). I will argue on the contrary that they are D-CP structures, that are derived by raising of the head. This argument is supported on three accounts: (i) a reconsideration of reconstruction effects with respect to the reflexive interpretation of *zibun*; (ii) the manifestation of the weak crossover phenomenon; (iii) the existence of sentential modifiers with CP elements. Then, I will show that Japanese has a requirement on sentential modifiers in general, namely that the embedded predicate must be in a special form called the "adnominal form". On the basis of the Clausal Typing Hypothesis (Cheng 1991), I will propose that the role of the adnominal form (and the particle *no*) is to enable clausal typing of the embedded clause.[*]

1. The base-generation analysis of relative clauses in Japanese

One of the major analyses of head-initial relative clauses is the raising analysis (Vergnaud 1974) revised by Kayne (1994), where the relative CP is assumed to be the complement of D:

(1) $[_{DP}$ the $[_{CP}$ $[_{NP}$ picture] [that $[_{IP}$ Bill saw [e]]]]]

Relative clauses in Japanese differ from those in English in that they are head-final and lack complementizers and relative pronouns:

(2) [Soko-ni _ at-ta] jisho
there-Loc be-Pst dictionary[1]
'the dictionary that was there'

It has been claimed that they are not derived by raising of the head, because it is possible to extract an element from within the relative clause in violation of the Complex NP Constraint (CNPC, see Kuno 1973):

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[1] A list of abbreviations used in this article is as follows: Nom=nominative, Acc=accusative, Dat=dative, Gen=genitive, Loc=locative, Obl=oblique, Pst=past, Comp=complementizer, Pt=particle, Top=topic, Int=interrogative, Adn=adnominal, Cnc=conclusive

(3) [[_j _i kite-iru] fuku$_i$-ga yogorete-iru] sinsi$_j$
wear-is clothes-Nom dirty-is gentleman
'a gentleman who the clothes that (he) is wearing are dirty'

Furthermore, reconstruction effects with respect to binding are allegedly absent, meaning that there is no A-bar movement involved (Hoji 1985):

(4) *[John$_i$-ga taipusi-ta] [zibun$_i$-no ronbun]
John-Nom type-Pst self-Gen paper
'self's paper that John typed'

Kayne (1994) proposes that head-final relative clauses are derived in the same way as head-initial ones but involve an extra step, namely, fronting of the embedded clause:

(5) $[_{DP}\ [_{IP}\ \ldots t_i \ldots]_j\ D\ [_{CP}\ NP_i\ [C\ t_j]]]$

However, Murasugi (2000a,b) argues from theoretical and acquisitional (Murasugi 1991) points of view that Japanese does not have "relative clauses" altogether and that what appears to be relative clauses are "pure complex NPs" of the structure, D-IP:

(6) $[_{DP}\ [_{IP}\ \ldots]\ [_{D'}\ D\ [_{NP}\ \ldots [_{N'}\ N \ldots]]]]$

According to her analysis, the embedded clause is generated at Spec-DP and the head noun, as the complement of D. The gap inside the embedded clause is occupied by a null pronoun (cf. Perlmutter 1972). The embedded clause is licensed under an aboutness relation with the head noun (cf. Kuno 1973). Additional support for her analysis comes from the fact that Japanese also has "gapless relatives":

(7) [sakana-ga yakeru] nioi
fish-Nom be-baked smell
'smell of fish being baked'

2. The raising analysis of relative clauses in Japanese

2.1 Reconsideration of the evidence

However, I would like to propose that a closer examination of the arguments above suggests that, contrary to what has been said, Japanese relative clauses involve A-bar movement and have D-CP structures.

First, since Inoue (1976) and Hasegawa (1981), it has been known that the environment in which the CNPC can be violated is restricted: (i) the relativized NP must be the subject of the inner relative clause and (ii) the head of the inner relative must serve as the subject of the outer relative. Furthermore, Ishizuka (2009) adds that (iii) there must be a genitive relation between the two heads and (iv) the predicate of the outer relative must be of the unaccusative-type. Thus, the non-violation of the CNPC does not mean that the construction lacks movement.

Second, Hoji's (1985) example (4) is in fact acceptable for many native speakers (cf. Hoshi 2004). The problem lies in that the nominal expression *zibun* is both reflexive and pronominal. When it behaves like a reflexive, it needs to be locally bound and it generally requires the subject to be its antecedent:

(8) Takasi$_i$-ga jousi$_j$-ni zibun$_{i/*j}$-o suisensi-ta.
Takasi-Nom boss-Dat self-Acc recommend-Pst
'Takasi$_i$ recommended self$_{i/*j}$ to boss$_j$.'
(Motomura 2001)

When it behaves like a pronoun, it allows long-distance binding:

(9) Takasi$_i$-ga [Kenzi$_j$-ga zibun$_{i/j}$-o suisensita-to] omot-ta.
Takasi-Nom Kenzi-Nom self-Acc recommended-Comp think-Pst
'Takasi$_i$ thought that Kenzi$_j$ recommended self$_{i/j}$.'
(Motomura 2001)

So, in order to test the existence of reconstruction effects, it is necessary to create an environment where *zibun* is unambiguous. In this regard, observe the following:

(10) [John$_i$-no titioya]$_j$-ga tuini zibun$_{*i/j}$-no sakuhin-o happyoosi-ta.
John-Gen father -Nom finally self-Gen work-Acc present-Pst
'John's father finally presented work of self.'

In this example, the antecedent of *zibun* can be *John-no titioya* 'John's father' which c-commands it, but it cannot be the possessor, *John*. Since it is locally bound, it is anaphoric. When we relativize the object, the result is grammatical:

(11) [[John$_i$-no titioya]$_j$-ga tuini happyoosi-ta] [zibun$_{*i/j}$-no sakuhin]-ga
John-Gen father -Nom finally present-Pst self-Gen work-Nom
syoo-o uke-ta.
prize-Acc receive-Pst
'the work of self that John's father finally presented received a prize.'

This means that reconstruction occurs in Japanese relative clauses, because if (11) were base-generated, *zibun* would be ruled out for the lack of a c-commanding antecedent. The following Japanese version of Schachter's (1973) examples on reconstruction illustrates the same point:

(12) a. [$_{DP}$[[John to Mary]$_i$-ga t_j mise-ta] [$_{DP}$ otagai$_i$-e-no kansin]$_j$]-wa
John and Mary-Nom show-Pst each other-Obl-Gen interest-Top
honmono dat-ta.
real be-Pst
'The interest in [each other]$_i$ that [John and Mary]$_i$ showed was real.'
b. *[$_{DP}$[Otagai$_i$-ga t_j mise-ta] [$_{DP}$ [John to Mary]$_i$-e-no kansin]$_j$]-wa
each other-Nom show-Pst John and Mary-Obl-Gen interest-Top
honmono dat-ta.
real be-Pst
*'The interest in [John and Mary]$_i$ that [each other]$_i$ showed was real.'

Another piece of evidence for A-bar movement comes from the weak crossover (WCO) phenomenon. Lasnik & Stowell (1991) propose the following condition to apply at LF after Quantifier Raising:

(13) In a configuration where a pronoun P and a trace T are both bound by a quantifier Q, T must c-command P.

Consider the following examples:

(14) a. [every boy_i]$_j$ that [t_j supports his_i father]
b. ??[every boy_i]$_j$ that [his_i father supports t_j].

(14a) complies with the above condition: *his* and the trace are bound by the quantifier *every boy* and the trace c-commands *his*. (14b), on the other hand, is marginal because the trace does not c-command *his* and produces a WCO effect.

The following are parallel examples in Japanese[2]. They show the same pattern as the English examples:

(15) a. [t_j $zibun_i$-no titioya-o ouensuru] [subete-no $otokonoko_i$]$_j$
he-Gen father-Acc supports all-Gen boy
'all boys that support father of self' (=14a)
b. *[$zibun_i$-no titioya-ga t_j ooensuru] [subete-no $otokonoko_i$]$_j$
he-Gen father-Nom supports a ll-Gen boy
'all boys that father of self supports' (=14b)

Again, if Japanese relative clauses were base-generated, the ungrammaticality of (15b) would be unexpected.

Thus, the above facts show that Japanese relative clauses are derived by A-bar movement of the head to its surface position. Furthermore, the fact that their behavior patterns with English despite their difference in head-directionality suggests that their syntactic structures are basically the same, as suggested in Kayne (1994).

Finally, relative clauses in Japanese can include CP-elements such as the focus particle, *dake* 'only':

(16) [*pro* sio-de t_i azituke-ta-dake-no] $suteeki_i$
salt-Obl flavor-Pst-only-Pt steak
'steak that is only flavored with salt'

In the above example, *dake* is attached to the embedded verb *azituke-ta* 'flavored'. Note that in this case, the particle *no* must be inserted. We will come back to this point in the next section.

Similarly, relative clauses can include interrogative markers, although the context in which these are acceptable is limited:

(17) Konkai-no-wa [[zyuu-nen-ni ichi-do _ okiru-kadouka-no] daizisin dat-ta.
this.time-Pt-Top ten-years-Obl one-time happen-whether-Pt big-earthquake be-Pst
'This time's was a big earthquake that whether happens once in ten years.'

Nominal complements are perfectly compatible with interrogative markers:

(18) [[kare-ga nan-zi-ni kuru-ka-no] mondai
he-Nom what-hour-Obl come-Int-Pt question
'question that/of what time he will come'

[2] *Zibun* 'self' is used instead of the overt pronoun *kare* 'he' because overt pronouns in Japanese cannot be construed as variables, but *zibun* can be (see Saito 1981, Hoji 1982, Saito & Hoji 1983).

Thus, contrary to Murasugi (2000a,b), Japanese complex NPs cannot all be D-IPs.

2.2 Interim summary

Japanese relative clauses have been assumed to be D-IP structures that are base-generated because extraction from them is possible and they do not exhibit reconstruction effects. However, a closer examination shows that the extraction is subject to certain restrictions and that reconstruction effects are observed. The existence of the WCO effect gives further support for the raising analysis of Japanese relative clauses. Furthermore, Japanese complex NPs can include focus particles such as *dake* or interrogative markers (*kadouka* 'whether', *ka*), which are elements of the complementizer system. Thus, Japanese relative clauses and more generally, complex NPs, must include the CP projection. This is also in accordance with the view that relative clauses are universally D-CP structures (Kayne 1994, De Vries 2002).

3. The adnominal form and the Clausal Typing Hypothesis

A distinct characteristic of Japanese sentential modifiers including relative clauses is that the predicate appears in a special form called the adnominal form (*rentaikei*)[3]. Japanese distinguishes the "adnominal form", which marks that the predicate is an attribute, from the "conclusive form", which marks the end of the sentence[4]. The two forms are identical in modern Japanese due to a phonological merger that took place during the 13th century (see Kinsui 1995). However, there are two exceptions: the present tense of nominal adjectives[5] and the copula *da*. They tell us that the adnominal form is effective in modern Japanese and that the embedded predicate of sentential modifiers must be in this form:

(19) Kore-wa [_ benri-na / *benri-da] zisho da.
this-Top useful-Adn useful-Cnc dictionary is
'This is a useful dictionary.'

(20) [18-sai no /*da] gakusei-ni kii-ta.
18-years-old be-Adn be-Cnc student-Dat ask-Pst
'(I) asked a student that is 18 years old.'

In the literature, the adnominal form has been analyzed as being related to the complementizer system (see Whitman & Kaplan 1995, Kinsui 1995, Hiraiwa 2001). I propose that its role and relation with the CP-system can be captured straightforwardly under the Clausal Typing Hypothesis (Cheng 1991):

[3] Cleft constructions also require that the embedded predicate take the adnominal form.
[4] The inflectional paradigm in Japanese consists of six forms: *mizenkei* (suppositional), *renyookei* (continuative), *syuusikei* (conclusive), *rentaikei* (adnominal), *kateekei* (conditional), and *meereekei* (imperative).
[5] Adjectives in Japanese are considered to have clausal structures because they are inflected for tense (see Kuno 1973, Whitman 1981, among others).

(21) Clausal Typing Hypothesis
Every clause must be typed.
In the case of typing a *wh*-question, either a *wh*-particle in C^0 is used or else fronting of a *wh*-word to the Spec of C^0 is used, thereby typing a clause through C^0 by Spec-head agreement.
(Cheng 1991:29)

The basic idea is that sentential modifiers should be typed as "adnominal", just as *wh*-questions are typed as interrogative. The question is how. Let us assume a rich CP-system, as proposed in Rizzi (1997, 1999):

(22) ForceP … Int(errogative)P ... Top(ic)P … Foc(us)P … Fin(ite)P … IP

ForceP is the highest projection that expresses the illocutionary content of the clause (e.g. declarative, interrogative, etc.). This information is used in the selection process (e.g. *ask* selects for an interrogative clause). Following Moscati (2006), let us assume that clausal types are expressed by "typing features" that are hosted in $Force^0$. These features need to be checked by agreement, much in the same way as functional features are. In the case of *wh*-questions, $Force^0$ hosts the typing feature, [+wh], and the latter is checked off by a *wh*-particle or a *wh*-word that has the same typing feature.

In the case of sentential modifiers in Japanese, suppose that ForceP hosts the typing feature, say [+adn], that needs to be checked, and the adnominal form inherently possesses the same feature. Since Japanese is an agglutinative language, the verb will raise successive cyclically from its base position, picking up the affixes (tense, aspect, or modality) and will finally check off the [+adn] feature on $Force^0$ [6].

Recall from the previous section that when the sentential modifier contains a focus particle or an interrogative particle, *no* must be inserted (cf. (16)-(18)). The examples are partially repeated below, in contrast with when such particles are absent:

(23) a. [... azituke-ta-dake-no] suteeki
flavor-Pst.Adn-only-Pt steak
'steak that is only flavored ...'
b. [... azituke-ta (*no)] suteeki
flavor-Pst.Adn steak
'steak that is flavored ...'

(24) a. [... okiru-kadouka-no] daizisin
happen.Cnc-whether-Pt big-earthquake
'a big earthquake that whether happens ...'
b. [... okiru (*no)] daizisin
happen.Adn big-earthquake
'a big earthquake that happens ...'

(25) a. [kare-ga nan-zi-ni kuru-ka-no] mondai
he-Nom what-hour-Obl come.Cnc-Int-Pt question
'question that/of what time he will come'

[6] I leave open the question of whether the predicate moves into $Force^0$ or feature checking is done at distance, in the sense of Chomsky (1999, 2000).

b. [kare-ga ichi-zi-ni kuru (*no)] mondai
he-Nom one-hour-Obl come.Adn question
'question that he will come at one o'clock'

No in these cases is reminiscent of the same particle that appears in the same position in sentential complements and head-internal relative clauses (see Kuno 1973, Kuroda 1974), where it has been assumed to be a nominalizing complementizer. What would be the reason for its presence in (23a), (24a), and (25a)?

Again, a possible account can be given by the Clausal Typing Hypothesis. That is, in (23a), the predicate in the adnominal form picks up the focus particle at FocP.[7] Force^0 hosts the typing feature [+adn] that must be checked, but the corresponding feature on the predicate is no longer "visible" because the focus particle has been attached. If so, we may interpret the presence of *no* as a last resort to enable clausal typing. This in turn means that *no* also possesses the typing feature [+adn]. Similarly, in (24a) and (25a), the predicate picks up the interrogative particle at IntP. But this time, the [+adn] feature is absent because the predicate is in the conclusive form. Again, *no* is inserted as a last resort. In contrast, in (23b), (24b), and (25b), the embedded verbs are in the adnominal form and there is no intervening element, so *no* is not necessary.

Furthermore, if the proposed account is on the right track, it is in accordance with the Principle of Economy of Derivation (Chomsky 1989), discussed in Cheng (1991). For example, in *wh*-questions, clausal typing by *wh*-particles is more economical and thus preferred over that by *wh*-words. That is why languages that have *wh*-particles do not have overt *wh*-movement. Likewise, the different strategies for adnominal clause-typing are ordered: clausal typing by the adnominal form is the most economical one. That is why in the unmarked case, the adnominal form is obligatory. The next economical option is a bound morpheme (e.g. *no*). Finally, languages that lack either option achieve clausal typing by inserting a free morpheme, such as a complementizer. This would be the case of English.

5. Conclusion

Contrary to previous analyses, a reexamination of reconstruction effects with respect to binding and the manifestation of the WCO effect in Japanese relative clauses suggest that they are derived by A-bar movement. Furthermore, the fact that complex NPs in general can include CP-elements such as focus particles or interrogative particles shows that they are CP structures, not IPs. On the other hand, the embedded predicate in relative clauses as well as that in other sentential modifiers must appear in the adnominal form, or in certain circumstances, be accompanied by the particle *no*. A straightforward account of this requirement can be given by the Clausal Typing Hypothesis. Namely, the adnominal form and the particle *no* (when the former is not available) play the role of typing the embedded clause as adnominal.

[7] Alternatively, one could assume that *dake* is already attached to the predicate and only feature checking takes place at FocP.

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Romanian null objects and gender*

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This paper argues that Romanian has anaphoric object *pro*, which is used for variables bound by a quantifier lacking gender and for propositional objects. It will be shown that the so-called "neuter pronouns" of Romanian and other Romance languages, which are used for referents that do not fall under a nominal concept, are genderless. This follows from the fact that natural gender in these languages is restricted to humans.

1. Introduction

In this paper I will argue for the existence of an anaphoric object *pro* in Romanian. The use of this pronoun is very restricted, which explains the fact that it has gone unnoticed until now, being misinterpreted, in some of its contexts, as a parasitic gap. This pronoun only appears if its antecedent lacks gender. Moreover, when referring to concrete objects, this pronoun must be in the same clause as its antecedent, although it does not require its antecedent to have undergone A-bar movement, like parasitic gaps do. I interpret this fact as showing that when referring to concrete objects, object *pro* can only denote a bound variable. This restriction may be represented syntactically by using Kratzer's (1998) proposal that some instances of bound variable pronouns are bare indices which inherit their ϕ-features via Agree. Besides this use, Romanian also uses null anaphors with verbs taking propositional objects, without any locality restriction. Since antecedents in this case are also genderless, being typically CPs, we are lead to the generalization that Romanian has only genderless object null pronouns.

After presenting the evidence for anaphoric object *pro* in Romanian (section 2), I will argue for the existence of genderless pronouns in Romanian as well as other Romance languages (section 3), which represent the only way to refer to objects which do not fall under a nominal concept in a language in which natural gender is restricted to animates (masculine as a natural gender is "+human/animate", feminine is "+human/animate +female").

2. Null objects in Romanian

As known at least since Dobrovie-Sorin (1994), Romanian does not have arbitrary object *pro*. The correspondent of (1)a in Romanian is agrammatical[1]:

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[1] The following abbreviations are used in this paper: 1,2,3 = 1st, 2nd, 3rd person, ACC = accusative, CL = clitic, DAT = dative, F = feminine, IMPER = imperative, INF = infinitive, M =

(1) a. Questa musica rende *pro* allegri (It.) (Rizzi 1986)
this music makes happy.MPL
'This music makes people happy'
b. * Muzica asta face fericiți (Ro.)
music-the this makes happy.MPL

However, I will argue that it has anaphoric object *pro*. The evidence for this type of pronoun comes from a construction which resembles parasitic gaps. The received view on parasitic gaps in Romanian is that they exist in the language, but are restricted to non-clitic-doubled Ā-chains (Dobrovie-Sorin 1990, 1994, Cornilescu 2002, Alboiu 2002):

(2) a. Ce-ai aruncat fără să citeşti?
what have.2SG thrown without SUBJ read.2SG
'What did you throw away without reading?'
b. * Pe care l-ai aruncat fără să citeşti?
OBJ which it-have.2SG thrown without SUBJ read.2SG

However, for me and many other people I consulted, the contrast does not oppose clitic-doubled and non-clitic-doubled fronted elements. What looks like a parasitic gap is only possible with neuter pronouns (*ce* 'what', *nimic* 'nothing'):

(3) a. Ce-ai aruncat fără să citeşti? / fără a citi?
what have.2SG thrown without SUBJ read.2SG / without to read
b. Ce-ai mâncat fără să tai? / fără a tăia?
what have.2SG eaten without SUBJ cut.2SG / without to cut
'What did you eat without cutting?'

(4) NIMIC n-am mâncat fără să tai
nothing not-have.1SG eaten without SUBJ cut.1SG
'I ate nothing without cutting it'

All other types of non-clitic-doubled fronted phrases – DPs of the form [*ce* NP] 'what NP', fronted bare NPs, the animate *wh*-pronoun *cine* –, although non-D-linked, exclude an object gap:

(5) a. Ce carte ai aruncat fără să ??(o) citeşti? / fără a *(o) citi?
what book have.2SG thrown without SUBJ(it) read.2SG/without to (it) read
'What book did you throw away without reading?'
b. Ce aliment ai mâncat fără să*(-l) tai? / fără a*(-l) tăia?
what aliment have.2SG eaten without SUBJ (it) cut.2SG /without to (it) cut
'What aliment did you eat without cutting?'

(6) MACAROANE am mâncat fără să *(le) tai
pasta(FPL) have.1SG eaten without SUBJ (them$_{FPL}$) cut.1SG
'It is pasta that I ate without cutting'

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masculine, NEG = negative clitic (French), NEUT = neuter, OBJ = direct object marker, SG = singular, SUBJ = subjunctive particle.

(7) Pe cine ai admirat înainte de a$^{\%}$*(-l) cunoaşte?
OBJ who have.2SG admired before of to (him) know
'Whom have you admired before meeting?'

The explanation I propose for this distribution is that Romanian (or at least the idiolect in which the contrast in (3)-(7) is found) does not have parasitic gaps at all, and what looks like a parasitic gap in constructions with *ce* or *nimic* is in fact a genderless object *pro*. The idea is that every time the accusative object can have a value for the category gender, it will appear in the form of a clitic. In (5)-(6), where there is a nominal antecedent, the pronoun takes the gender of the noun (pronouns anaphoric to expressions which contain a noun can always take the grammatical gender of the noun of their antecedent). In case the antecedent does not contain a noun but is animate, like in (7), the pronoun can take the masculine as a 'natural' (interpretable) gender, since in Romanian, like in the other Indo-European languages which have inflectional gender, the masculine as a natural gender is interpreted as /+animate/ (and /+male/ by an implicature). In (3)-(4), the antecedent is a neuter pronoun. As will be shown in the next section, neuter pronouns are arguably genderless, so the anaphoric pronoun cannot take the gender of its antecedent. Moreover, since natural gender is restricted to animates (the masculine being interpreted as /+animate/, and /+male/ by an implicature, and the feminine being interpreted as /+female/), the anaphoric pronoun cannot appear with a gender feature interpreted as natural gender. It follows that the anaphoric object must be genderless. The fact that we find in this case null objects instead of clitics can be explained if we assume that clitic forms are always marked for gender in Romanian (i.e., there are no morphological defaults for the category gender in the paradigm of accusative clitics), while object *pro* is genderless. Notice indeed that overt pronouns are excluded in (3)-(4):

(3)′ a. *Ce-ai aruncat fără să-l/o citeşti?
what have.2SG thrown without 3rdMSG.ACC/3rdFSG.ACC read.2SG
b. * Ce-ai mâncat fără a-l/o tăia?
what have.2SG eaten without to 3rdMSG.ACC/3rdFSG.ACC cut

(4)′ * NIMIC n-am mâncat fără să-l/o tai
nothing not-have.1SG eaten without SUBJ 3rdMSG.ACC/3rdFSG.ACC cut.1SG

The data presented so far allow an alternative explanation: one may say that the parasitic gap construction exists in the language but is just dispreferred, and the speakers only use it as a last resort when no gender is available for the object pronoun. We may decide between the two explanations using contexts where the antecedent of the pronoun has not undergone movement. If the object in (3)-(4) is a genderless *pro*, we expect it to appear also in these cases, while if it is a parasitic gap, it should not be allowed if its binder has not undergone A-bar movement. The following examples support the *pro* hypothesis, showing null objects anaphoric to indefinite pronouns which have not undergone A-bar movement:

(8) a. Au adus ceva ca să monteze mâine
have.3PL brought something in-order-to SUBJ fix/mount.3PL tomorrow
'They brought something to mount tomorrow'
b. Au adus o sculă ca s-*(o) monteze mâine
have.3PL brought an equipment in-order-to.SUBJ (it) fix/mount.3PL tomorrow
'They brought a device which they should mount tomorrow'

(9) a. N-atinge nimic fără să strice
not-touches nothing without SUBJ breaks
'(S)he doesn't touch anything without breaking it'
b. N-atinge nici o jucărie fără s-*(o) strice
not-touches no toy without SUBJ (it) breaks
'(S)he doesn't touch any toy without breaking it'
c. Încearcă, te rog, să atingi ceva fără să strici
try.IMPER please SUBJ touch.2SG something without SUBJ break.2SG
'Would you try to touch something without breaking it?'

However, this type of null object does not behave like regular pronouns either. Thus, the antecedent cannot be in another sentence:

(10) Au adus ceva$_i$. * O să monteze *pro*$_i$ mâine
have.3PL brought something FUT SUBJ fix/mount.3PL tomorrow

I conclude that anaphoric genderless objects are restricted to a bound variable use. This idea can be formalized using Kratzer's (1998, 2009) proposal that at least some instances of pronouns with a bound variable reading represent bare indices with ϕ-features inherited via Agree from the binder. Adopting this theory, what we called null object *pro* can be considered to be the spell-out of a bare index with unvalued Gender.

Kratzer uses this theory to explain the existence of bound variable readings for 1st and 2nd person pronouns, as reflected in the sloppy reading of an example such as:

(11) I'm the only one who takes care of **my** children
(sloppy reading = the other do not take care of **their** children)

Notice however that the null objects in (3)-(4) and (8)-(9) are inside adjunct clauses (introduced by 'without', 'before', 'in order to'). Then we must allow this type of Agree – which we may call *indexical Agree* – to reach into adjunct clauses. The following example shows that bound variable readings of 1st person pronouns are indeed possible in *without*- clauses, confirming our prediction:

(12) Numai eu am plecat fără să ştie supraveghetorul meu (✓sloppy reading)
only I have left without SUBJ knows supervisor-the my

In conclusion, Romanian null objects are used as bound variables which have neuter pronouns as antecedents[2]. This can be explained by the fact that neuter

[2] Null object pronouns must be distinguished from the sequence null D + noun-ellipsis (i.e., nominal ellipsis in bare nouns). As Giannakidou and Merchant (1996) and Panagiotidis (2002) have shown for Greek, and Giurgea (2008) for Romanian, what looks like an indefinite null

pronouns do not have gender, while object clitics are always marked for gender. Evidence for the idea that neuter pronouns are genderless will be provided in the next section.

3. Genderless pronouns in Romance and Romanian

In this section, I will provide evidence for the proposal that the so-called 'neuter pronouns' of Romanian and other Romance languages are genderless.

I will start by considering definite neuter pronouns. In Romance languages, including Romanian, definite neuter pronouns are used for referents which do not fall under a nominal concept. There are two situations of reference to entities which do not fall under a nominal concept: (i) the referent is a perceptual object which has not been categorized ('identified') yet (see (13)) or (ii) the referent is a propositional object, introduced in the discourse by a clausal projection (see (14)):

(13) a. Ce-i **asta**? (Rom.)
what is this
b. Qu'est-ce que c'est **ça**? (Fr.)
c. Qué es **esto**? (Sp.)

(14) a. Nu cred **asta**. (Rom.)
not believe.1SG this
b. **Cela** je ne **le** crois pas (Fr.)
this I NEG it believe not
c. **Esto** no **lo** creo (Sp.)
this not it believe.1SG

Gender on definite pronouns can reflect either the gender of their antecedent ('anaphoric gender') or a property of the referent ('natural gender'). Romance languages have a binary gender opposition on pronouns between masculine and feminine[3], and as these names suggest, these genders, as natural genders, reflect properties of animates (i.e. sex; the masculine is the unmarked term, see above). Gender on pronouns can also be anaphoric (this being the only option for inanimates). In this case, the gender of the pronoun reflects the gender of the nominal concept under which the referent falls, if the pronoun is referential, or the gender of its binder, if the pronoun has a bound variable reading. If the

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object in examples such as (i) is to be analyzed as the null D of bare nouns (cf. Longobardi 1994) followed by noun ellipsis. One argument for this analysis is the possibility of having overt modifiers of the noun, like in the other instances of noun ellipsis examples, as shown (ii)-(iii):

(i) Nu mai sunt pahare. – Lasă că aduce [Ø] Maria
not more are glasses let.IMPER that brings Maria
'There are no more glasses' – 'Don't worry, Mary will bring some'

(ii) Ai luat trandafiri galbeni? Eu aş fi vrut [$_N$e] roşii.
have.2SG bought roses yellow I would have liked red
'Did you buy yellow roses? I would have preferred red'

[3] Romanian has two values for the category Gender on targets of agreement and pronouns, but three "controller genders" or nominal agreement classes – masculine, feminine and a third class called "neuter" or "ambigeneric", which trigger masculine agreement in the singular and feminine agreement in the plural, and are resumed by masculine pronouns in the singular and feminine pronouns in the plural (see Corbett 1991 on the distinction between 'target gender' and 'controller gender' or 'nominal agreement class').

pronoun has an antecedent in the discourse, it will take the gender of (the noun of) its antecedent. Since gender is a property of nouns, this indicates that besides co-reference the pronoun has a relation of identity-of-sense anaphora with its antecedent, which we may call "nominal anaphora" (see Corblin 1995 on this notion)[4].

(15) a. Am pus **paltonul**$_i$ pe scaun. Peste **el**$_i$ am pus umbrela. (Rom.)
have.1SG put coat(M)-the on chair over 3rd.MSG have.1SG put umbrella-the
b. J'ai laissé mon **manteau**$_i$ là-bas. **Il**$_i$ doit être nettoyé (Fr.)
I have left my coat(M) over there 3rd.MSG must be cleaned

If the pronoun is used deictically, it will have the gender of the nominal concept under which the referent falls:

(16) [before a bill fallen on the ground]
a. Ia-**o**, ce mai aştepţi (Rom.) (*hârtie* "bill" – feminine)
take-3rd.FSG what still wait.2SG.
'Take it, what are you waiting for?'
b. Prends-**le**, tu hésites encore ? (Fr.) (*billet* "bill" – masculine)
take-3rd.MSG you hesitate still

Since noun ellipsis can also involve a concept which is salient in virtue of its presence in the communication situation rather than in the discourse (what has been called 'pragmatic antecedent' by Hankamer and Sag (1976)), as shown in (17) below, the facts in (16) confirm the idea that gender in pronouns may come from nominal anaphora[5].

(17) [before a hat on a shop display]
a. Am şi eu **una** aşa (Rom.)
(*pălărie* "hat" – feminine)
have.1SG also I one.F like-this
b. Moi aussi j'en ai **un** comme ça (Fr.)
(*chapeau* "hat"– masculine)
me too I PRO-N-CL have one.M like this
'I too have one like this'

But, as we have seen in (13)-(14), there are cases in which pronouns must refer to entities for which there is no nominal concept available (either they are perceptual objects not yet categorized, or propositional objects introduced into

[4] Therefore it has been proposed that pronouns contain an anaphoric N, which provides the gender (see Panagiotidis 2002, a.o.). There are also pronouns whose only relation with their antecedent is nominal anaphora – the so-called 'laziness pronouns' (Karttunen 1969). For an overview of the various cases in which the only relation between the pronoun and their antecedent is nominal anaphora, see Elbourne (2005).

[5] Discourse anaphora and deixis are arguably two facets of the same phenomenon: reference to a contextually salient entity, or, in the case of identity-of-sense anaphora, recovery of a contextually salient concept. An entity or concept may be salient either by having been mentioned in the discourse (discourse anaphora) or by its presence in the utterance context (deixis). This explains why there are no demonstratives specialized for contextually salient non mentioned entities, but languages consistently use the same expressions for reference to previously mentioned entities and to contextually salient non mentioned entities.

the discourse by CPs). What gender can these pronouns have? Nominal anaphora cannot provide gender, since there is no nominal concept under which the referent falls, and natural gender cannot be used either, because it is restricted to animates. Then we expect to find forms lacking gender.

Before providing evidence that the forms with this use – which I will call *anominal* – are indeed genderless, I would like to point out that languages which have a neuter gender typically use the neuter in this case, this being in most of the cases the only use of the neuter as a natural gender[6]:

(18) a. Ich glaube **es** nicht (Germ.)
I believe it not
b. Nonne mauis **illud** credere(..) (Latin.)
isn't-it prefer.2SG that believe.INF (Cicero, *De Natura Deorum,* III.12))
'Don't you prefer to believe that…'
c. Nescio **id** quid est (Latin)
not-know.1SG that.NEUT what is

The use of the neuter may be explained by the fact that it is the semantically unmarked gender, used both for inanimates and for maximal generality. In other words, the /-animate/ interpretation is the result of an implicature, so that the neuter can be said to be devoid of any descriptive content in its use as natural gender.

Now I will proceed to the discussion of 'anominal' pronouns in Romance, arguing that they are genderless. (I consider the term 'anominal' more appropriate than the traditional label 'neuter pronoun', because 'neuter' normally refers to a gender and here I argue that these forms are in fact genderless).

As anominal pronouns, we sometimes find special forms (see Meyer Lübke, *Rom. Gr.* III, § 87, 98-99, II § 98), other times, forms taken from the paradigm of one of the genders. Iberic languages (exemplified here by Spanish) use a special inflection, *-o*, restricted to the singular:

(19)

	masc.sg.	fem. sg.	anominal pronoun:
3rd person	él	ella	ell**o**
demonstratives:	este	esta	est**o** (close to the speaker)
	ese	esa	es**o** (close to the hearer)
	aquél	aquella	aquell**o** (remote)

In French, Catalan and Italian we find a special root: French *ce/ça* (demonstrative and weak pronoun)*, ceci, cela* vs. *celui-ci/celle-ci, celui-là/celle-là* (demonstratives)*,* it. *ciò*, cat. *això* (demonstratives), *ho* (clitic), prov. *ço* :

[6] This observation argues against the idea that Romanian has three values for the category of Gender. As shown in note 3, Romanian 'neuter nouns' are resumed by masculine pronouns in the singular and feminine pronouns in the plural. If Romanian pronouns had three genders, with the neuter having forms identical to the masculine in the singular and to the feminine in the plural, we would have expected to find masculine singular forms used for uncategorized perceptual objects and propositional objects. But, as we have seen, we find either null pronouns or the genderless demonstratives, formally identical with the *feminine*, and with some verbs the *feminine* clitic *o*.

(20) a. **C**'est impossible (Fr.)
that/it is impossible
b. **Ho** crec (Cat.)
3rd.neuter believe
'I believe it'

Under the hypothesis that anominal pronouns lack gender, the existence of special forms is expected: the difference between these forms and the other pronominal forms corresponds to a difference in gender. Picallo (2002) explicitly proposed that Spanish *-o-* pronouns are not marked for Gender.

But we may also find forms from the paradigm of one of the genders:
(i) Masculine accusative clitics in French, Italian and Iberic languages except Catalan:

(21) a. Je **le** sais (Fr.)
I 3rd.M know
b. **Lo** so (It.)
c. **Lo** sé (Sp.)

(ii) *pro* in null subject Romance languages:

(22) a. Ce-i asta? ***pro*** e un cal / *El e un cal (Romanian)
what is that is a horse 3rd.Mis a horse
b. ***pro*** e imposibil
is impossible.M.SG.

(23) Decidieron [PRO producir aquellos documentales]$_i$ aunque ***pro***$_i$ no les
decided.3PL produce.INF those documentaries although not them
proporcionara nunca ningún beneficio (Sp.) (Picallo 2002: note 13, (i)c)
provide.3SG never no benefit
'They decided to produce those documentaries although it wouldn't ever provide them with any benefit'

(iii) PP clitics:

(24) a. Nous **y** pensons (Fr.)
we to-it think
b. **Ci** pensiamo (It.)
c. **Hi** pensem (Cat.)

(iv) Romanian doesn't productively use object clitics as anominal pronouns. The feminine form *o* appears in anominal use only with a handful of verbs (see (27)). In most cases where Western Romance uses a neuter object clitic, in Romanian there is no overt object at all:

(25) a. Ți-am spus-**o** de mult
you.DAT-have.1 told-3rd.F of/since much
'I told you long ago'

b. E, acum am făcut-**o**
well now have.1 done-3rd.F
'Well, now I/we did it'

(26) a. Nu (*o) sper/ ştiu / (?o) cred (without a nominal antecedent for *o*)
not (3rd.F) hope.1SG/ /know.1SG/ (3rd.F) believe.1SG
b. Je ne **le** crois/espère/sais pas(Fr.)
c. I don't believe **it** (Engl.)
d. Ich glaube **es** nicht (Germ.)

(v) As demonstratives, Romanian uses forms identical to the feminine singular:

(27) a. Ce e **aia**?
what is that.FSG.
'What's that?'
b. Nu cred **asta**
not believe.1SG that.FSG

We may suppose that the fact that some forms with an adnominal use are identical with forms of the paradigm of one of the genders is due to morphological underspecification. The crucial evidence for this hypothesis comes from Romanian, where anominal demonstratives and the homonymous feminine demonstratives have a different syntactic behavior. These facts also show that anominal demonstratives differ in gender from feminine demonstratives. First, and most importantly, singular anominal demonstratives do not trigger feminine agreement on a predicative adjective, but masculine agreement:

(28) Asta e imposibil
this.FSG. is impossible.MSG

The most likely explanation for this agreement mismatch is that the apparent masculine agreement represents a morphological default, used when the controller is unmarked for gender (Cornilescu 2000, Giurgea 2008). The idea that the masculine singular form of adjectives is a morphological default is supported by the fact that this form is used with clausal subjects (see (29)) and, for most adjectives, may also be used adverbially (see (30)):

(29) [A-ți iubi duşmanii] / [Să-ți iubeşti duşmanii] e imposibil
to you.DAT love enemies-the SUBJ-you.DAT love.2SG enemies-the is impossible
'To love one's enemies is impossible'

(30) Scrie greu / încet / frumos
writes difficult.MSG / slow.MSG / beautiful.MSG
'He writes with difficulty /slowly / beautifully'

This idea is confirmed by the special behavior of the predicate 'good'. When applied to propositional objects or state of affairs, the adjective 'good' has the special form *bine*, which also appears as an adverb ('well'). This form has a further restriction: it cannot appear with nominal subjects (the form *bine* used

with nouns has a different meaning – 'respectable' –, normally applied to humans). This restriction cannot be explained by semantics, because it applies even if the nominal subject refers to a proposition or state of affairs (see (31)c). The explanation I propose is that *bine* lacks gender, and an adjectival predicate must copy the gender of its subject. The only DPs which may appear as subjects of *bine* are neuter pronouns (see (31)a), confirming the idea that these pronouns are genderless:

(31) a. Asta/*pro* e bine/* bun
this is *bine* / *bun*
'That's good'
b. [Să-ți iubeşti duşmanii] e bine
SUBJ-you.DAT love.2sg enemies-the is *bine*
'To love one's enemies is good'
c. *Întoarcerea noastră / *Iubirea de duşmani e bine
returning-the our love-the of enemies is *bine*

Note moreover that neuter indefinite and quantificational pronouns may appear as subjects of *bine*, confirming our proposal in section 2 that these pronouns lack gender (ex. (32)). When referring to concrete objects, these pronouns take *bun* (see (33)), which shows that *bine* is not simply the genderless form of *bun*, but has in addition a semantic restriction to propositional objects:

(32) a. Ce-i mai bine? Nimic nu-i bine
what is more *bine* nothing not-is *bine*
'What's better? Nothing is good'
b. Ceva e bine în ce-a făcut
something is *bine* in what has done
'There IS something good in what he did'

(33) Adu-mi ceva bun
bring.IMPER me.DAT something good

Another difference between feminine and anominal demonstratives is that while the former take the differential object marker (*pe*) even if they refer to objects, in case of noun ellipsis[7], the latter never take *pe*:

(34) a. Ia(-o pe) asta ! (e.g. *pălărie* 'hat' – feminine)
take(3rd.F OBJ) this.F
'Take this one!'
b. Ia asta! (with no nominal antecedent)
take this
c. N-am spus(*-o pe) asta
not-have.1SG said(3rd.F OBJ) this

Another peculiarity of anominal demonstratives is that they are never clitic-doubled when fronted (as noticed by Cornilescu (2000)). They are in fact the

[7] *pe* is impossible with inanimates with an overt noun. With ellipsis, absence of *pe* is marginally possible with inanimates, and obligatory with animates.

only instance of a definite DP which is not clitic-doubled when fronted – in Romanian, clitic doubling is obligatory with definites and partitive indefinites, whether they are topics or foci:

(35) a. Asta aşteptam!
this waited.1SG
'That's what I was waiting for'
b. Ocazia asta *(o) aşteptam!
opportunity-the this 3rd.F.CL.ACC waited.1SG
'That's the opportunity I've been waiting for'
c. O carte a citit-o fiecare (specific)
a book has read-3rd.F.CL.ACC everybody
c′. O carte a citit fiecare (non-specific, narrow scope)
a book has read everybody

The hypotheses in section 2 provide a straightforward explanation for this behavior: anominal demonstratives lack gender, while accusative clitics always spell-out gender. An accusative bare index with unvalued gender will have a null spell-out. If we assume that bare indices are the same thing as clitics or represent a *pro* associated with a clitic, the null object found with genderless antecedents indicate that a genderless clitic has a null spell-out. By recognizing the existence of genderless clitics with a null spell-out, we may keep the generalization that definite and partitive indefinites are clitic-doubled when fronted in Romanian: anominal demonstratives are not an exception, but are clitic-doubled by a null clitic.

Note that anominal neuters can be doubled by the feminine clitic *o* exactly with those verbs which allow a feminine clitic denoting a state of affairs or proposition:

(36) Asta n-am făcut-o / spus-o
this not-have.1SG done-3rd.F / said-3rd.F

This seems to suggest that these verbs allow an anominal pronoun marked as feminine. The fact that anominal demonstratives do not allow feminine adjectives (except in the affective idiomatic expression *asta-i bună* lit. 'that's good.FSG', meaning 'I can't believe that!') can be explained by assuming that the anominal interpretation of feminines can only be licensed by the verb (perhaps via a sort of contextual recovery of a null N), so that feminines in an anominal use are only possible in the object position of certain verbs. In the absence of the licensing verb, the anominal interpretation is only possible with genderless pronouns, therefore singular anominal demonstratives cannot trigger feminine agreement on predicative adjectives (except in the aforementioned expression, where the same contextual recovery of an N can be invoked)[8].

[8] In the plural, Romanian allows a null N with the interpretation /-animate/ – e.g. *multe* 'many.FPL' = 'many things', *altele* 'other things', *toate* 'everything', *cele ce*... 'the.FPL that..' = 'the things that' etc. (see Giurgea 2008 for discussion). As expected, this N can also combine with demonstratives, giving the impression of the plural of anominal pronouns – *astea* 'these (things)', *alea* 'those (things)'. Since no nominal content is recovered by ellipsis and the meaning is /-animate/, these forms qualify for what I called 'anominal use'. Note however that in this case the interpretation comes from the properties of the feminine plural null N and not

Another peculiarity of genderless pronouns – anominal definite pronouns, neuter indefinite and quantificational pronouns – appears in relative clauses (Al. Grosu, p.c.). While DPs containing a (lexical or elliptical) N as well as animate pronouns only allow the *care* strategy of object relativization in contemporary Romanian, a strategy which involves obligatory clitic doubling, neuter pronouns only resort to the *ce-* strategy, which allows lack of clitic doubling:

(37) a. o carte [pe care am cumpărat-o la târg]
a book(F) OBJ which have.1SG bought-3rd.F at market
'a book I bought at the market'
b. *o carte [ce-am cumpărat la târg]
a book what have.1SG bought at market

(38) a. ceva [ce am cumpărat la târg] /
something what have.1SG bought at market
'something I bought at the market'
b. *ceva [pe care l-am cumpărat la târg]
something OBJ which 3rd.M-have.1SG bought…

The most likely explanation of this contrast is that *pe-* marking requires the presence of gender, which also explains the absence of *pe-* marking on anominal pronouns, shown in (36) above[9].

To conclude, we have shown that definite anominal pronouns (i.e. definite pronouns referring to entities which do not fall under a nominal concept), as well as indefinite and quantificational neuter pronouns (which may also be qualified as 'anominal') are genderless in Romance languages.

4. Conclusions

In this paper, I have argued that Romanian has anaphoric null objects used for antecedents which lack gender. In languages with a binary masculine/feminine gender opposition, genderless pronouns are used for reference to entities which do not fall under a nominal concept – either uncategorized perceptual objects, or propositions and state-of-affairs introduced by clausal projections. The genderless pronouns of Romanian are *pro*, the demonstratives *asta/aceasta* and *aia/aceea* (formally identical to the feminine singular, but distinguished from the feminine singular by their syntactic behavior with respect to agreement, clitic-doubling and accusative marking) and the so-called neuter indefinite and

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from the absence of gender (the existence of this null N is shown by the combination with adnominal determiners and modifiers, e.g. *cele din cer şi de pe pământ* 'the.FPL of-in sky and of on earth' = 'the things in the sky and on the earth'). Therefore we predict clitic doubling to be possible, and indeed these DPs are doubled by feminine plural clitics when the conditions for doubling are fulfilled:

(i) Toate le ştie
all.FPL 3rd.FPL knows
'(S)he knows everything'

[9] A similar phenomenon has been used as an argument for the idea that 'neuter pronouns' are unmarked for gender by Picallo (2002), for Spanish. She notes that the interrogative *cuál* 'which' is compatible only with masculine or feminine nominals, but not with neuter pronouns or sentences (in this case, only the neuter interrogative *qué* 'what' is allowed). She explains this contrast by assuming that *cuál* is always marked for gender.

quantificational pronouns (*ceva* 'something', *ce* 'what', *nimic* 'nothing', *orice* 'anything', *tot(ul)* 'everything'). As genderless null objects, Romanian has the null anaphora used with verbs which take propositional objects and a null object restricted to a bound variable interpretation, which is only used if the binder has no gender. This item differs from parasitic gaps by the fact that it does not require an A-bar moved antecedent but instead requires its antecedent to be genderless (a 'neuter pronoun'). Under Kratzer's (1998) analysis of bound variables readings, this pronoun can be analyzed as a bare index with an unvalued gender feature.

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The hybrid complementizer system of Cimbrian

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In this work we examine the syntactic properties of two classes of complementizers in Luserna Cimbrian, an endangered language spoken in the Dolomites, and show that they occupy distinct positions. The first type of complementizer starts out in the Fin° position and moves up to Force° thereby blocking the whole CP which is not available for the verb to move. The second type is external to the clause itself, which can behave as a main clause as its CP is entirely empty. The tests we use to show that this distinction is necessary are: the position of clitics and of the sentential particle /da/, the position of the inflected verb with respect to the negative marker /net/ and to verbal prefixes, and the distribution of the CP expletive /'z/, which is the Cimbrian counterpart of standard German /es/. This analysis has consequences on the one hand on the layering of the CP area and on the other on the V2 properties of Cimbrian.

1. Introduction

In this work we take into account the complementizer system of Cimbrian, a German dialect with very peculiar grammatical features spoken in some Veneto and Trentino villages in North-Eastern Italy. Given that Cimbrian is an endangered language, and is already dying out in most of the villages where it used to be spoken, we will restrict our empirical domain to the variety of Luserna, the only one where Cimbrian is still actively spoken by the majority of the population.[1] The complementizer system of this variety immediately draws attention because it looks like a mixture of Germanic elements and Romance borrowing. Although borrowing of functional words is quite rare across languages, we show that in this case it has integrated into the syntactic system of the language, which has now two types of complementizers with different morphosyntactic properties. The article is organized as follows: In section 2 we present the double complementizer system of Cimbrian and show that one subtype of complementizers patterns with main clauses with respect to the position of separable prefixes, the position of the negative marker with respect to the verb, the position of object and subject clitics and the position of the particle *da*, while a second type of complementizers displays a different pattern. In section 3 we interpret the data and claim that the distinction between the two types of embedded clauses is due to the different position of the two

[1] We thank our informant Fiorenzo Nicolussi for his help and patience with the data and the audience of the IGG conference held in Siena (Februar 2009) for helpful comments. For the purpose of the Italian academy, Cecilia Poletto is responsible for section 1-2.2 and Guenther Grewendorf is responsible for sections 2.3-4.

complementizer classes. The first class embeds a whole main clause which displays the same properties as main clauses with respect to verb position, clitics, negation, separable prefixes and the expletive pronoun *z*. We will show that the left periphery of this type of embedded clauses displays the same properties as the left periphery of a main clause. By contrast, the second class shows a behaviour different from main clauses, because the lower position of the complementizer blocks head movement to the left periphery of the clause, yielding the typical main versus embedded clause asymmetry found in V2 languages.
The analysis of the two complementizer classes also sheds light on the position of Wackernagel clitics and on the sentential particle *da*. Section 5 concludes the article and provides some hints for future research.

2. Two types of complementizers

The system of Cimbrian complementizers can be split into two classes: we will refer to them as "*ke*-type complementizers" and "*az*-type complementizers" using the two complementizers which most frequently occur in embedded declarative clauses.
Here is the list of the complementizers belonging to each class reported in the Cimbrian Grammar 338-342

(1) *Ke* type	*Ke*, 'that'; *benn*, 'when'; *bia*, 'as'; *umbròmm* 'because'; *bia nå*, 'why';
Az- type	*Az*, 'if/that'; *bal*, 'when/if'; *benn*, 'if'; *intånto az* 'while'; *ånka az* 'even if'; *dopo az* 'after'; *fin az* 'until'; *ena az*[2] 'unless'; *bo* 'relative complementizer'.

The clauses following *ke*-type complementizers behave as main clauses in various respects, while clauses introduced by *az*-type complementizers display different properties. We illustrate the point with respect to four different properties, which we will discuss in turn.

2.1.Position of separable prefixes

On a par with other Germanic languages, Cimbrian has a set of separable prefixes. However, they are not unmovable as they are in standard German, but appear in at least two positions. As already shown in Grewendorf and Poletto (2005), separable prefixes can either precede or follow the past participle in a declarative clause, but always follow the auxiliary or a simple main verb in main clauses:

(2) a. I hon **au**-gehort die arbat ka Tria.
I have up-given the job in Trient

[2] Notice the combination of a Romance adverb with the Germanic complementizer rather than with the Romance one. Younger speakers tend to use *intanto ke*, *dopo ke*, *fin ke* instead, and this could be the key to the loss of the Germanic complementizer system. However, we will not investigate this phenomenon any further here.

b. I hon gehort-**au** di arbat ka Tria
I have given-up the job in Trient
c. *I **au** hon gehort die arbat ka Tria
I up-have given the job in Trient

(3) a. I hon **offe**-geton die ture.
I have open-done the door
b. I hon geton-**offe** die ture.
I have done open the door
c. * I **offe** hon geton die ture.
I open have done the door

Embedded clauses with *ke* do not differ from main clauses and display the same two possibilities:

(4) a. Dar hat-mar khött ke dar hat **o**geheft die arbat an menta
he has-me told that he has pref.-begun the job on Monday
b. Dar hat-mar khött ke dar hat geheft **o** die arbat an menta
he has-me told that he has begun pref. the job on Monday

Notice that in sentences like (2)-(4), the prefix can never cross the inflected auxiliary (or any inflected verb), as shown by (5):

(5) a. *Dar hat-mar khött ke dar **o** hat geheft die arbat an menta
he has-me told that he pref. has begun the job on Monday
b. *Dar hat-mar khött ke dar **o** heft di arbat an menta
he has-me told that he pref. begins the job on Monday

This rather interesting oscillation between a pre- and a postparticipial position of the prefix might be interpreted in the following way. Assume that Cimbrian is not different from German with respect to the position of separable prefixes, which encode aspectual features and therefore must be located in some Aspectual projection in Cinque's (1999) hierarchy. The pre- or postparticipial position of the prefix cannot be due to its optional movement in front of the past participle, given that generally verbal prefixes are unmovable, as German clearly shows. Rather, we surmise that the distinction between the two languages is to be attributed to verb movement: Cimbrian is a VO language, therefore, it must be different from German with respect to the movement possibilities of the verb in general and of the past participle too. Thus, we propose that the oscillation found in (2) to (4) is due to movement of the past participle, which can remain lower or raise higher than the prefix. The following structure illustrates the two possible orders:

(6) $[_{CP}...[_{IP}... [_{AspP}$ prefix $[_{VP}$ past participle DPobj]]]]
(7) $[_{CP}...[_{IP}...$ past participle $[_{AspP}$ prefix $[_{VP}$ ~~past participle~~ DPobj]]]]

Notice furthermore that embedded clauses of the *az*-type also display prefixes before or after the participle. In addition to that, they have a third option, which is impossible with *ke*-type embedded clauses: the prefix can be located in a position higher than the auxiliary (or the main inflected verb).

(8) a. Dopo az-ar hat **o** geheft di arbat an menta
after that-he has pref. begun the job on Monday
b. Dopo az-ar hat geheft **o** di arbat an menta
after that-he has begun pref. thejob on Monday
c. Dopo az-ar **o** hat geheft di arbat an menta
after that-he pref. has begun the job on Monday

(9) a. dar mann bo da hat **o**-geheft a naüga arbat
the man that-da has up taken a new job
b. dar mann bo da hat geheft-**o** a naüga arbat
the man that-da has taken up a new job
c. dar mann bo da **o** hat geheft a naüga arbat
the man that-da up has taken a new job

The empirical generalization we can state is that *az*-type clauses have a syntax different from main and *ke*-type clauses. Elaborating on this empirical observation, we can assume that in *az*-type clauses the inflected auxiliary remains in a position lower than the prefix, while in main and *ke*-type clauses, it always raises higher and crosses the prefix.
There is independent empirical evidence that this hypothesis is correct: both higher and lower adverbs of the aspectual and modal type (as analyzed by Cinque (1999)) can occur higher than the auxiliary in *az*-type clauses, thus attesting that the order prefix-auxiliary is due to lack of movement of the auxiliary, not to prefix raising. The following examples show the case in point: while in main clauses the adverb *za* occurs to the right of the inflected verb, it occurs to its left in *az*-type embedded clauses. Given that adverbs do not move from their merge position (unless they are focussed, which is not the case here), we can conclude that the preverbal position of adverbs which usually occur postverbally shows that in this type of embedded clauses the verb has not moved as high as it does in main clauses.

(10) a. …az ar **za** **vort** is gont
…that he already away is gone
b. …* az ar **vort** **za** is gont
… that he prt. already is gone
c. …* az ar **vort** is **za** gont
… that he prt. is already gone
d. ...az ar **furse** **vort** is gont
...that he maybe prt. goes
e. …* az ar **vort** **furse** is gont
… that he prt. maybe is gone
f. …* az ar **vort** is **furse** gont
… that he prt. is maybe gone

(11) a. Dar hat za gerüaft
He has already phoned
b. Dar hat-mar khött ke dar hat za gerüaft
he has-me told that he has already phoned

We can draw the following tentative conclusion: in *az*-type clauses, the inflected auxiliary can remain lower than in main and *ke*-type clauses. In what follows, we present additional tests which confirm this conclusion.

2.2. Position of negation

Another test which is often used to determine the position of the verb in VO languages with the V2 property like Scandinavian languages is the relative ordering of the inflected verb and the sentential negative marker. In Mainland Scandinavian the verb is usually analyzed as remaining in a lower position (inside the VP), given that the order is Neg-V, while in Islandic the fact that order V-Neg is possible is analyzed as raising of the verb higher than the negative marker to some I° projection. If the tentative conclusion presented above is correct, then we predict that the clauses selected by the two complementizer types should also differ with respect to the position of the standard negative marker.[3] Once again, we can observe that *ke*-type clauses pattern with main clauses: in both cases the negative marker obligatorily follows both main and auxiliary inflected verbs (and always precedes the past participle):

(12) a. I boas ke dar is **net** vortgont
I know that he is not away-gone
b. * I boas ke dar **net** is vortgont
I know that he not is away-gone
c. * I boas ke du **net** geast ka Tria
I know that you not go to Trient
d. Dar khüt ke dar steat **net** dahuam
he says that he stays not at-home

(13) a. Dar is **net** khent
he is not come
b. * Dar **net** is khent
he ot is come

With *az*-type complementizers the situation is different and more complex: in the case of main verbs, negation must precede the inflected verb:

(14) a. Dar hat geböllt azz-e **net** vortgea
he has wanted that-I not away-go
b. * Dar hat geböllt azz-e vortgea **net**

The contrast between (12)/(13) and (14) clearly shows that main verbs in *az*-type clauses cannot raise to cross negation, while main verbs in main and *ke*-type clauses must do so.

(15) a. I hebat geboellt az-ar-me **net** oruaf, ma dar hat-s getont
I had wanted that-he-me not phones,but he has-it done

[3] Notice incidentally that the negative marker *net* in Cimbrian seems etymologically and syntactically similar to the German 'nicht' type, and not to the higher one used in Italian, as it does not trigger negative concord. We assume here that it occupies the same position as German *nicht*.

b. * I hebat geboellt az-ar-me oruaf **net**, ma dar hat-s getont
I had wanted that-he-me phones not, but he has-it done

An interesting difference is found as far as auxiliary and modal verbs are concerned, in this case negation can either occur before or after the auxiliary:

(16) a. …azz-a-dar **net** hat khött zu kemma
…that he to-you not has said to come
b. …azz-a-dar hat **net** khött zu kemma
…that he to-you has not said to come

(17) a. Onka az-ar hat **net** ogeheft a naüga arbat, issar herta toebig
even if-he has not begun a new job, is-he always nervous
b. Onka az-ar **net** hat ogeheft a naüga arbat, issar herta toebig
even if-he not has begun a new job, is-he always nervous

(18) a. Bal dar **nèt** bill gian, schikh-en vort
if he not wants go, send him away
b. Bal dar bill **nèt** gian, schikh-en vort

In this case we propose that auxiliaries and modals can but need not raise higher than the position of the negative marker. This difference between auxiliaries and main verbs is well known in the literature on verb raising: already Pollock (1989) notes the same difference between infinitival auxiliaries, which can (but need not) raise higher than negation in French, and main verbs, which cannot move past the negative marker *pas*.
We can conclude that the second test also goes in the same direction as the first one: in *az*-type clauses the inflected verb seems to be located lower than in *ke*-type clauses and in main clauses, where the verb must move past the negative marker *net*.

2.3. Position of the particle da
Another test showing that we are on the right track in assuming that in *az*-type clauses the verb does not raise as high as in main and embedded clauses introduced by *ke* has to do with the position of the particle *da*. [4] In main clauses

[4] The particle is homophonous with the locative element *da* 'there', though the fact that the two can cooccur shows that they are not the same item. We will not investigate the semantic import of the particle here, leaving it to future research. Here we limit ourselves to providing some information on its distribution *Da* is a particle occurring in Relative clauses (on the subject, object and other arguments)

(i) Dar libar bo da-r hat geschenkt in Gianni
the book that da-he has given to G.

Interrogative clauses

(ii) I boas net bo da-r hat gesek in pua
I know not where da he has seen the boy

Declarative clauses

(iii) Z' gen**da** di milch di bake
it give-da the milk the peasants

Da is not a locative: as it can cooccur with a locative instance of *da*

(iv) Dar libar bo da der Giani da hat gelek
the book that da the G. there has put

Da serves as a host to clitics

the particle is always located after the inflected verb, as shown by the following example:

(19) a. Alle sunta han**da** gelaütet die klokkng
every Sunday have-da rung the bells
b. Alle sunta laütn**da** die klokkng
every Sunday ring-da the bells
c. * Alle sunta **da** laütn die klokkng
every Sunday da ring the bells

If the complementizer is of the *ke*-type, the particle *da* is again located immediately after the inflected verb, as shown by the following examples:

(20) Dar Mario hatt khött ke alle sunta han-**da** gelaütet die klokkng
the M. has said that every Sunday have-da rung the bells

(21) *I boas ke da khint di nona
I know that da comes the granny

In the case of *az*-type complementizers (like *bal*, in the example below) the particle is located immediately after the complementizer itself:

(22) Bàl**da** rivan di khindar, spèrr-bar di tür
when-da arrive the kids, close-we the door

Again, the empirical generalization we can state groups main and embedded *ke*-type clauses together, setting *az*-type clauses apart: *da* is located after the inflected verb in main clauses and in clauses introduced by *ke* but immediately after the complementizer in *az*-type clauses.
We can interpret this fact along the lines suggested above: the position of verbal prefixes, the position of the negative marker and the position of the particle *da* consistently show that the verb raises higher in *ke*-clauses than in *az*-clauses. The test on *da* takes us even further in the interpretation of the data: the fact that *da* is enclitic onto the verb in main clauses and embedded *ke*-type clauses and enclitic onto the complementizer in *az*-type clauses suggests that the position occupied by the inflected verb in main and embedded *ke*-type clauses is the same as the one occupied by the complementizer in *az*-type clauses: in other words verb second occurs in main clauses and in a subset of embedded clauses.

2.4. Position of clitic pronouns
Another test showing the complementary distribution of inflected verbs and *az*-type complementizers is the position of object clitics: with *ke*-type

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(v) S beibe bo da se putzt ist kronk
the woman that da-them cleans is sick
Da is incompatible with weak pronouns, but cooccurs both with clitic and tonic pronouns
(vi) a. Dar libar boma herta lesst worma geat in pett/
the book that one always reads when-one goes to bed
b. * Dar libar bo da ma herta lesst worma geat in pett/
the book that da one always reads when-one goes to bed

complementizers object clitics must be in enclisis to the inflected verb, with *az*-type complementizers object clitics occur in enclisis to the complementizer itself (or to the particle *da* when it is present creating a cluster)

(23) a. Da soin vortgont ena az-ta-s niamat barn
they are away-gone before that-there-it nobody noticed
b. * Da soin vortgont ena az niamat barn-da-z
they are away-gone before that nobody noticed-there-it
c. I gloabe ke dar gebat-mar-s
I think that he gives-to.me-it

(24) a. * Dar hat-**mar** khött ke dar **en** sich morng
he has-to.me said that he him sees tomorrow
b. Dar hat-**mar** khött ke dar sich-**en** morng
he has-to.me said that he sees-him tomorrow

The tentative conclusion we reach on the basis of the contrast in (23) and (24) is that the finite verb in *ke*-clauses occupies the same position as the complementizer *az*.
Cimbrian also has subject clitics, which are obligatorily in enclisis to the verb in main clauses. They never occur in first position in V2 clauses, where either tonic or weak pronouns are used:

(25) Er/Dar khint
he comes

(26) * Ar khint
he comes

As expected by the V2 pattern, subject clitics occur in enclisis to *az***-**type complementizers, confirming the idea that the verb in main clauses occupies the same position occupied by the complementizer in *az*-type clauses:

(27) Z'tüat mar ont azz-**ar** sai za vorgont
it does me sorrow that-he is already away-gone

Given that we analyze *ke*-type clauses as embedding a whole main clause structure after *ke*-, we expect that no subject clitics are possible immediately after *ke***-**type complementizers, since this position corresponds to the prefield position in V2 clauses. This prediction is born out: no subject clitics are found after *ke*, tonic or weak pronouns are used instead like in main clauses:

(28) * I boas ke **ar** khint
I know that he comes

The last empirical generalization we formulate is the following: the first position to the right of *ke* in embedded clauses and the first position in main clauses cannot host clitics, the first position after *az* can host clitics.

3. Refining the hypothesis

Summing up what we have discussed so far, we can state that elements like *da*, negation, separable prefixes and object clitics occur after the inflected verb in main clauses and *ke*-type clauses, while they occur before the verb in *az*-type clauses. We have suggested that this is a reflex of the well-known asymmetry between main and embedded clauses in V2 languages of the German type: if the verb raises to the C domain in main and *ke*-type clauses only but not in *az*-type clauses, then we expect it to cross: a) separable prefixes b) negation c) object clitics d) the particle *da.*

Therefore, we assume that in *az*-type clauses the complementizer is located in the same position where the verb ends up in main and *ke*-type clauses. However, if we adopt the by now standard idea of a split-CP,[5] this is not enough and we have to determine precisely the C° position target of verb movement i.e. the position of *az*. There are two plausible positions where *az*/the inflected verb can surface: FinP and ForceP. This gives rise to the three possible analyses for the surface structure illustrated below:

(29) $[_{ForceP}$ ke $[_{TopicP}$…..$[_{FocusP}$ $[_{FinP}$ az/V $[_{IP}$ ...$[_{WackP}$ da/clitics]...$[_{AspP}$ prefix $[_{NegP}$ net]...$[_{VP}$]]]]]]]

(30) $[_{SubordP}$ ke $[_{ForceP}$ az/V $[_{TopicP}$… $[_{WackP}$ clitics] $[_{GroundP}$ da$[_{TopicP}$….. $[_{FocusP}$ $[_{FinP}$ $[_{IP}$ ...$[_{AspP}$ prefix $[_{NegP}$ net]...$[_{VP}$]]]]]]]]]

(31) $[_{SubordP}$ ke $[_{ForceP}$ az/V $[_{TopicP}$… $[_{FocusP}$ $[_{FinP}$ $[_{IP}$ $[_{WackP}$ da/clitics] $[_{AspP}$ prefix $[_{NegP}$ net]...$[_{VP}$]]]]]]]

Az-type complementizers can either be high or low in the structure of the CP: if they are low complementizers located in Fin°, this means that clitics of the Wackernagel type and the particle *da*, which occur in enclisis to the complementizer/inflected verb, must be in some IP position, as shown in (29). According to this analysis, complementizers of the *ke*-type are located in ForceP.

The alternative is that *az*/the inflected verb are in Force: in this case Wackernagel clitics and the particle *da* could be located either in IP (as in (31)) or in CP (as in (30)).

If *az* occupies the Force position then complementizers of the *ke*-type are located in a projection even higher than Force, which we call here SubordinatorP.[6]

Notice that the two alternatives make distinct predictions concerning the position of Topics and Foci with respect to the complementizer: if *az* is a low complementizer, Topics and Foci should precede it, if *az* is a high complementizer, it is expected to be followed by Topics and Foci.

The following examples show that *az*-type complementizers such as *bo* are high complementizers, given that Topics and focussed elements occupy a position lower than these complementizers:

[5] We assume here Rizzi's (1997) original structure with the modification proposed in Benincà and Poletto (2004)

[6] See Bhatt/Yoon (1991) on the distinction between complementizers that act as mood-indicators and complementizers that act as pure subordinators.

(32) Dar libar bo da i *in Giani* za on get
the book that da I to-the-G. already have given

(33) a. Dar libar bo da-r IN GIANNI hat get
the book that da-he THE G has given
b. * Dar libar bo IN GIANNI dar hat get
the book that THE G: da-he has given

Although (30)/(31) seem prima facie more complex than structure (29), as the additional projection SubordinatorP must be postulated, the order with respect to Topics and Foci shows that it is the correct one. Therefore, we exclude (29) on the basis of the examples above. Furthermore, we can also exclude (31) on the basis of the following argument. If *da* and clitics were located in IP, then we would predict that some specifiers can intervene between the complementizer and the clitic cluster.

(34) az-ta-r-en
that-da-he-him

(35) *Fin az-o-ar net rüaft
until that prf.he not phones
*Fin az net ar orüaft
until that not he phones
*Fin az furse ar orüaft
until that maybe he phones

The examples above show that this is never the case, as complementizers and clitics always form a single unit: no prefix, adverb or negation can intervene betwenn *az* and a subject clitic. There are also phonological phenomena of assimilation between the complementizer and the particle *da*: for instance *az+da* = *azta* (*z* is pronounced as a voiceless sibilant /s/ and the voiced consonant of the particle becomes voiceless as well).[7]
Moreover, if we adopt an antisymmetric framework in which right adjunction is not allowed (see Kayne 1994), we cannot obtain the order *az-da-subject clitic-object clitics* through cliticization.

If we adopt structure (30) we solve both problems: *da* and Wackernagel clitics are in the CP domain and *az* moves from Fin° to Force° crossing the positions of *da* (here represented as GroundP and WackP) and adjoins to the left of the clitics creating a cluster which cannot be split by any specifier:[8]

[7] An additional indication comes from the fact that native speakers write the sequence complementizer-*da*-clitics as one single word.
[8] Empirical evidence for the existence of a left-peripheral Wackernagel position can be derived from an observation by Hubert Haider (see Haider 2009) according to which there is a garden path effect with the scrambled noun *Marga* in (i) but not with the pronoun in (ii), which may be attributed to the fact that there exists a left-peripheral syntactic position which is exclusively designed for pronouns:

(i) weil Marga Kollegen vorgestellt bekamen
since Marga colleagues introduced got
(ii) weil es Kollegen vorgestellt bekamen
since it colleagues introduced got

(36)[$_{SubordP}$ *ke* [$_{ForceP}$ az-da-ar [$_{TopicP}$ ~~*az-da-ar*~~ [$_{WackP}$ clitics ~~*az-da-ar*~~ [$_{GroundP}$ ~~*az*~~*da* [$_{TopicP}$~~*-az*~~.[$_{FocusP}$ ~~*az*~~ [$_{FinP}$ ~~*az*~~
[$_{IP}$... [$_{AspP}$ prefix [$_{NegP}$ net]....[$_{VP}$]]]]]]]]]

In this way, we capture the fact that Topics and Foci are lower than the complementizer, and the fact that the clitic cluster is enclitic to *az*.[9]
Additional independent evidence that *ke* is a subordinator base-generated higher than ForceP and that *az* reaches Force° by movement is provided by the distribution of the expletive pronoun *'z*, which has the typical properties of CP expletives (it behaves like the German "Vorfeld-*es*"). In main clauses *'z* occurs in first position where no other element is found to the left of the inflected verb. If any XP is located in front of the inflected verb, *'z* disappears.[10]

(37) a. Z'handa gelaütet die klokkng alle sunta
it have-da rung the bells every Sunday
b. Alle sunta laütnda die klokkng
every Sunday ring-da the bells

The most plausible analysis of *'z* is that it is located in SpecForce: we can only account for the fact that expletive *'z* targets the first position of the clause by assuming that it is located in the highest specifier, namely SpecForce. If we assumed that it is located in SpecFin, then Focus and Topics could precede it, which is not true.
The fact that expletive *'z* can occur in embedded clauses introduced by *ke*-type complementizers, but not by *az*-type complementizers shows that *ke* is higher than Force:

(38) a. Dar Mario hatt khött ke z' handa gelaütet die klokkng alle sunta
the M. has said that z have-da rung the bells every Sunday
b. * Dar Mario hatt geböllt az z' handa gelaütet die klokkng alle sunta
the M. has wantedthat z have-da rung the bells every Sunday

(38) illustrates that the expletive pronoun *z*' can only occur with *ke*-type clauses but not with *az*-type clauses. On this basis we adopt the following structure:

(39) [$_{SubordP}$ [$_{Subord}$ *ke*] [$_{ForceP}$ *z*'[$_{TopicP}$….. [$_{FocusP}$ [$_{FinP}$]]]]]

This explains why *ke*-type clauses and main clauses behave exactly the same: in both cases there is no complementizer blocking the CP layer, and the inflected verb can raise to Fin and then up to Force (in which case we have a construction with Vorfeld '*z* or V2), or raise only to a lower projection in the CP yielding V3 by allowing Topic positions in front and still triggering subject clitic-V inversion, enclitic objects and *da* to V.

[9] Independent evidence for complementizer movement can be found in Watanabe (1993), Browning (1996), Poletto (2000), Roberts (2004), Rizzi/Shlonsky (2007), among others.
[10] Notice that Cimbrian has Romance "free" subject inversion and '*z* occurs also in these contexts:
(i) Z' hat-ta gerüaft die momma
it has-da phoned the mum

Moreover, we also capture the fact that the class of /az/-complementizers does not allow for verb movement (as the order with negation and adverbs considered above shows), which in principle would be possible if the Fin position were empty. Lack of verb movement only in these constructions shows that the complementizer is not directly merged in Force but must start out in Fin and then move to Force.
We conclude that complementizers of the *az*-type reach the Force projection, but they must have been merged lower (in Fin°) in order to gather up clitics and the particle *da* and block verb movement to any position higher than its usual IP position. Therefore, the whole CP layer is not available to verb movement, not only Force but also Fin and any intermediate Topic or Focus head.

4. Conclusion

In this article we have discussed the distribution of two classes of complementizers in Luserna Cimbrian: one class embeds a structure analogous to the one of main clauses, the other class consists of complementizers merged in a low C position and then raised to the highest position. Complementizers like *az* move from Fin to Force dragging along all heads (the particle *da* and subject and object clitics) they find on their way. Complementizers like *ke* are located higher than the whole ForceP, hence the „main clause“ type of behaviour.
If our analysis is correct, it settles the matter of the position of Wackernagel clitics. Given that these clitics occur higher than Topic and Focus projections, they must be located in the CP layer.
From this analysis some general consequences for the structure of the left periphery and for V2 emerge: first of all, these data confirm the idea that V2 is not a unitary phenomenon in the old sense of a parameter triggering a cluster of phenomena which include the linear restriction, subject inversion and the main versus embedded clause asymmetry. Cimbrian is different from German, as it allows V3 orders and displays restrictions on inversion, but still maintains one class of embedded structures where the asymmetry is visible. The analysis of complementizers of the *az*-type could be extended to other languages which do not display any mixed system, like standard German, a problem we do not discuss here. Another research perspective which our analysis opens up concerns the other type of complementizers, the ones located outside the real CP structure. We have called the head where it occurs SubordinatorP, but this type of complementizers could actually derive from some sort of pronominal element located in the VP of the main clause, and occupy the object position as proposed by Schreiber (2009) for Gothic.
We also have further empirical work awaiting us as we have not established the complementary distribution of the two complementizers *ke* and *az*: as far as we know they never cooccur, as they are selected by different classes of main verbs. Complementizers like *az* are generally selected by verbs which have a modal complementizer (like 'want') in the Balkan languages and in Southern Italian dialects, while *ke*-type complementizers are selected by declarative verbs like 'say'. Notice furthermore that *az* is a possible translation for English 'if', though not the only one.
There is also empirical evidence (see Padovan and Nicolussi (to appear)) that the usage of *ke*-type complementizers is spreading across the language among younger speakers, who tend to use *ke* after borrowings like *dopo* ('after'),

fin,('til'), *anka* ('even'). Whereas older speakers always use *az* after *dopo*, *fin* and *anka*, younger speakers can also produce *ke* in these contexts. The spreading of the complementizer *ke* and the progressive loss of the *az* complementizer will lead to the loss of the main versus embedded asymmetry in sentence structure. This in turn will probably weaken the evidence native speakers have of the V2 phenomenon, (recall that subject inversion is reduced to clitics and that the linear V2 restriction is not respected in Cimbrian). The loss of the „"Germanic" type of complementizer might be one of the factors which will eventually lead to the entire loss of any correlate of V2 (in our terms, loss of any V to C), hence, also of the cases of subject clitic inversion in declarative clauses, and of expletive *'z*.

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Head-internal relatives in Japanese/Korean

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The internally headed relatives (IHRs) of Japanese and Korean belong to the general class of 'definite' relative constructions, whose CP was characterized in Grosu & Landman (1998) as denoting singleton predicates. Kim (2007), building on Hoshi (1995) and Shimoyama (1999, 2001), defines this CP as denoting a proposition that contains the antecedent of an E-type anaphor. It is argued in this paper that this approach, which undesirably enriches the class of definite relatives, also necessitates the imposition of highly unnatural restrictions on anaphora, which blur the distinction between pragmatics and grammar. The paper proposes an alternative analysis that avoids the conceptual and empirical objections faced by E-type approaches in general and by Kim's in particular, and assigns singleton status to Japanese/Korean IHRs in a straightforward and natural way.

1. Introductory remarks

The literature of the last thirty years or so has recognized the existence of a semantic type of relative clause construction that is distinct from the traditionally known restrictive and appositive types, and is characterized by necessarily definite (or, in certain cases, universal) force, to the exclusion of existential force. In this paper, I will refer to them as 'definite relative constructions', universal force not being relevant to what follows.

Definite relatives occur in a variety of syntactic garbs, in particular, as free relatives (Jacobson 1995), correlatives (Srivastav 1991), externally-headed relatives (Carlson 1977), and internally-headed relatives (Hoshi 1985); see Grosu (2002) for a survey of the relevant literature up to the time of its publication. Grosu & Landman (1998) proposed the interesting hypothesis that these syntactically diverse constructions can be brought under a unifying theoretical umbrella by analyzing the relative CP as a **singleton predicate**. On this view, definite relatives are closer to restrictives than to appositives, since just like the former, they denote predicates, rather than propositions, as the latter do. The feature which distinguishes definite from restrictive relative clauses is, according to Grosu & Landman, that the former, but not the latter, undergo a **semantic** (i.e., grammatical, not pragmatic!) process of maximalization, which maps a (possibly non-singleton) predicate to the singleton containing its maximal member, if there is one, and is undefined otherwise. This process was viewed by Grosu & Landman (op. cit., section 2.5) as being responsible for the necessarily definite semantics of these constructions[1].

[1] Grosu & Landman's proposal was further spelled out in Grosu (2002, example (10b)), where it was suggested that the effect arises out of a pragmatic conflict between the uniqueness of the singleton's membership and the implicature of possible non-uniqueness associated with existential quantification.

In contrast to this unifying approach, the I(nternally) H(eaded) R(elative)s of Japanese and Korean, which have the kind of definite semantics alluded to in the first paragraph of this section[2], have been analyzed by a number of semanticists in a way that brings them closer to appositives than to restrictives, in spite of the important fact that they do not have the independent illocutionary status of the former. In particular, Hoshi (1995), Shimoyama (1999, 2001), and Kim (2007) have proposed analyses which view the relative clauses of Japanese/Korean IHRs as propositions in which some nominal expression (the I(nternal) H(ead)) is the antecedent of a (CP-external) E-type anaphor, the interpretation of the latter providing the content of the IHR.
The E-type approach to IHRs might have some initial plausibility, in view of the fact that the relative CP has the superficial appearance of a complete clause, in contrast to the relative CP of semantically definite E(xternally)HRs, which typically exhibit a 'gap.' This can be appreciated by comparing the Japanese IHR in (1) (=(9) in Shimoyama 1999) with the definite EHRs in (2a-b), which are, respectively, a free relative (adapted from Jacobson 1988), and an individual-denoting degree relative (adapted from Carlson 1977 and Grosu & Landman 1998.

(1) Taro-wa [$_{DP}$[$_{CP}$Yoko-ga reezooko-ni **kukkii-o** **hotondo** irete-
Taro-Top Yoko-Nom refrigerator-Loc **cookie-acc** **most** put-
oita]-no]-o paatii-ni motte itta.
perf-no-acc party-to brought
'Yoko put most cookies in the refrigerator and Taro brought {them, *some} to the party.'

(2) a. I ate [what Mary gave me __] (i.e., everything she gave me, not just some of it).
b. I took away [*?(the) three books that there were __ on the desk]

At the same time, this approach is arguably non-optimal on a number of conceptual and empirical grounds. First, it enriches the universal typology of definite relative constructions in that the relative CP sometimes denotes a proposition (in IHRs), and sometimes a predicate (in EHRs, for which an E-type approach has little initial plausibility). Second, E-type anaphora all by itself does not yield an empirically adequate characterization of Japanese/Korean IHRs, because the choice of possible IHs is considerably more restricted than the choice of possible E-type antecedents in discourse, as Shimoyama (1999, 2001) and Kim (2007) prominently note. It thus becomes necessary to recognize two types of E-type anaphora, one subject only to pragmatic constraints, and one also subject to grammatical constraints, a view that blurs the distinction between grammar and pragmatics. Third, it is not clear (at least, it

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Arguably, this effect may be viewed as a special case of a more general principle, dubbed 'Maximize Presupposition' in Heim (1991), where it was invoked to account for the preferred status of the definite article in superlatives. This principle says, essentially, that when a presupposition of uniqueness exists, this state of affairs should be 'acknowledged' by the determiner, so that the definite article, which has a stronger presupposition than the indefinite article, is preferred to the latter.

[2] As has been repeatedly noted in the literature, the grammars of Japanese and Korean share numerous features, and this seems to be especially true of their IHRs, as also pointed out by Kim (2007, footnote 4). The only possible difference of which I am aware is that Shimoyama (1999, 2001) states that proper names may not be IHs, while Kim gives numerous examples with proper names as IHs, which she rates as fully acceptable.
For completeness, I note that I have not checked the existence of data like (9)-(10) and (12) in Korean, but given the striking similarities between the two languages, I will assume, until proof to the contrary, that comparable Korean data have the same acceptability values.

has not been shown) that E-type anaphora can be saddled with grammatical restrictions in a natural and economical way. While Shimoyama (op. cit.) was somewhat vague concerning the characterization of the restrictions operative in IHRs, Kim (op. cit.) offered a precise characterization which, as will be seen below, faces considerable difficulties when attempting to cope with the entire range of Japanese/Korean IHRs (in particular, with data that these authors did not consider).

The principle goal of this paper is to propose an analysis of Japanese/Korean IHRs that avoids the objections noted in the preceding paragraph. The analysis will offer a natural characterization of the constraints operative in these IHRs, which will also enable the relative CP to emerge with singleton predicate status, thereby avoiding an undesirable enrichment of Universal Grammar and the blurring of the distinction between pragmatics and grammar.

The remainder of the paper is organized as follows: Section 2 summarizes the ways in which Shimoyama and Kim propose to deal with the restrictions that distinguish IHRs from discourse anaphora, section 3 critically evaluates their proposals, focusing primarily on Kim's, section 4 presents my alternative analysis of definite IHRs, and section 5 summarizes the results of the paper.

2. Shimoyama and Kim on the choice of possible IHs

In contrast to Hoshi, who proposed to assume that the choice of IHs is restricted in the same way as the choice of antecedents in E-type anaphora, Shimoyama and Kim noted a number of additional constraints that are operative in IHRs only. I list below the principal constraints noted by these writers, with illustrations based on English data, because reproducing examples in the original languages would exceed existing space limitations.

[A] In discourse, the antecedent of the E-type anaphor need not be in the sentence immediately preceding it, while in IHRs, the antecedent can only be internal to the relative clause (see example (45) in Shimoyama 1999, and example (14) in Kim 2007). To briefly illustrate, consider (3), where *them* can refer to both the books and the newspapers that Mary brought home. Comparable Japanese and Korean discourses behave likewise, but if the second sentence is turned into an IHR embedded into the third (as object of *put*), the IHR can only denote the newspapers.

(3) Mary bought and brought home **three books**. She also bought and brought home **some newspapers**. Bill put *them* on the bookshelf.

[B] In a discourse like (4), the interpretation of *they* can be accommodated to denote students who did not attend the party. But if the first sentence is embedded to the second as an IHR, the IHR can have only the absurd reading that the students who attended the party were simultaneously at home (see examples (52)-(53) in Shimoyama 2001, Chapter 3).

(4) Only **a few graduate students** came to the party on Saturday. In fact, *they* were writing term papers at home.

[C] In (5), either the sushi or the wife may be anaphorically resumed, but if the first sentence is embedded into the second, the resulting IHR can only denote the sushi (see examples (64)-(65) in Shimoyama 2001, Chapter 3, and (15)-(16) in Kim 2007). Shimoyama suggests on this basis that the IH must bear a thematic role assigned by

the predicate of the relative clause, that is to say, a role **in the event described by the relative clause** (note that if the IHR purports to refer to the wife, the thematic role of the IH is assigned by the noun *sushi,* and is thus not a role in the event described by the relative). – Observe that this suggestion also takes care of facts noted in [B], since the students who stayed at home do not play a thematic role in the event described by the relative.

(5) Every man served **his wife's sushi** to the guest, and the guest praised *{it, her}* immediately after that.

[D] Kim argues that Shimoyama's suggestion just noted is still not restrictive enough, because not only the lexical verb, but also its aspect may play a role in determining which nominals may serve as IH. Thus, consider (6), which is adapted from Kim's Japanese examples (25)-(26).

(6) a. Bill was having a wedding ceremony with **a pretty woman**, and the priest tried to talk *her* into joining the local women's club.
b. Bill had gotten married to (in Japanese: 'with') a pretty woman, and the priest tried to talk her into joining the local women's club.

Both subcases of (6) are acceptable, and so are their exact Japanese/Korean counterparts. However, if the first conjunct is embedded to the second as an IHR, only (6a) yields an acceptable result. In Japanese, the boldfaced expression plays a Concomitant thematic role in both cases, so that Shimoyama's suggestion does not predict the contrast between the IHR counterparts of (6a) and (6b).
Kim proposes to trace this contrast to the fact that the aspect is progressive in (6a)[3] and perfect in (6b). Minimally modifying proposals made in Parsons (1990), she proposes to make the following assumptions: (a) a progressive sentence describes an *in-progress state,* which includes all the thematic roles pertaining to the event described by the lexical verb; (b) a perfect sentence with an atelic verb describes a *resultant state*, which includes only the Agent argument of the event described by the verb; (c) a perfect sentence with a telic verb describes a *target state*, which includes only the incremental Theme argument of the event described by the verb; (d) a perfective sentence does not describe a state. Kim's modification of Shimoyama's suggestion is that the IH must play a thematic role in the **state** described by the lexical verb and its aspect, which, as can be gathered from (a)-(d), does not always include all the participants in the event described by the verb. Given this proposal, the deviance of the IHR version of (6b) is attributable to the fact that the intended IH does not play a role in the relevant state, which includes the Agent, but not the Concomitant role.
[E] As noted by Kuroda (1976-7), Japanese IHRs are subject to certain restrictions that are not found in minimally different EHRs, and certainly not in discourses, and comparable restrictions exist in Korean. Kuroda stated these restrictions in the form of

[3] Akira Watanabe informs me that Kim's example (26) does not have progressive aspect within the IHR, but is rather in a non-past form which receives a future construal analogous to that of English constructions like *John {leaves, is leaving} tomorrow morning,* which imply that the future event has already been decided on at the moment of speech. This in turn implies that Kim's aspectual generalizations listed below in the text will need to be augmented with something like 'a sentence that describes a planned future event also describes a(n earlier) state of having planned that event.' Be this as it may, to the extent that Kim's examples (25) and (26) contrast in acceptability in the way she claims they do, her claim that Shimoyama's characterization is insufficiently restrictive stands.

a rather vague 'Relevancy Condition', which Kim (2008) showed can be fruitfully decomposed into pragmatic and semantic components. The semantic component of this condition can be appreciated in relation to (7). If the first conjunct is embedded to the second as an IHR, only (7a) yields an acceptable result (in contrast, if the first conjunct is turned into an EHR, the result is acceptable for (7b) as well; cf. *Anthony had arrested yesterday the thief who is running away right now*).

(7) a. A thief was running away, and Anthony caught him.
b. A thief is running away right now, and Anthony arrested him yesterday.

Kim proposes to deal with such effects in the way informally described in (8a) ((8b) is meant to deal with the effects noted in [D]). The contrast between the IHR counterparts of (7a) and (7b) follows from the fact that in the former, the thief is in an in-progress state of running away when he gets caught, while in the latter, the thief was not in such a state when he got arrested.

(8) a. The relative clause must describe a temporary state that temporally intersects with the eventuality described by the matrix clause.
b. The intended IH must bear a thematic role in that state.

Kim's formalization of (8) is outlined in her section 4. I confine myself to outlining the gist of her proposals here. Syntactically, she assumes an overt representation and a distinct LF representation, which are illustrated in her examples (38) and (39) respectively (not reproduced for lack of space). Basically, the relative clause consists of a VP that includes the lexical verb and its thematic arguments, and which serves as the complement of an Aspect head. Crucially, the AspP serves as complement to the relative Complementizer, there being no T(ense)P, above AspP; this proposal is made in order to capture (8a) in the following way: the Tense of the matrix is viewed as unselectively binding temporal variables in the denotation of both matrix and embedded AspPs. In the overt representation, the relative CP is the complement of a noun, realized as *kes* in Korean and *no* in Japanese. The complex NP formed by these two constituents is complement to a null Det bearing the feature [+definite]. Kim views the N and the Det as jointly defining an E-type anaphor, which needs to find an antecedent within N's sister in a way consistent with (8b). Kim assigns to the relative CP and its N sister types that do not allow them to combine, and proposes to solve the conflict by covertly raising CP, adjoining it to the matrix AspP, and leaving behind a trace that gets interpreted as a state variable. At the stage where the matrix Asp needs to combine with the relative CP, there is a new mismatch in types, which is resolved by abstracting over the state variable. The combination of the relative CP with the abstract assigns to the state variable abstracted over the content of the state described by the AspP of the relative clause. In this way, (8b) is satisfied.

3. Critical evaluation of Shimoyama's and Kim's proposals

While the facts considered by Kim and the observations she makes are highly interesting, they are also insufficient in an important way. Thus, all the examples she considers (and those discussed by Shimoyama as well) exhibit **monoclausal** IHRs. As a result, the IH is always a member of the **highest clause** within the relative. Correlatively, the choice of an IH is always made within the state defined by the relative. However, it is by no means necessary for the IH to be a member of the

highest clause within the relative. The following examples, due to Akira Watanabe, illustrate this point (comparable data are also signaled in Hoshi 1995 and Kuroda 1999); (9a) and (10) are, respectively, (39a) and (41) in Watanabe (2003), and (9b) was kindly provided by Akira Watatanabe (p.c.).

(9) a. Mary-ga [John-ga [zibun-no gakusei-ga **yuuyouna kasetu-o**
Mary-Nom John-Nom self-Gen student-Nom important hypothesis-Acc
teianshita to] jimanshite-ita-no]-no kekkan-o shitekishita.
proposed Czer boasted-had- no-Gen defect-Acc pointed-out
*'[John had boasted [that his student proposed **an important hypothesis**]] and Mary pointed out a defect in **it**.'*

b. [[[Zibun-no gakusei-ga juuyouna kasetsu-o teianshita to] John-ga
self-gen student-nom important hypothesis-acc proposed C John-nom
jimanshite-iru to] minna-ga itte-ita-no]-no kekkan-o Mary-ga shitekishita.
boasting-is C everyone-nom say-had-C-gen defect-acc Mary-nom pointed out
'[Everyone said [that John had boasted [that his student proposed **an important hypothesis**]]] and Mary pointed out a defect in **it**.'

(10) a. [[Mary-ga itsu **ronbun**-o shiageru-ka] John-ga Tom-ni tazunete-
Mary-nom when paper-acc finish-Q John-nom Tom-dat asked-
ita]-no-ga shuppan-sareta.
had-no-nom publish-pass
'[[John had asked Tom [when Mary would finish **a (certain) paper**]] and that paper was published.

b. [[Mary-ga itsu **ronbun**-o shiageru-ka] John-ga Tom-ni tazunete-
Mary-nom when paper-acc finish-Q John-nom Tom-dat asked-
ita]-no-no shuppan-ga okureta.
had-no-gen publication-nom was delayed
'[[John had asked Tom [when Mary would finish **a (certain) paper**]] and the publication of that paper was delayed.

Such data do not fall under (8b), since the IHs do not play a thematic role in the eventuality described by the relative, and cannot be analyzed by the entry Kim assigns to *kes/no*, which identifies the anaphor with an antecedent playing a role **in the state denoted by *kes/no*'s sister**, as can be gathered from (11).

(11) $[[kes/no_{R,P}]]^g = \lambda s_s.\lambda x_e[g(R)(x)(s)\ \&\ g(P)(x)$
where *s,x,R,P* are variables over states, individuals, thematic roles and properties respectively, and g is an assignment function.

To allow for data like (9)-(10), (11) would minimally need to be modified by **relaxing the relation R**, which in its present form, denotes (i) a thematic role (ii) pertaining to the state denoted by *kes/no's* sister. The relaxation may apply to either (i) or (ii). If applied to (ii), the assignment function g could, e.g., apply to a free variable over states, subject to the requirement that this state is contained within the state denoted by the state variable abstracted over; the thematic role R would then be selected in relation to this 'smaller' state. A perhaps more elegant alternative, suggested to me by Fred Landman (p.c.), would be to relax (i), by allowing R to denote more complex (and arguably less natural) relations. For example, if the relative clause has the essential form *[John told me that Fred wrote **a book**]*, one can imagine a relation that

holds between an event of saying (or the resulting state) and a book, if the theme of the eventuality is a proposition claiming that there is some event of writing with that book as Theme.
Either extension seriously detracts from the elegance and naturalness of (11) in its present form, the former extension in fact being blatantly non-compositional. At least as seriously, both extensions need to be made sensitive to constraints that typically apply to unbounded syntactic dependencies, as Watanabe (1992, 2003) shows. Thus, while the IH may be contained within a declarative or interrogative complement clause (as can be seen in (9) and (10) respectively; see Watanabe 2003 for a proposed explanation of the fact that IHRs are not sensitive to the wh-island constraint), it may not be contained within a relative clause properly included within the IHR, as shown in (12) (kindly provided by Akira Watanabe, p.c.). In other words, the antecedent-anaphor dependency is sensitive to Ross' Complex NP Constraint, a property not found with the discourse variety of E-type anaphora (cf. (12) with (13)). Now, island constraints are typically operative in the syntax, and allowing them to constrain the operation of assignment functions or the characterization of complex semantic relations[4] is an undesirable step, which suggests that an analysis based on such extensions is barking up the wrong tree.

(12) *Mary-ga [John-ga [atarashii kasetu-o
Mary-Nom John-Nom new hypothesis-Acc
teianshita gakusei-o] homete-ita-no]-no kekkan-o shitekishita.
proposed student-acc praise-had- no-Gen defect-Acc pointed-out
'[John praised [the student who proposed a new hypothesis]] and Mary pointed out a defect in it.'

(13) a. Jon-wa [**hitsuji-o san-tou** katteiru *hitujikai-o*] shitteiru.
John-top sheep-acc 3-cl keep shepherd-acc know
Sore-ni-wa meshitsukai-ga esa-o yatteiru.
that-dat-top servant-nom food-acc give
"John knows a shepherd who owns three sheep. The servant feeds them."
b. Jon-wa hitsuji-o san-tou katteiru.
John-top sheep-acc 3-cl-KA keep
[**Sore-ni** yesa-o yaru *meshitsukai-wa*] kyoo-wa yasumi-da.
that-dat food-acc give servant-top today-top holiday-cop
"John has three sheep. The servant who feeds them is on holiday today."

Finally, it seems highly unlikely that (8a) can be maintained in its present form. Rather, I would guess that the state which needs to temporally intersect with the eventuality described by the matrix needs to be the one in which the IH plays a role. I have not been able to check this hypothesis with native consultants, but my educated guess is that the contrast between the IHR counterparts of (6a) and (6b) persists if the first conjunct is placed in the context *everybody knows that* __. I thus wish to suggest that the informal characterization in (8) needs to be changed to something like (14) (modifications are indicated in boldface).

[4] Observe that given a relative clause like *[John introduced me to the person who had written **a book**]*, it is in principle possible to define a relation between an event of introducing someone and a book, if the goal of the event is an entity characterized by an event of writing whose Theme is the book. Accordingly, the CNPC needs to be 'externally' imposed on the relation.

(14) a. **Some clause within** the relative clause must describe a temporary state that temporally intersects with the eventuality described by the matrix clause **in worlds in which both are defined**.
b. The intended IH must bear a thematic role in that state, and the dependency it forms with the relative-external anaphor must respect the CNPC.

What has been said in this section points to the conclusion that Kim's analysis of IHRs, which relies on a formal variety of the E-type anaphora, is fraught with serious empirical problems, in addition to the conceptual objections noted in section 1. In section 4, an alternative analysis will be presented which avoids these conceptual and empirical objections.

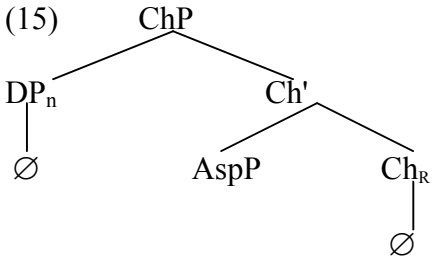
4. An alternative analysis of Japanese/Korean IHRs

The twin goals of the analysis to be developed in this section are (i) to retain the valuable aspects of Kim's analysis, in particular, the points brought out in section 2, while (ii) avoiding the conceptual and empirical problems that it faces, in particular, those noted in sections 1 and 3. To this end, I propose to assume that definite IHRs in general are characterized by a functional category which sits inside the relative clause and freely picks out a thematic role pertaining to the eventuality described by its complement (in this respect, it is similar *kes/no* as analyzed by Kim). I will call this category Ch(P). The complement of Ch is some AspP within the relative. The relative CP does not raise, and is interpreted *in situ*.

The entity defined by the selected thematic role gets equated with a free individual variable in [Spec, Ch], which undergoes abstraction at the relative CP level, thereby enabling CP to emerge with predicate status. The variable in [Spec, Ch] constitutes the denotation of the trace of a 'null operator' that is base generated in this position and undergoes cyclic A-bar raising to the relative's Spec, thereby accounting for the arbitrary depth of the IH and for its sensitivity to the CNPC[5].

The internal structure of ChP is schematically shown in (15), and the translations assigned to its Head and Spec are shown in (16).

(15)



[5] In order to capture (14a), I assume, in the spirit of Kim's treatment of (8a), that there is no TP immediately above ChP. This result can be ensured by stipulating that in the languages where definite IHRs exhibit the temporal intersection restriction, T may not select ChP as complement (it is not known at the moment whether this restriction is present in all the languages that have definite IHRs, or only in some of them).

Kim does not make explicit how the absence of TP is to be ensured, but she would also need some kind of stipulation. As far as I can see, the logical type she assigns to the relative complementizer enables it to combine with an AspP only, but since the same complementizer also occurs in EHRs, where she assumes that a TP exists, she would presumably need to have two distinct entries for this complementizer. The problem is exacerbated by data like (9)-(10), which suggest that double entries might be needed for all complementizers.

(16) a. $[[Ch_R]]^g = \lambda S \lambda s.S(s) \wedge (R)(s) = (g(R))(s)$
b. $[[DP_n]_R] = \lambda S \lambda s.S(s) \wedge R(s)=x_n$

In (16), the subscript 'R' may be viewed as a semantic feature interpreted as a free variable over thematic roles. (16a) says that the value of that feature is freely chosen by the assignment function g from among the roles pertaining to the eventuality denoted by AspP. Being a feature, we may assume Spec-Head agreement, so that after application of Ch to AspP, we may assume that the value of R is already specified in the translation of the specifier. To illustrate how things work, consider the derivation of the IHR in (1), whose syntactic structure is more explicitly represented in (17).

(17) Taro-wa $[_{DP}[_{NP}[_{CP}[_{ChP}\varnothing[_{Ch'}[_{AspP}[_{VP}$Yoko-ga reezooko-ni **kukkii-o hotondo** irete]
Taro-Top Yoko-Nom fridge-Loc **cookie-Acc most** put
-oita]∅]] ∅]-no]-∅]–o paatii-ni motte itta.
-perf-Ch-Czer-no-Det-Acc party-to brought
'Yoko put most cookies in the fridge and Taro brought them to the party.'

The compositional interpretation of (17) starts with the VP, which receives the interpretation in (18) (for ease of analysis, *most cookies* has been assigned the semantics of 'more than half of the (contextually assumed) cookies'); e is a variable over events, and **t** is the sum operator.

(18) $\lambda e.PUT(e) \wedge Ag(e)=Yoko \wedge *COOKIE (Th(e)) \wedge IN(e)=FRIDGE \wedge |Th(e)| > |t(*COOKIE)¡Th(e)|$

The next step concerns the level of AspP. The aspect is perfect with a target state, because the lexical verb is telic, and the translation assigned by Kim to this type of aspect is shown in (19). (19) applied to (18) yields (20) as the denotation of AspP.

(19) $[[Prf\text{-}Targ]] = \lambda Q_{<e,t>} \lambda s \lambda t_i \exists e[Q(e) \& Target(s,e) \& t_i \subseteq \tau(s)]$
where e, s, t_i , are variables over events, states and times respectively.
(20) $(\lambda Q_{<e,t>} \lambda s \lambda t_i \exists e[Q(e) \& Target(s,e) \& t_i \subseteq \tau(s)])$
$(\lambda e.PUT(e) \wedge Ag(e)=Yoko \wedge *COOKIE(Th(e)) \wedge IN(e)=FRIDGE \wedge |Th(e)| > |t(*COOKIE)¡Th(e)|) =$
$\lambda s \lambda t_i \exists e[PUT(e) \wedge Ag(e)=Yoko \wedge *COOKIE(Th(e)) \wedge IN(e)=FRIDGE \wedge |Th(e)| > |t(*COOKIE)¡Th(e)| \& Target(s, e) \& t_i \subseteq \tau(s)]$

The next level is that of Ch', where Ch applies to its complement, i.e., AspP. The only value for R that will yield an acceptable outcome is Theme (see Kim's (48a), which ensures this result by means of an axiom), so let us assume this is the value chosen by g. Application of (16a) to (20), followed by application of (16b) to the outcome and by Existential Closure over the event variable yields (21) (the time variable will ultimately get bound by the matrix T).

(21) $\exists s \lambda t_i \exists e[PUT(e) \wedge Ag(e)=Yoko \wedge *COOKIE(Th(e)) \wedge IN(e)=FRIDGE \wedge |Th(e)| > |t(*COOKIE)¡Th(e)| \& Target(s, e) \& t_i \subseteq \tau(s)] \wedge Th(s)=x_n$

Unlike Kim, who assigned a fairly complex logical type to the relative complementizer, we may assume that this complementizer is, just as in English-type EHRs, simply the identity function on propositions.

The next step is abstraction over the free individual variable, which yields a set of sums of cookies corresponding to the states induced by the various events of Yoko putting a majority of the contextually assumed cookies in the fridge. For concreteness, let us assume there were eight cookies in all, and that Yoko put seven of them in the fridge. The abstract at issue will include all the sums of five, six, and seven cookies in the fridge. At this point, we may assume that Maximalization applies to the abstract, yielding a singleton whose member is the sum of seven cookies in the fridge. This operation is precisely what Grosu & Landman (1998) proposed happens in definite relatives in general, and thus brings definite IHRs under the general theoretical umbrella of definite relative constructions[6].

The ensuing steps are straightforward. The items *kes/no* are simply interpreted as maximally underspecified nominal predicates, i.e., the identity function on individuals, so that the denotation of the complex NP is identical to that of the relative CP. Finally, given the singleton status of NP, a definite Determiner is straightforwardly coerced (see footnote 1). Note that Kim needed to stipulate the definiteness of the null external determiner, because bare nominal expressions can in principle be either definite or indefinite in Japanese and Korean, and IHRs are also 'bare' in this sense.

5. Summary and conclusions

This paper has pursued two twin goals. On the one hand, it has evaluated a number of analytical approaches to the semantically definite IHRs of Japanese/Korean IHRs, all of which crucially relied on the E-type strategy combined with a variety of additional constraints. The focus has primarily been on Kim (2007), which constitutes the most recent and ambitious attempt to deal with the different behaviour of the E-type strategy in IHRs and in discourses. It was shown that E-type approaches in general, and Kim's analysis in particular, are fraught with serious descriptive difficulties when confronted with the full range of relevant data, in addition to being conceptually non-optimal.

The second goal of the paper has been to propose an alternative analysis that avoids the objections which confront those earlier analyses, and adequately deals with both the descriptive and conceptual issues. The picture of Japanese/Korean IHRs that emerges from the proposed analysis is arguably that of a 'hybrid' construction, which has a pragmatic ingredient 'at the bottom' (insofar as the choice of an IH within the complement of Ch is free), and is governed by grammatical principles above that level (semantic equation, null operator A-bar movement, abstraction, and maximalization). Crucially, the relative clause is characterized as a **singleton predicate**, and thus fits effortlessly within the general class of definite relative constructions.

[6] Grosu & Landman (1998) and Grosu (2002) observe that the maximalization operation within definite relatives appears to be a primitive property in certain cases (in particular, in free relatives and correlatives), and an arguably derivable one in other cases. In (2b), for example, Grosu & Landman derive the individual denotation of the construction on the basis of the cardinalities of the various sums of entities defined by existential quantification over the individual variable, and the only way of unambiguously deriving an individual from a number is arguably by ensuring that a single <number, individual> ordered pair is under consideration. In the case of Japanese/Korean IHRs, a justification might be sought in the fact that without maximality, some of the information obtained by quantification of the IH would fail to be preserved in the meaning of the IHR.

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Why and how to distinguish between *pro* and trace*

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Starting from a well-known observation, namely that in a language like Hebrew there is no free alternation between traces and (overt) resumptive pronouns, this paper aims to demonstrate that even in languages with seemingly little or no resumption such as English, the distinction between a putatively null resumptive pronoun and trace is equally material. More specifically, I contend that positing a resumptive (i.e. bound variable) *pro* also in English-like languages is not only theoretically appealing for various reasons (a.o. ideas in Hornstein 1999, 2001, Boeckx & Hornstein 2003, 2004, Kratzer 2009), but also empirically adequate (as conjectured e.g. in Cinque 1990). The central claim of this paper however is that resumption is restricted to (sometimes concealed) relatives. Applying this proposal to languages like English, the distinction drawn between (resumptive or bound variable) *pro* and trace accounts for phenomena as diverse as lack of superiority effects, lack of weak crossover in appositives, lack of Principle C effects in relative clauses, and so-called ATB movement phenomena.

1. Introduction

Doron (1982) observed that in Hebrew, when a trace in a relative clause is c-commanded by a quantified expression, the sentence is ambiguous between a 'single-individual' and a 'multiple-individual' reading, as shown in (1), but if the trace position is filled by a resumptive pronoun, the multiple-individual interpretation is not available, as shown in (2).

(1) ha-iSa Se kol gever hizmin hodeta lo
the-woman Op every man invited thanked to-him
a. The woman every man invited thanked him (=y)
b. For every man x, the woman that x invited thanked x

(2) ha-iSa Se kol gever hizmin **ota** hodeta lo
the-woman Op every man invited her thanked to-him
The woman every man invited thanked him (=y)

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Sharvit (1999) notes similar interpretive differences between *wh*-questions with resumptive pronouns versus traces, e.g. that *wh*-questions with resumptive pronouns only allow functional answers but not pair-list readings, as in (3) vs (4)[1].

(3) ezyo iSa kol gever hizmin _
which woman every man invited
'Which woman did every man invite?'
a. et Gila
Acc Gila
b. et im-o
Acc mother-his
c. Yosi et Gila; Rami et Rina
Yosi Acc Gila; Rami Acc Rina

(4) ezyo iSa kol gever hizmin **ota**
which woman every man invited her
'Which woman did every man invite?'
a. et Gila
Acc Gila
b. et im-o
Acc mother-his
c. *Yosi et Gila; Rami et Rina
Yosi Acc Gila; Rami Acc Rina

In spite of these differences however, Sharvit (1999) challenges Doron's (1982) contention that there is a fundamental difference between traces and resumptive pronouns, since the contrast seen in (1) versus (2) disappears in specificational sentences, as in (5).

(5) ha-iSa Se kol gever hizmin _ / **ota** hayta iSt-o
the-woman Op every man invited her was wife-his
a. The woman every man invited was his (he = y) wife.
b. For every man x, the woman x invited was x's wife

To account for the contrast between specificational and predicational sentences in this respect, Sharvit (1999) claims that relative clauses in equative (i.e. specificational) sentences correspond to so-called "natural" functions, whereas in non-equative (i.e. predicational) sentences, they correspond to lists of arbitrary pairs. Therefore, although traces are licensed in both types of sentences, resumptive pronouns are licensed only in equative sentences. But as Sharvit herself assumes based on Chierchia (1991, 1993), the pair-list reading is also a functional reading (albeit of a different kind). That is, semantic type alone does not differentiate between 'natural' functions and sets of (possibly arbitrary) pairs; both are functions from individuals to individuals (i.e. type <e,e>). Sharvit (1999:602) suggests that: "resumptive pronouns

[1] Sharvit shows that this holds "even if the pronoun cannot alternate with a trace for syntactic reasons (i.e., to avoid an ECP violation)" … "[a] pair-list reading is strongly disfavoured even if the second member of each pair happens to be, for example, the mother of the first member" (Sharvit 1999:595):
(i) ezyo iSa kol gever rakad ita
Which woman every man danced with-her
'Which woman did every man dance with?'

support natural function readings but not pair-list questions because natural functions (for whatever reason) are *permissible referents of pronouns*, but sets of arbitrary pairs are not" [emphasis mine]. To put it differently, Sharvit's analysis rests on the assumption that there is a semantic/pragmatic (but crucially *not* syntactic) distinction between natural functions and pair-lists, which goes beyond semantic type denotation and which relies heavily on the notion of D-linking. And as is well-known, D-linking causes turmoil also elsewhere, as I discuss next.

To start with, while English generally exhibits superiority effects, as in (7), so-called "D-linked" *wh*-phrases (Pesetsky 1987) can violate superiority, as in (8a,b), both of which are acceptable to many English speakers (Frazier & Clifton 2002).

(7) a. Mary asked [who$_i$ [e$_i$ read what]]? (Pesetsky 1987:104 (21))
b. *Mary asked [what$_i$ [who read e$_i$]]?

(8) a. Mary asked which man$_i$ [e$_i$ read which book]? (Frazier & Clifton 2002)
b. Mary asked which book$_i$ [which man read e$_i$]?

Secondly, across languages, resumption and/or clitic doubling in interrogatives is restricted to D-linked *wh*-phrases, as illustrated in (9a) vs. (9b) for Hebrew and in (10a) vs. (10b) for Albanian (see Boeckx 2003 for an overview).

(9) a. eyze student nifgaSta (ito) (Hebrew, Sharvit 1999:591)
which student you-met with-him
'Which student did you meet?'
b. *mi nifgaSta ito
who you-met with-him
'Who did you meet with?'

(10) a. Çfarë (*e) solli Ana? (Albanian)
what 3S,CL,ACC brought Ana$_{NOM}$
'What did Ana bring?'
b. Cil-in libër (e) solli Ana?
which-the$_{ACC}$ book 3S,CL,ACC brought Ana$_{NOM}$
'Which book did Ana bring?'

Having introduced some initial observations across several languages and the crux of Sharvit's (1999) analysis of the Hebrew data, I go on to present an alternative syntactic analysis, which can also be extended to account for a variety of other, hitherto obscure facts of English syntax, such as lack of superiority effects and of weak and strong crossover in several construction types, as well as ATB phenomena. This analysis also accounts for other phenomena across languages, such as weak and strong crossover effects in constructions without resumptive pronouns versus their obviation in constructions with resumptive pronouns. Crucially (and unlike Sharvit's analysis), my analysis does not rely on D-linking, but rather explains some of the well-known D-linking effects obtaining across languages and construction types.

2. The nuts and bolts of the proposal

The central claim that I put forward is that resumption is restricted to (sometimes concealed) relatives. Specifically, I contend that a sentence such as the Hebrew one in

(4), which contains a resumptive pronoun, has the bi-clausal structure in (11), the highlighted part of which is a silent/null copular construction containing a concealed relative clause[2]:

(11) $[_{CP}$ which woman$_k$ is $[_{DP}$ the one / such (woman$_k$)$]_j$ $[_{CP}$ that every man invited her$_j$]]

The structure in (11) is thus a cleft-like specificational construction[3]. In other words, the *wh*-phrase in (4) has not been moved from the object position of the verb (occupied by the resumptive pronoun), but is (externally) merged in an upper clause[4].

This analysis straightforwardly derives the grammaticality contrast between (9a) and (9b). The intuition behind my analysis fits also with other facts discussed in Sharvit (1999) concerning the distribution of different types of (roughly) distributive versus functional readings of relatives in specificational versus predicational contexts (e.g. as discussed in section 1)[5,6]. Moreover, this analysis accounts for other facts across languages, such as weak and strong crossover effects in constructions without resumptive pronouns or clitics versus their obviation in constructions with resumptive pronouns or clitics (Demirdache 1991, Shlonsky 1992, Kallulli 2008, a.o.).

To illustrate, the structural difference between the 'resumptive' (or 'clitic') and the 'no-resumptive' (or 'no-clitic') versions of a sentence like (10b) is corroborated by the following facts, discussed in detail in Kallulli (2008). In Albanian and other so-called "clitic doubling" languages, a sentence like the one in (12a) is ungrammatical due to a weak crossover effect, just as its English counterpart is. However, the allegedly "clitic doubled" counterpart of (12a) is grammatical, as shown in (12b). That is, the clitic in (12b) triggers weak crossover obviation.

(12) a. *Cil-in djalë$_i$ pa nëna e tij$_i$?
which-the$_{ACC}$ boy saw.3S mother agr his
'*Which boy$_i$ did his$_i$ mother see?'

b. Cil-in djalë$_i$ e pa nëna e tij$_i$?
which-the$_{ACC}$ boy 3S,CL,ACC saw.3S mother agr his
'Which boy$_i$ is such that his$_i$ mother saw him$_i$?'
(or: 'Which boy$_i$ is the one that his$_i$ mother saw?')

Under my analysis, the structure of (12b) differs from that of (12a) in that it is bi-clausal. More specifically, in line with what was stated earlier for the relevant Hebrew data (see the structure in (11)), the structure of (12b) contains a null copular construction with a concealed relative clause in it, as given in (13). Hence, the grammaticality of (12b) is unsurprising since the *wh*-phrase here c-commands the

[2] Similar proposals (involving a bi-clausal structure) have been made by McCloskey (1990) and Demirdache (1991:42ff) for questions with resumptive pronouns in Irish and Arabic, respectively.
[3] Note also that the linking of the resumptive pronoun inside the (concealed) relative clause and the *wh*-phrase in the upper clause is mediated by a constituent that has been deleted under identity with a previously mentioned linguistic expression (i.e. 'woman').
[4] Of course the question arises as to the exact structure of the upper clause (i.e., where inside this clause is the *wh*-phrase merged) but this does not have a bearing on the main issue at hand here.
[5] Note in this context that pair-list readings disappear across islands (Hagstrom 1998, Dayal 2002).
[6] The multiple-individual reading of (1) still poses the question how it is obtained, since the quantified expression seems to bind a pronoun outside its scope (recall that relative clauses are scope islands and as such they presumably block long-distance QR). To date, there is no account for this phenomenon, to the best of my knowledge.

embedded subject *nëna e tij* 'his mother' from an A-position, therefore binding the pronoun in it.

(13) [$_{CP}$ cilin djalë$_i$ është i tillë/ai (djalë)$_i$ [CP që e$_i$ pa nëna e tij$_i$ *pro*$_i$]]
which boy is such/it/the one (boy) that 3S,CL,ACC saw mother his pro

In other words, the clitic in (12b) 'doubles' a non-overt (resumptive) pronoun, namely *pro* (Sportiche 1996) and not the *wh*-phrase *cilin djalë* 'which boy', which is externally merged in an upper clause (analogous to the *wh*-phrase in (11))[7]. That is, the clitic version of (10b) has a bi-clausal structure, unlike its no-clitic version.

Other facts that speak for the correctness of this analysis can be adduced. Strikingly, while the *wh*-phrase in the no-clitic version of (10b) can appear in what seems to be its base position, namely the object of the verb *solli* 'brought', still retaining its question interpretation, the *wh*-phrase in the 'clitic' / resumed version in (10b) cannot do so, as shown in (14a) versus (14b), respectively.

(14) a. Ana solli cil-in libër?
Ana$_{NOM}$ brought which-the$_{ACC}$ book
'Ana brought which book?'
b. *Ana e solli cil-in libër?
Ana$_{NOM}$ 3S,CL,ACC brought which-the$_{ACC}$ book

Naturally the account of the structural asymmetry between the 'clitic' and the 'no-clitic' versions of (10b) that I have posited leads one to expect asymmetries with respect to reconstruction. As I have shown in Kallulli (2008), these do indeed exist. For instance, while the (mono-clausal) sentence in (15a) shows Principle C effects, the minimally different one in (15b) containing a clitic does not.

(15) a. *Cil-ën fotografi të Anës$_i$ pa (ajo)$_i$ në gazetë?
which-the$_{ACC}$ picture of Ana saw.3S she in newspaper
'*Which picture of Ana$_i$ did she$_i$ see in the newspaper?'
b. Cil-ën fotografi të Anës$_i$ e pa (ajo)$_i$ në gazetë?
which-the$_{ACC}$ picture of Ana 3S,CL,ACC saw-3S(she) in newspaper
'Which picture of Ana$_i$ is such that she$_i$ saw it in the newspaper?'

Under the bi-clausal analysis that I have proposed, the lack of Principle C effects in (15b) is straightforwardly accounted for, since under this analysis, the clitic doesn't double the *wh*-phrase in the matrix clause but an (embedded) bound variable object *pro*.

3. Bound variable / resumptive *pro* in English: The scope of the proposal

3.1. Accounting for lack of superiority

As mentioned earlier, while English generally exhibits superiority effects, D-linked *wh*-phrases can violate superiority; see (7) vs. (8). I submit that the lack of superiority effects in (8b) as well as more generally is due to the existence of a tacit bi-clausal

[7] The fact that the *wh*-element *cilin djalë* 'which boy' in (12b) bears accusative and not nominative case, can be accounted for under a realizational framework such as Distributed Morphology: basically, the bound morpheme *–in* (the,acc), not being able to attach to the phonetically null (i.e. *pro*) embedded object in (13), will attach to its recovering element *cili djalë* 'which boy' in the matrix.

structure. Specifically, I contend that a construction like (8b) has a structure like the one in (16), the highlighted part of which is a (already introduced) null copular construction containing a chunk elided under identity with a previously mentioned linguistic expression (namely *book*). That is, *which book* is not raised from inside the relative clause but is externally merged in the upper CP[8].

(16) Mary asked [$_{CP}$ which book$_k$ is [DP such / the one (book$_k$)]$_j$ [CP that which man read it$_j$ / *pro*$_j$]]

Thus, the dependency between the clause-initial *wh*-phrase in the first embedded CP and its purported thematic position (i.e. the complement of the verb *read*) is under this proposal not established by *wh*-movement, but by variable binding (cf. also Adger & Ramchand 2005). That is, the 'thematic' position is occupied by a phonetically null pronoun, either *pro* or PF-elided, depending on the exact nature of the concealed relative clause[9]. This pronoun is in turn bound either by the (restrictor of) the *wh*-phrase (in the upper CP), or alternatively by a (PF-deleted) copy of the restrictor of this *wh*-phrase[10]. Hence, the null pronoun inside the concealed relative is a bound variable (i.e. resumptive) pronoun. In sum, there is no superiority violation at all.

Turning to the distinction between trace and (resumptive) *pro*, while one may imagine it to be material for languages where it can be shown that (overt) resumptive pronouns have different properties from traces (such as for instance Hebrew, as we have seen), it is legitimate to ask whether this distinction is independently motivated for English. I believe it is. First, the existence of resumptive *pro* in English has already been argued for in Cinque (1990) in connection with parasitic gap constructions, who also observed that parasitic gaps are restricted to the category DP, as shown in (17a)[11]. Note that an overt pronoun is also possible here, as in (17b).

(17) a. This is a neighbourhood which you should work in before residing *(in).
b. This is a neighbourhood which you should work in before residing in (it).

[8] Note the alternation between the elements *such* and *the one* in the structure in (16). For the purposes of this paper, it is not important to distinguish between these two alternatives. What is important here is the existence of a concealed relative clause in the structure. Note also that depending on whether the concealed relative is a *such that* or its *the one that* alternative, the bound variable pronoun inside it will be either PF-deleted, or simply null (i.e., *pro*), but at any rate non-overt.

[9] Note in this context that as has often been pointed out "[b]inding is a […] relation between NPs and does not require strict semantic identity between the two coreferential NPs involved […]; it can also be a very loose relation, a vague 'aboutness' relation" (Demirdache 1991: 177), as shown in (i):

(i) a. John, I hate the bastard. (Demirdache 1991:176)
b. John, I really hate that man / the man.
c. The shirt that John is wearing, I really hate that kind of shirt.
d. John, I really can't stand that type of guy.

This is a relevant point, because it shows again that the hidden relative clause in the structure in (19) may be either a *such that* or a *the one that* relative.

[10] Of course this issue depends on the exact structure inside the first (embedded) CP, specifically the precise external merging position of the *wh*-phrase inside this CP. Crucially, however, note that a sentence such as 'What is it (that) you want?' is completely fine in English, the idea being that the post-copular (null) DP in the structure in (16) has the same status as the overt pronoun 'it' in such sentences.

[11] See also Ross (1967), Perlmutter (1972), Obenauer (1984/1985), who argue that all extractions involve empty resumptive pronouns.

Secondly, notice that contexts such as (18a,b) require a gap, contrasting in this way with their close paraphrase, namely the so-called " 'unlyrical' such that" relative (Quine 1960:110), which needs an overt resumptive pronoun, as shown in (19)[12].

(18) a. Which movie is of the kind$_i$ that you like (*it$_i$)?
b. Which movie is the one$_i$ that you like (*it$_i$)?

(19) Which book is such that you bought *(it)?

This amounts to evidence that the gap in constructions such as (18a,b) is in fact a resumptive *pro* and not a trace, on a par with the overt resumptive pronoun *it* in (19)[13].

Finally, positing a resumptive *pro* in English is also theoretically appealing in view of the ideas in Hornstein (1999, 2001) and Boeckx & Hornstein (2003, 2004), who argue for the existence of arbitrary (i.e. non-resumptive) *pro* in (non-obligatory) control structures. That is, if a language has arbitrary *pro*, the unavailability of resumptive *pro* in that language is hard to account for.

Turning to null copulas, these have been postulated for languages as different as Arabic (Benmamoun 2000), Austronesian (Paul 2001), Hebrew, Russian (Pereltsvaig 2001), Irish (Carnie 1997), Japanese (Fukaya & Hoji 1999), Korean (Lee 1995), Turkish (Ince 2006), Welsh (Rouveret 1996) and even English (Larson, den Dikken & Ludlow 1997). Indeed copular constructions in English have been notoriously recalcitrant to analysis, and their behaviour also in relative clauses and other contexts (such as ellipsis-related environments) has been rather difficult to accomodate in linguistic theory (cf. Merchant 2001, 2004)[14].

3.2. Accounting for weak crossover obviation in appositives

A well-known observation (originally due to Safir 1986) is that appositives do not exhibit weak crossover effects, as shown in (20b), thus contrasting with restrictive relatives, as shown in (20a).

(20) a. ?*A man$_i$ who$_i$ his$_i$ wife loves t$_i$ arrived early.
b. John$_i$, who$_i$ his$_i$ wife loves t$_i$, arrived early.

My core proposal can also be extended to account for the obviation of weak crossover effects in appositives, whose structure will accordingly be as in (21).

(21) John$_i$, who$_i$ is [$_{DP}$ such / the one]$_i$ that his$_i$ wife loves him$_i$/pro$_i$, arrived early.

3.3. Extension to ATB movement phenomena

Across-The-Board (ATB) movement phenomena as in (22) have long puzzled syntacticians as the single exception to the Coordinate Structure Constraint (CSC).

[12] In this context, see also van Riemsdijk (2007) for the idea that *such* in a *such that* relative in fact means *the kind (of x) that*. In other words, the antecedent of the bound variable pronoun is deleted under identity with a previously mentioned linguistic expression also in these constructions.

[13] Note that such that relatives are also fine with overt 'copies' involving an overt pronominal only:
(i) Which book is such that you read that book?
(ii) *Which book is such that you read the book?

[14] For arguments on a lexically and structurally non-uniform copula *be* in English, see Becker (2000, 2004), Schütze (2004), and references therein.

(22) Who did John like and Mary hate?

My proposal can be extended to this type of construction, as given in (23)[15].

(23) Who_k is [DP the one / the person]$_j$ [CP that [$_{IP}$ John liked *pro*$_j$] and
[$_{IP}$ Mary hated *pro*$_j$]]

3.4. Accounting for lack of Principle C reconstruction effects
As noted by Munn (1994), sentences like the one in (24) constitute a problem for the promotion or head-raising analysis of relative clauses given in (25a), since under this analysis the configuration in (25b) should be ungrammatical due to illicit binding of a name (i.e., a Principle C violation).

(24) The picture of John$_i$ which he$_i$ saw in the paper is very flattering.

(25) a. [$_{DP}$ … name$_i$ …]$_j$ [$_{CP}$ pronoun$_i$ … t$_j$]
b. [$_{DP}$ … ~~name~~$_i$ …]$_j$ [$_{CP}$ pronoun$_i$ … name$_i$] (LF reconstruction)

Furthermore, sentences like (24) contrast in this respect with analogous *wh*-questions, as given in (26) through (29) (examples from Sauerland 1998 and Safir 1999).

(26) a. The picture of John$_i$ which he$_i$ saw in the paper is very flattering.
b. *Which picture of John$_i$ did he$_i$ see in the paper?

(27) a. The pictures of Marsden$_i$ which he$_i$ displays prominently are generally the attractive ones.
b. * Which pictures of Marsden$_i$ does he$_i$ display prominently?

(28) a. I have a report on Bob's$_i$ division he$_i$ won't like.
b. *Which report on Bob's$_i$ division won't he$_i$ like?

(29) a. In pictures of Al$_i$ which he$_i$ lent us, he$_i$ is shaking hands with the President.
b. *Which pictures of Al$_i$ did he$_i$ lend us?

Yet, the (b) examples in (26) through (29) are fine in certain contexts such as contrastive ones (evidenced through the use of the emphatic reflexive expression), as shown in (30).

(30) a. Which picture of John$_i$ did he$_i$ himself see in the paper?
b. Which pictures of Marsden$_i$ does he$_i$ himself display prominently?
c. Which report on Bob's$_i$ division won't he$_i$ himself like?
d. Which pictures of Al$_i$ did he$_i$ himself lend us?

My proposal can be extended to the (a) sentences in (26) through (29), as well as to those in (30). That is, I propose that a sentence like the one in (26a) is derived from the structure in (31) in a manner analogous to what was said for the structure of (8b).

[15] Of course more needs to be said about the extension of my proposal to ATB phenomena, especially on the issues of *do*-insertion and the structural parallelism needed to block sentences like: **Who did John like and Mary hate(d) Bill*.

Thus, in a sentence like (26a) the *wh*-phrase neither 'reconstructs' in its putative external merging site (i.e., as the object of the verb *saw*), nor is deleted at PF[16].

(31) [$_{CP}$ [$_{DP}$ The picture$_k$ of John$_i$ [$_{CP}$ which is [DP such / the one (picture$_k$)]$_j$ [$_{CP}$ that he$_i$ saw it$_j$/*pro*$_j$ in the paper]]] is very flattering]

Similarly, I suggest that a sentence like the one in (30a) has the structure in (32)[17].

(32) [$_{CP}$ [$_{DP}$Which picture$_k$ of John$_i$] is [$_{DP}$ such / the one (picture$_k$)]$_j$ [$_{CP}$ that he$_i$ himself did see it$_j$/*pro*$_j$ in the paper]]

Finally, my proposal on lack of Principle C reconstruction effects does not entail lack of Principle A reconstruction effects. To account for the perseverance of Principle A effects, I adopt Guilliot & Malkawi's (2006) analysis (henceforth: G&M) of reconstruction and typology of resumption. G&M argue that what really matters for reconstruction is on the one hand the type of resumption, and on the other hand the type of binding condition. Specifically, G&M show that reconstruction with weak resumption (e.g., a clitic) is sensitive to the type of binding condition (there is reconstruction with bound variable anaphora but not with R-expressions) but insensitive to islandhood (it occurs even in strong islands), whereas reconstruction with strong resumption (e.g., a strong pronoun or epithet) is sensitive to islandhood (present in no or weak islands and absent in strong islands), but insensitive to the type of binding condition. The central claim in G&M is that reconstruction of an XP follows from interpretation of a **copy** of that XP (and not the XP itself). Capitalizing on the difference between two distinct processes as the origin of copies, namely movement and ellipsis, G&M argue that reconstruction with weak resumption follows from ellipsis (specifically via Elbourne's 2001 NP-deletion analysis of third person pronouns to resumptive pronouns), whereas reconstruction with strong resumption is the result of movement.

4. Comparison with other accounts

My account of lack of Principle C effects is similar to that in Safir (1999), which builds on Fiengo & May's (1994) independently motivated mechanism of *Vehicle Change*. This is a procedure that replaces a name with its 'pronominal correlate' (i.e. a pronoun bearing the same index), as depicted below:

(33) A picture of John$_i$ which he$_i$ thought Mary would like to have was recently stolen.

(34) A picture of John$_i$ which he$_i$ thought Mary would like to have *picture of John$_i$* was recently stolen. (LF reconstruction)

(35) A picture of John$_i$ which he$_i$ thought Mary would like to have picture of him$_i$ was recently stolen. (*Vehicle Change*)

[16] See Citko (2001) for the view that the *wh*-phrase in the (a) sentences in (26) through (29) does not reconstruct but is instead deleted at PF.

[17] A non-trivial question concerning the application of my proposal to strong crossover obviation effects, as well as ATB phenomena, involves the phenomenon of *do*-insertion. I leave this issue and the complex of problems that it relates to (such as for instance the nature of the relation between *do* and the main verb) open to future research.

But as Citko (2001) remarks, there is a major problem with Safir's Vehicle Change approach, namely that it predicts the lack of Principle C effects in many environments in which they do occur, as mentioned earlier.

The crucial differences between Safir (1999) and my analysis are that: (i) I take the bound variable pronoun to be *pro* (or a PF-deleted one if the structure involves a concealed *such that* relative), which has a different, obviously more restricted, distribution in English relative to that of overt pronominals; and (ii) *pro* is co-indexed with a c-commanding (elided copy of a) DP in a phonetically null copular structure. Given the restricted distribution of *pro* or putatively other null pronouns in English (relative to overt ones), my analysis eschews the objections raised against Safir (1999) in Citko (2001). However, the question arises as to why emphatic *wh*-questions pattern with relative clauses while non-emphatic *wh*-questions don't. That is, what is it that licences the concealed relative clause strategy, why is it available for the (a) sentences in (26) through (29) (as well as for (30)) but not for the respective (b) sentences, since both involve D-linked *wh*-phrases? At this point, I can only speculate that it is the (hidden) bi-clausal structure of emphatic *wh*-questions that is responsible for their presuppositional structure, which as mentioned earlier and as repeated under (36) is different from that of their non-emphatic counterparts, among other things.

(36) a. Which book did Ana bring (if any)?
b. Which book is such that Ana brought it (#if any)?
c. Which book is of the kind that Ana brought (#if any)?
d. Which book is the one that Ana brought (#if any)?

In sum, D-linked *wh*-phrases come in (at least) two blends, which is exactly how I have analysed D-linked *wh*-questions, namely as structurally mono-clausal versus bi-clausal ones. Thus, the implication of my claim that resumption is restricted to (sometimes concealed) relatives is only one way: resumption with D-linked *wh*-phrases entails a bi-clausal structure, but bi-clausality does not entail resumption/clitic doubling. This is in line with Sharvit's (1999:595) observation that "satisfaction of the D-linking requirement alone does not suffice to license a resumptive pronoun". One ramification of this view is that also 'simple' *wh*-phrases should always have D-linked uses. Though this is sometimes disputed, the well-formedness of sentences such as the ones in (37) confirms the correctness of my analysis.

(37) a. What is the thing that John likes? (What are the things John likes?)
b. Who is the one that John likes? (Who are the ones that John likes?)
c. What / who is it John likes?

To conclude, my analysis derives Sharvit's 'D-linking' assumption in a purely syntactic fashion.

5. Conclusion

My main agenda in this paper was to show that though locality constraints are often hard to detect because of spell-out forms that obscure the presence of agreement chains, they still exist and are obeyed, a view that has been argued for most recently in Kratzer (2009) in connection with the relationship between bound variable pronouns and their antecedents. More specifically, I have argued that agreement chains can be

established through part-whole or specificational relations, and that in particular, resumption is restricted to (sometimes concealed) relatives. It is precisely this (concealed) structure that is responsible for apparent lack of superiority effects, among other things. Crucially, I have provided evidence for a phonetically null resumptive pronoun with properties different from traces also in languages like English.

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In this paper I investigate the processing of N(egative)-words such as *mai* (ever) in Italian, by means of the Event-Related Potentials methodology. N-words pose some questions about their syntactic and semantic behavior, such as: a) what principles underlie their distribution; b) which is the role of syntactic and semantic factors in determining their meaning; c) how the brain processes these linguistic items in grammatical and ungrammatical sentences. In the present work I will provide some theoretical and psychological argumentations to address these questions.

1. Introduction

The syntactic and semantic behavior of Negative Polarity Items (NPIs) and N(egative)-words (N-words) is currently under debate in the linguistic community (cf. Zeijlstra, 2008; Zanuttini, 1997; Chierchia, 2006). Roughly, NPIs are a class of words (quantifiers like *anyone*, adverbs like *ever* and predicates like *lift a finger*) that are licensed under the scope of negative operators. N-words, on the other hand, share a similar behavior with NPIs when they occur in negative contexts, but they behave like negative quantifiers, adverbs or predicates when they occur in positive contexts. The nature of the debate regards the mechanism underlying the licensing and the interpretation of these two types of linguistic items. In this work we will discuss some linguistic and experimental evidence in favor of the existence of common mechanisms at play during the processing of both N-words and NPIs. Further, we will argue for the hypothesis that N-words are in fact NPIs, with some additional properties such as the capacity of inserting a covert negation in the structure, which is responsible of their self-licensing. Finally, we will claim that this property is driven by a semantic mechanism geared to check the polarity of the local environment in which the N-word occurs, and we will provide some speculations about what sort of process it might look like.

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2. NPIs and N-words in the linguistic theory

2.1 Distributional properties of N-words

N-words are negative markers that do not always carry a negative meaning. In Italian, for instance, words such as *nessuno*, *niente* and *mai* - which mean *anyone/no-one, anything/nothing, ever/never* - are generally interpreted with a negative meaning when they occur in preverbal position (1a), where the auxiliary *ha* 'has' counts as the main verb in analytic tenses. If they occur postverbally, on the other hand, they require a negative context (e.g. an overt negative particle *non* that applies to the verb, such as in 1b) to be licensed (for an overview on this phenomenon see Zanuttini, 1997).

(1) a. Maria *mai* ha bevuto una birra
'Maria never drank a beer'
b. Maria non ha *mai* bevuto una birra
'Maria did not ever drink a beer'

Although the distribution of N-words is not completely uniform across the languages displaying this phenomenology (cf. Zeijlstra, 2008, for cross-linguistic comparisons), their main characteristic is that exemplified in the contrast between (1a) and (1b). Namely, in (1a) *mai* occurs in preverbal position, in a positive context (i.e. it is not in the scope of any negative operators), and it means *never*. In (1b), on the other hand, *mai* occurs in postverbal position, under the scope of a negative particle (*non*, which means *not* in Italian), and it means *ever*. To explain this complex behavior, some theories (cf. Zeijlstra, 2008) state that N-word licensing and interpretation is a case of negative concord, akin to gender or number agreement. Along this view N-words are an instance of morphosyntactic agreement with a negative operator. This explains why multiple morpho-syntactic occurences of negation yield only one semantic negation. Under the minimalist framework, N-words would carry an uninterpretable formal feature [uNEG], whereas negative operators carry an interpretable one [iNEG]. Before discussing the implications of this proposal we will briefly review some accounts on NPI licensing, in which some issues will be raised that are relevant to the distributional properties of the N-words themselves.

2.2 The meaning and distribution of NPIs.

The behavior of NPIs has been argued to be regulated by syntactic principles. Klima (1964) proposed that NPIs are licensed by an "affective" trigger that has to c-command the NPI. Progovac (1993) provided a binding-theoretic account for NPI licensing, where NPIs are licensed by a negation or a formal operator (Op) in the specifier position of the same clause. More recent theories, on the other hand, maintain that the NPIs licensing is determined by their meaning and their function (Ladusaw, 1979; Kadmon and Landman, 1993). Krifka (1995), for instance, proposed an account to explain why words such as *any* are licensed in Downward Entailing[2] environments, which do not have to be associated to a negative meaning. Along this view, an NPI like *any* activates alternatives and its meaning corresponds to an existential predication plus an obligatory scalar implicature. Providing a sketch of the details, the meaning of (2a) and (3a) is laid out in (2b) and (3b).

[2] A Downward Entailing context is characterized by its property of licensing inferences from a set to a proper subset. The scope of clausal negation, the antecedent of conditionals, the restriction of universal quantifier, questions, negative predicates, *before*-sentences etc. are claimed to be Downward Entailing, and NPIs are licensed in all these contexts (cf. Chierchia, 2004).

(2) a. John did not eat any potatoes
b. $\neg\exists$x (potato(x) $\wedge$ ate (J,x), potato, P | P $\subseteq$ potato)

(3) a. * John ate any potatoes
b. $\exists$x (potato(x) $\wedge$ ate (J,x), potato, P | P $\subseteq$ potato)

The meaning of (2a), as formalized in (2b), can be paraphrased as follows. There is not a set of things *x*, such that *x* are potatoes and they were eaten by John. Then, the scalar implicature (potato, P | P $\subseteq$ potato) tells that this holds for any property *P* that is entailed by "potato" (i.e. whatever more specific kinds of potato). In a Downward Entailing context, such as the scope of the negation in (2), the implicature yields a true meaning (e.g. if John did not eat any potato, there's no more specific kind of potato that he could have eaten), whereas in (3) it yields a contradiction[3]. Therefore (3a) is ruled out, not because it violates some syntactic requirment, but rather it produces a contradiction at the level of Logical Form. Chierchia (2004, 2006) made a similar proposal under which NPIs like *ever* activate domain alternatives (i.e. intervals of times). Then, an operator resembling that introduced by focus (cf. Rooth, 1985) is responsible for interpreting the NPI through an exhaustification of the alternatives. This *exhausitivity* operator, thus, requires that all the alternatives are entailed by the assertion, otherwise they must be false. In a concrete example, (4a) is a sentence where *ever* occurs in a non-Downward Entailing context.
Its meaning is exemplified in the formula in (4b), which can be spelled out as follows: there exists at least an interval of time in the Domain ({a, b, c}) such that I drank a beer at that time. The relevant alternatives are listed in (4c), and they may be ordered in a semi-lattice (as in 4d) where the more restricted (hence stronger) alternatives lay at the bottom, and the broader one, which is equivalent to the meaning of the sentence, is on top of the diagram. In an affirmative sentence such as (4a), which is upward entailing, all the alternatives entail the meaning of the propositions. According to the meaning of the exhaustivity operator, thus, they must be negated. This operation yields a contradiction, spelled out in (4e.iii).

(4) a. * I ever drank a beer.
b. Assertion: $\exists$t$\in${a, b, c} [drink(beer, me,t)]
c. (Proper) Alternatives :
i. $\exists$t$\in${a, b} [drink(beer, me, t)] ii. $\exists$t$\in${b, c} [drink (beer, me, t)]
iii. $\exists$t$\in${a, c} [drink (beer, me, t)] iv. $\exists$t$\in${a} [drink (beer, me, t)]
v. $\exists$t$\in${b} [drink (beer, me, t)] vi. $\exists$t$\in${c} [drink (beer, me, t)]

d.

	a $\vee$ b $\vee$ c	
a $\vee$ b	b $\vee$ c	a $\vee$ c
a	b	c

e. *Exhaustification*
i. $O_{ALT}(p) = p \wedge \forall q \in ALT[\, q \rightarrow p \subseteq q]$
ii. $O(\exists t \in D\, [drink(beer, me,t)]) =$
$\exists t \in D[drink(beer, me,t)] \wedge \forall q \in ALT\, [\, q \not\subset \exists t \in D\, [drink(beer, me,t)] \rightarrow \neg\, q]$
iii. (a $\vee$ b $\vee$ c) $\wedge\neg$ a $\wedge\neg$ b $\wedge\neg$ c

[3] The contradictory meaning can be paraphrased as follows. There exist some instances of potato that John ate, and for any kind of more specific potatos (e.g. fried potatoes, baked potatoes, rotten potates etc.) he did not eat it.

It may be showed that if *ever* occurs in a downward entailing context, the entailment relation among the alternatives is reversed. That is, all the alternatives are weaker - and entailed - by the proposition, therefore the meaning of the exhaustification winds up being consistent. Krifka (1995) and Chierchia's (2004, 2006) approaches share many features, such as the idea that the meaning of an NPI depends on the entailing pattern of the local environment where it occurs and that NPIs have an existential force plus an obligatory scalar-like implicature computed on the proper alternatives. If the context is Downward Entailing, the NPI yields a consistent meaning, otherwise it's contradictory. With this respect Gajewski (2002) elaborated on the idea of L-analytic sentences, which are propositions that are either tautologies or contradictions at the level of the Logic Form. He noted that exceptive sentences induce ungrammaticality when they modify existential quantifiers (as in "some students but John left the room") because they lead to an analytic contradiction, and the same reasoning may account for the ungrammaticality of NPIs in sentences such as (3a) or (4a).

2.3 Parallels in the interpretation of NPIs and N-words

As we mentioned, NPIs are licensed in several kinds of Downward Entailing contexts, not only in those introduced by negation operators, such as wh-questions and *if*-clauses. A key observation, here, is that N-words may occur in the same contexts as well, without carrying a negative meaning, in pre-verbal or post-verbal position either.

(5) *Wh*-Questions:
a. Chi *mai* ha mangiato la torta sacher a Siena? (Preverbal *mai*)
b. Chi ha *mai* mangiato la torta sacher a Siena? (Postverbal *mai*)
'Who ever ate the sacher-pie in Siena?'

(6) *If*-clauses:
a. Se *mai* vincerò la lotteria, ti regalerò un diamante. (Preverbal *mai*)
b. Se vincerò *mai* la lotteria, ti regalerò un diamante. (Postverbal *mai*)
'If I ever win the lottery, I'll give you a diamond as a gift.'

In other terms, *mai* in (5a,b) and (6a,b) has a semantics identical to a "pure" NPI like *ever* even though there is no negation present in the sentence (cf. Chierchia, 2004, for a deeper analysis of NPIs across different languages). To account for this fact we may posit that N-words are just like "pure" NPIs, with an additional feature. That is, if they occur in a non-Downward Entailing context, they insert a covert negation in the phrase structure, which is itself responsible for their licensing. This account challenges the idea that the meaning of N-words is driven by negative concord, in that it relies on the semantic property of the context (i.e. Downward Entailingness), which, e.g. in *if*-clauses and questions, prevents N-words from carrying a negative meaning. The generalization embraced by the exponents of semantic/pragmatic accounts for NPIs licensing and their distribution then straightfowardly extends to N-words.

(7) In those contexts where NPIs are licensed (i.e. Downward Entailing), N-words do not carry a negative meaning and are interpreted as NPIs.

From a psycholinguistic point of view, the claim in (7) suggests that similar processes might be at play during the interpretation of both NPIs and N-words. Critically, while processing these items the parser has to ensure that the local context possesses the right semantic requirements for NPIs to be interpretable, and for N-words to select the

right meaning (i.e. do not add a covert negation in Logical form in certain contexts). Note that linguistic accounts of NPIs licensing (Krifka, 1995; Chierchia, 2004, 2006; Ladusaw, 1979) do not make any assumption with respect to processing concerns. Their generalization is just about the distribution of NPIs in natural languages[4]. To investigate whether semantic processes are exploited on-line by the parser while processing N-words, we designed an experimental study described in the following paragraphs.

3. The processing of NPIs

3.1 Syntactic and semantic processing in the brain.

The Event Related Potentials (ERPs) methodology is a powerful instrument to investigate brain processes associated with different kinds of linguistic mechanisms in real time. In the psycholinguistics literature two differential waves are often associated with syntactic and semantic processes and violations. The N400 is a well-studied electrophysiological component (Kutas & Hillyard, 1983) that is elicited by semantic anomalies, such as in (8b), compared to control sentences such as (8a). It is a negative ongoing wave arising at 250-300ms on central electrodes after the presentation of the critical stimulus (i.e. *radios* in 8b), raising to its maximum at 400ms and decaying after roughly 500ms.

(8) a. Turtles eat *leaves* and various plant parts.
b. Turtles eat *radios* and various plant parts.

The P600, on the other hand, is an ERP component associated with syntactic processing load and structural repair strategies induced by syntactic or semantic anomalies. It is a positive ongoing wave arising on centro-posterior sites at roughly 500-600ms after the presentation of the critical word (i.e. *hopes* in 9b, cf. Osterhout et al., 1995; Friederici et al., 2002).

(9) a. The elected officials *hope* to succeed
b. The elected officials *hopes* to succeed

3.2 Electrophysiology of NPIs

There are some studies that explored the processing of NPIs by means of ERPs methodology. Shao and Neville (1998) compared the processing of *ever* with that of *never* in an affirmative proposition (as in 10), with the former being un-licensed and yielding an ungrammatical sentence. They found an anterior negativity between 300-500ms for *ever*, followed by a centro-posterior positivity after 600ms (P600).

(10) Max says that he has *ever/never* been to a birthday party.

[4] In principle, for example, it might be conceivable that the semantic generalization on the distribution of NPIs (i.e. they occur in Downward Entailing contexts) became crystallized in the syntax. Along this hypothesis each Downward Entailing head should have a syntactic feature [DE] that is checked by the NPI when it's interpreted. Though this idea is less parimonious than relying on a single, unitary semantic principle, it could well be, as a matter of fact, how things go on in the brain. Hence, our experimental inquiry is headed to disentangle syntactic and semantic factors associated to NPIs and N-words interpretation.

This study, while potentially revealing, was criticized (Xiang, 2008) because the authors compared the elctrophysiological activity elicited by two different words.
Drenhaus et al. (2006) conducted an ERP study in German on the processing of licensed vs. unlicensed NPIs. They employed the same word *jemals* (similar to *ever* in English) in two conditions. In (10a) the NPI is grammatical in that it occurs under the scope of a negative quantifier (*Kein*, that is *no* in English). In (10b) it is embedded in the same sentence, except for the substitution of *Kein* with the existential quantifier *ein* (*a* in English).

(10) a. Kein Mann war jemals glücklich.
'no man was ever happy'
b. *Ein Mann war jemals glücklich.
'a man was ever happy'

They found that the unlicensed *jemals* (as in 10b) yielded both the N400 and P600 wave. Their interpretation of the results is that NPI violations are due to a semantic/pragmatic integration problem. Such problem is reflected in the N400 wave, which is often found in semantic anomalies having different sources (i.e. contextual integration problems, implausible continuations etc.), and this problem induces a structural repair of the ill-formed sentence, resulting in a P600.
Xiang et al. (2008) conducted an ERP study in English, presenting subjects sentences containing licensed vs. unlicensed occurrences of *ever*.

(11) a. *No/Very few* restaurants that the local newspapers have recommended in their dining reviews have *ever* gone out of business.
b. *Most restaurants that the local newspapers have recommended in their dining reviews have *ever* gone out of business.

In (11a) *ever* is grammatical as it is c-commanded by *no* or *very few*, which generate a Downward Entailing environment. (11b), on the other hand, is ungrammatical as *ever* is not licensed by any Downward Entailing operator. The authors found a P600 that was not preceded by any significant wave (i.e. no N400 was found). They interpreted this result by proposing that NPI violations, though they generate a semantic mismatch, elicit a structural/syntactic repair of the sentence that is reflected in the P600. However, they argued that the N400 found by Drenhaus et al. was not associated to a semantic processing but rather to attentional and task-related strategies adopted by subjects to individuate an ill-formed sentence (acceptability judgments were requested by Drehanus et al. whereas comprehension questions were posed to subjects by Xiang et al.).
The results of these studies leave open some questions. First, it is not clear whether the N400 is systematically elicited by NPI violations, and if so, why it would be the case since N400s are usually a result of difficult contextual integration and unexpected words. Strictly speaking, "turtles eating radios" should be processed rather differently from "men ever having a beard", because one involves syntactic and semantic licensing while the other involves only world knowledge. Secondly, if NPI violations do not elicit a pattern different from other syntactic violations, it would be plausible that NPI licensing is a syntactic driven phenomenon, handled by a feature checking mechanism rather than any process associated with semantic operations sensitive to polarity and entailing patterns. To address these questions we design an experimental paradigm to study N-words (i.e. *mai*) in Italian. Through this experiment we aim to

figure out a) whether N-words are processed as NPIs in postverbal position, as in English and German, b) whether they elicit semantic-associated components (e.g. N400), c) whether the same brain processes are at play while interpreting N-words in preverbal position, either in grammatical or ungrammatical sentences, and d) what, if any, effect of the ungrammaticality surfaces in the ERP measures.

4. An ERP study on the processing of N-words

4.1 Experimental design and predictions

24 subjects were presented with 160 sentences such as (12a-d), word by word, while their EEG was recorded. At the end of each sentence subjects had to judge the acceptability of the sentence they just read, grounding on their intuition about the well-formedness of the sentence.

(12) a. Sul giornale si legge che il presidente non ha *mai* avuto un'amante.
'The newspaper reports that the president has not ever had a lover.'
b. *Sul giornale si legge che il presidente ha *mai* avuto un'amante.
'The newspaper reports that the president has ever had a lover.'
c. Sul giornale si legge che il presidente *mai* ha avuto un'amante.
'The newspaper reports that the president has never had a lover.'
d. *Sul giornale si legge che il presidente non *mai* ha avuto un'amante.
'The newspaper reports that the president has not never had a lover.'

Each of these sentences was composed by a proposition containing *mai*, which was embedded in another proposition to discourage subjects from reading it as an interrogative sentence, which would render, e.g., (12b) well-formed as a question.
In (12a) *mai* occurs postverbally within a grammatical sentence, as it is licensed by a negative marker (*non*), whereas in (12b) it raises ungrammaticality as the negative marker is absent. Thus (12b) is the counterpart of an NPI violation with N-words, provided that N-words are interpreted just as NPIs when occurring in postverbal position. In (12c) *mai* occurs preverbally and in a positive context (i.e. embedded in a relative clause and following a noun, that is, "il presidente"), hence it is normally interpreted with a negative meaning (i.e. *never*). In fact, as we noted above, in Italian N-words such as *mai*, when occurring in preverbal position and in a non-Downward Entailing context, are interpreted with a negative meaning. In (12d) *mai* yet occurs preverbally as in (12c), but there is a negative particle placed right before it (i.e. "...non mai..."). So, (12d) induces a strong sense of ungrammaticality as no N-words may occur after a negative particle in Italian[5]. We might speculate on the reason why (12d) is ungrammatical. For instance, it's possible that the overt negative particle inserts a negation in the structure, which crashes against the covert negation automatically promped in by *mai*, when used preverbally. Be it as it may, this condition is useful to check whether the syntactic mismatch blocks the interpretation of *mai* in preverbal position, or if its interpretation results in a ERP wave that is similar to those elicited by NPI or N-word violations in postverbal position.

[5] Actually, *non* can modify a predicate ("Un cane non tranquillo" A dog not calm), as can *mai* ("un cane mai tranquillo" A dog never calm) but they cannot co-occur next to each other ("*un cane non mai tranquillo"). The only case where *mai* can occur after *non* is in a common Italian idiom ("come non mai"). In ancient Italian, however, *mai* could occur before *non* at least in infinitive sentences ("secreto sicurissimo per non mai morire"). This informs us that there is no structural reason, in principle, why this form (corresponding to (12d)) is ruled out, but it's likely to be a specific rule of Italian.

There is another important difference between our study and the other ones conducted on German and English NPI violations, and it is about the rescue strategies employed by speakers while coping with NPIs vs. N-words violations. Namely, while in German and English, sentences such as (10b) and (11b) hardly convey any meaning at all, an Italian sentence like (12b) is generally interpreted as - rescued towards the meaning of - (12a). This, in fact, is consistent with what all the subjects reported after the experiment, and derives from the fact that *mai* in Italian is often associated with a negative meaning. Further, also a sentence such as (12d) gets a uniform interpretation, which is that of (12c). Hence it's plausible to assume that some repair strategies come in play while readers are processing (12d), in deleting one of the two negations from the phrase structure. Otherwise (12c) would have got a double negation reading, which was not reported by almost any subject at all. We do believe, thus, that this facts can play a crucial role in the processing of ungrammatical sentences such as (12b) and (12d), and offer a great advantage with respect to studies on NPI violations in Germanic languages. Namely, it should favor a deeper processing and more successful reanalysis (i.e. 12b interpreted as 12a, and 12d interpreted as 12c, respectively) towards a meaninfgul informational content.
Taking stock, (12a) serves as a control sentence, where *mai* normally occurs in a proper negative context, against which all the other conditions may be compared. (12b) is expected to elicit an N400 (index of semantic incongruency) and a P600, or a P600 alone, as reported by Xiang et al. (12d) is predicted to elicit a structural repair (P600), but we don't know in advance if *mai* in preverbal position, placed immediately after *non*, causes any problem in its interpretation (perhaps an N400). Finally, what can we expect with respect to (12c), where *mai* occurs preverbally, and it is given a negative meaning? If we maintain that these ERP components are correlates of neurophysiological processes which are called in to solve some heavy semantic or syntactic incongruencies, it might be plausible that (12c) does not present any difference with respect to (12a) whatsoever. If, on the other hand, these components also reflect an additional processing load caused by complex syntactic and semantic structures, (12c), although grammatical, might elicit either a N400 or a P600. In fact, the preverbal use of *mai* is associated with a syntactic topicalization operation, whereby the Negative Phrase containing *mai* moves higher in the structure (Rizzi, 2004).
Further, it might turn out that the parser exploits the semantic/pragmatic operations associated to the meaning of an NPI (i.e. exhaustification or scalar implicature) in order to figure out whether the N-word has to be interpreted with a negative or existential (i.e. NPI-like) meaning. Along this hypothesis, the processing of (12c) could be reflected in the same processing components that are elicited by (12b), despite the former sentence is grammatical whereas the latter is not.
Finally, recall that preceding studies employed pure NPIs (*ever* and *jemals* in English and German, respectively). Such items were not associated to a negative meaning. Shao and Neville (1998), on the other hand, compared the processing of *ever* to that of *never*, finding an anterior negativity followed by a P600 for *ever*. It could be that N-words, with respect to pure NPIs, elicit an ERP pattern similar to that study, in that in both cases the processing of negative meaning is involved.

4.2 Results

The acceptability judgment for the four experimental conditions showed an overall good accuracy (around 85%) for (12a), (12b) and (12d), whereas (12c) was judged

grammatical in 68% of time. This confirms our expectations that (12c) is harder to process, at least when read in word by word visual presentation.
The N-word violation with *mai* occurring postverbally (12b), compared to the grammatical control (12a), elicited a centro-parietal negativity between 250 and 400ms. This component has the same scalp distribution of the classic N400, but an earlier onset (by about 50-100ms). This wave was followed by an anterior positive deflection (FP600) arising after 400ms, followed by a centro-posterior positive wave around 600ms (P600).
The N-word violation with *mai* occurring preverbally (12d), compared to (12a), elicited the same ERP components: early N400, followed by FP600 at 400ms, followed by P600 at 600ms.
The grammatical sentence with the N-word *mai* occurring preverbally and carrying a negative meaning (12c), compared to the other grammatical condition with *mai* occurring postverbally under the scope of negation (12a), elicited an early N400 (even more pronounced than in the other contrasts) followed by a FP600, but not by a significant P600.
The statistical analysis (ANOVA) in the N400 time-window (250-400) showed a significant interaction of the factors *grammaticality* (12a,c vs. 12b,d) and *type* (12a,b vs. 12c,d), which confirms that the N400 was higher for (12c) with respect to the ungrammatical conditions (12b and 12d). In the FP600 time window (400-550ms) the *grammatical* factor was significant. Also a significant interaction between the *electrode* and *grammaticality* factors was found, attesting that the grammatical conditions were more positive in frontal electrodes, whereas the ungrammatical ones were more positive in posterior sites. Finally, in the P600 time windows both *type* and *grammaticality* factors were significant, in absence of significant interactions between them.

4.3 Discussion

This experiment was conducted to investigate how the brain processes in real time a particular class of linguistic items called N-words. We started by noticing that N-words behave as NPIs when they occur in postverbal position, while they introduce a negative meaning when they occur in preverbal position and in a non-Downward Entailing context. Otherwise, if they occur preverbally but in a Downward Entailing context, they are still interpreted as NPIs, namely with an existential meaning. Thus, the parser has to check, in some way, the surrounding context in order to figure out whether an N-word occurring preverbally is to be interpreted with a negative meaning or not. The question of how this might happen shares some features with a similar question raised by studies on the meaning of NPIs and on their processing. That is, how is an NPI is licensed in Downward Entailing contexts, how the parser can become aware of this property in real time, and how does it handle an NPI violation - namely an unlicensed occurrence of an NPI.
The results stemming from this experiment provide some new evidence in favor of the fact that N-words violations have much in common with NPIs violations. Sentences such as (12b) compared to grammatical sentences such as (12a) elicit the same biphasic pattern (N400 plus P600) found by Drenhaus et al. (2006), together with a new component (the FP600) whose interpretation in the literature is still under debate (Friederici et al., 2002; Kaan and Swaab, 2003). Leaving the FP600 aside for a moment, we will focus now on the N400 and the P600 effects. The N400 was argued to be associated to a semantic mismatch induced by the NPI violation by Drenhaus et al., whereas Xiang et al. attributed it to attentional processes geared to individuate a

deviant sentence. Our results strongly support the first interpretation. First because the N400 was elicited by (12b) vs. (12a), which resembles the NPI violation pattern employed in previous studies, and suggests that N-words are really NPIs when occurring postverbally. Second, an N400 was elicited by grammatical sentences, and this discourages the idea that it is due to some task dependent control strategies. On the contrary, in this experiment the higher N400 for (12c) attests that this component may be found in association to a deeper and succesful processing of a *well-formed* structure, as the preverbal occurrence of *mai*. Finally, the N400 was also found in (12d), where an overt negative particle generated a strong syntactic mismatch with the N-word. To account for this result, it's plausible to hypothesize that the interpretation of *mai* continued successfully, regardless of the structural mismatch, up to the point where the covert negation inserted by the preverbal *mai* clashed against the overt negation introduced by *non* in (12d).

Summing up, these results suggest that the N400 is, indeed, a neurophysiological component that may be associated with NPI processing. Recall, however, that we found N400 for (12b), (12c) and (12d), which were anticipated by 50-100ms[6]. It might be conceivable - and it's fodder for further research - that the early N400 can be distinguished from the classic one, and it might reflect different causes (i.e. world knowledge mismatch vs. logic contradiction) as well as different sources.

For what concerns the P600, on the other hand, this study is in line with the classic interpretation given to this component. That is, a P600 was elicited by ungrammatical sentences, such as (12b) and (12d), whereas it was attenuated if not absent in (12c). Therefore, it is likely to be associated to structural repair of an ill-formed phrase structure. In the case of N-words or NPI violations, thus, the need of a repair could be induced by a semantic problem, such as a contradiction at the level of logical form, as discussed above.

Finally, we found a FP600 for (12b), (12c) and (12d). This result is somehow surprising as it was never found in these kind of studies. In the psycholinguistics literature the FP600 has been interpreted as a sign of syntactic complexity (Frederici et al., 2002) or discourse complexity (Kaan and Swaab, 2003). Both these ideas would fit with the contrasts displayed by the conditions in our study. In (12b) a novel negation should be added to the phrase structure, to rescue the interpretation of *mai*. In (12c) the Negative Phrase, whose *mai* is the specifier, is argued to be moved towards the left periphery of the sentence through a mechanism of topicalization. Finally, in (12d) it is possible that the covert negation introduced by *mai* is added to the structure, and then removed through a repairing process. All these mechanisms do involve a repair of the sentence, and impose additional syntactic or semantic operations for the parser, which could be reflected in the FP600.

A similar, but perhaps deceptively simple explanation, is that the FP600 is really a neurophysiological correlate of negation. This idea traces back to Shao and Neville (1998), who found an anterior negativity in almost the same time-window for *ever* versus *never*, with the former being unlicensed. In ERPs, the polarity of a component is just matter of interpretation. Shao and Neville attributed this effect to a processing difficulty imposed by the unlicensed *ever* vs. the grammatical *never*. However, it might be the case that the anterior negativity for *ever* is, indeed, an anterior positivity

[6] It's worth notinghere, that through visual inspection of the graphs reported by Saddy et al., 2004, the N400 they found started at about 250ms like that discussed in our study. Also, they adopted a 300-400ms time-window in the statistical analysis, which is remarkably earlier than the usual time-windows utilized to look for an N400 effect (i.e. 350-450). This is tatamount to saying that N400 they found could be exactly as early as the one we found in this study.

associated to the processing of *never*, which was succesfully interpreted with a negative meaning. Though this interpretation is purely speculative, it would find support in our results. In (12b) the negation was added to rescue the meaning of *mai*, in (12c) it was the meaning of the preverbal N-word, and in (12d) it could be added, and then removed a second time when crashing against another negation in the structure.

5. Final conclusions

The results of this experiment bring converging evidence that NPI processing - not only NPI distribution - is a phenomenon governed by semantics. This holds if we assume that N-words are just NPIs with an additional property, namely, that of carrying a negative meaning if they occur in a context that is syntactically and semantically constrained (i.e. in preverbal position and in a non-downward entailing environment). In addition we have brought in some linguistic evidence that this is a reasonable assumption (see (7)).

One issue that is left open is why a preverbal occurrence of an N-word requires more semantic processing, as attested by the greater N400 found in this study. The idea we put forward is that the parser, upon encountering an N-word like *mai* in preverbal position, in order to check whether the context is Downward Entailing interprets the N-word as if it were an NPI. This means, with respect to (12c), that the result of this interpretation is exactly as contradictory as that of an unlicensed NPI (as in 12b). At this point, however, the parser knows that it has to introduce in the phrase structure - and possibly interpret - a negation that will create a suitable semantic environment for the meaning of the N-word, which is still identical to that of a pure NPI. The evidence we provide in favor of this hypothesis is that (12c), which is a grammatical sentence, elicited an N400 and a FP600 like (12b) and (12d), which are ungrammatical, but it does not show a consistent P600. In other words, the process whereby a preverbal *mai* is interpreted is incredibly similar, from a neurophysiological perspective, to that of the N-word violations we constructed, with the exception of the index of structural repair (P600), which for (12c) is not needed, as this sentence is allowed by the grammar.

In conclusion, our findings support a view along which the parser, unpon encountering an N-word, exploits both the information about its syntactic position with respect to the verb (i.e. pre- vs. post-verbal) and that about the semantic context in which it occurs. Furthermore, we brought linguistic and psycholinguistic evidence favoring the idea that the meaning of N-words is strictly associated with that of NPIs. When they occur in a Downward Entailing environment N-words are, in fact, interpreted as NPIs, in that their violation elicit a neurophysiological component typical of semantic mismatches and NPI violations. This can be accounted for by positing that NPI violations are contradictory at the Logical Form, and this causes their ungrammaticality. When they occur in a non-Downward Entailing context, on the other hand, they introduce a negation in the structure, which is taken to be responsible for their self-licensing. Strikingly, however, this mechanism requires a certain amount of semantic processing that is arguably geared to check the local semantic environment, perhaps through the interpretation of a semantic operator (e.g. Exhaustivity operator or Scalar Implicature). Nevertheless, only when N-words violate the rules of the language - e.g. when occurring postverbally in a non-Downward Entailing environment, or when occurring preverbally after a negative particle - prompt a reanalysis of the phrase structure indexed by a P600 effect.

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Labelling, Multiple Spell-Out and the Final-over-Final Constraint*

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This paper explores the relationship between labelling and Kayne's Linear Correspondence Axiom, arguing that the latter requires some version of the former. More specifically, a copy theory of labelling, compatible with inclusiveness, is proposed which renders phrase structure 'linearizable' via the LCA. This labelling mechanism, coupled with Uriagereka's (1999) Multiple Spell-Out, makes a number of interesting predictions about the properties of left-branches, which are shown to have empirical support. Most importantly, an apparently correct distinction is predicted to hold between underlying specifiers and derived specifiers, and more generally between head-final vs. head initial specifiers. These differences, it is proposed, serve to explain a number of seemingly unrelated facts: (i) the restrictions on extraction from derived specifiers in English, (ii) patterns of complement extraposition, (iii) the lack of CED effects in harmonically head-final languages, and (iv) the Final-over-Final Constraint (cf. Holmberg 2000).

1. Kayne's Linear Correspondence Axiom

Kayne's (1994) Linear Correspondence Axiom (LCA) proposes a direct correlation between hierarchical structure and linear order, often thought of in the following way:

(1) Linear Correspondence Axiom (informal version)
Asymmetric c-command maps to precedence.

This correlation is straightforward as long as a structure is uniformly right-branching (abstracting away from the bottom pair) as in (2a), however, structures such as those in (2b) present a non-trivial challenge for (1), because no total order is specified directly by the asymmetric c-command domains of terminal nodes:

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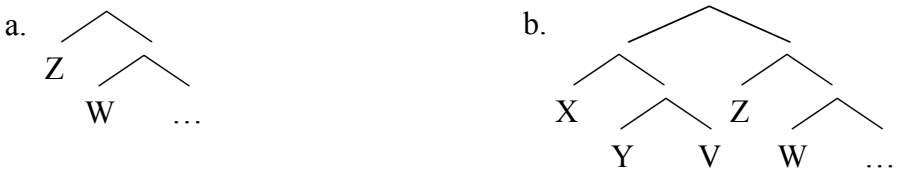
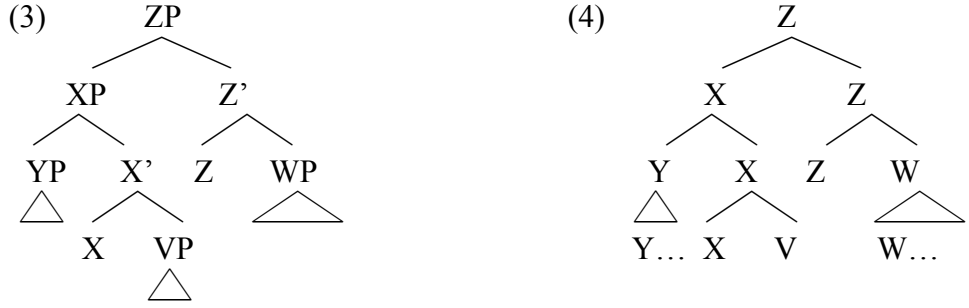
(2)



Taking a sisterhood definition of c-command, in (2b), neither X nor Y asymmetrically c-commands Z nor W, nor vice versa. Given that natural language is widely assumed to allow structures such as those in (2b) (i.e. branching specifiers), the question is how the LCA can hold in such cases. In Kayne (1994) this problem is avoided by assuming that the structures created by merge are more complex than those in (2), containing labels which themselves create additional precedence pairs via asymmetric c-command. In Kayne's terms, projection is conceived of as X-bar theory (3), but the same effect holds of Chomsky's (1995) Bare Phrase Structure (4):



These supplementary precedence pairs in turn create a new problem for linearization: contradictory ordering commands. For example, taking a simple sisterhood definition of c-command, Z' asymmetrically c-commands YP and X in (3), but XP also asymmetrically c-commands Z and WP. Kayne (1994) resolves this problem by distinguishing between categories and segments in his definition of c-command:[1]

(5) Definition of c-command (original version, Kayne 1994:18)
X c-commands Y iff X and Y are categories and X excludes Y and every category that dominates X dominates Y.[2]

The elimination of Z' as a c-commander removes contradictory precedence pairs but once again leads to an underspecified order: no asymmetric c-command holds in either direction between Z and VP for example. This problem is only apparent, though, as Kayne makes use of dominance in his formal version of the LCA:

(6) Linear Correspondence Axiom (Kayne 1994:6)
[For a given phrase marker *P*, where *d* is the non-terminal to terminal dominance relation, *T* the set of terminals and *A* the set of ordered pairs $<X_j, Y_j>$ such that for each j, X_j asymmetrically c-commands Y_j], d(*A*) is a linear ordering of *T*.

[1] Chomsky (1995) proposes that this idea can be maintained from a BPS perspective. For discussion cf. Chomsky 1995:242, 437 fn. 33, 2001:40.
[2] Note that another consequence of this version of the category/segment distinction is that specifiers actually c-command out of their phrase. I abstract away from this prediction here as it will ultimately prove irrelevant.

In these terms, the linearization of the terminals dominated by VP depends on the precedence pairs established by XP. This ensures that a whole complex specifier like XP (including YP and VP) will precede Z (and WP).[3]

To summarize, the LCA can only linearize structures such as (2b) with the help of a number of ancillary assumptions: (i) some theory of projection/labelling, (ii) a segment/category distinction, (iii) a notion of dominance as well as asymmetric c-command in the LCA. From a Minimalist perspective one is urged to question both whether these assumptions are absolutely necessary and if so, whether they can be justified on independent grounds.

In the remainder of this article I will claim that in order to maintain the insight of the LCA (i) seems to be required, whereas (ii) & (iii) do not. It will be further argued that the elimination of (iii), in particular, renders the LCA both more restrictive and more explanatory. Section 2 will discuss labelling and explore but ultimately reject a possible way of maintaining the LCA in the absence of labelling. Section 3 will propose that the most Minimalist way to think of labelling is in terms of copying. This makes some interesting predictions about word order possibilities which are explored in the remainder of section 3. Section 4 briefly considers some rather obvious challenges facing this approach and suggests some possible solutions. Finally, section 5 concludes and outlines avenues for future research.

2. LCA without Labelling

In recent years, there has been much debate as to the status of labels in Minimalist theory. It has been noted that labelling, as described by Chomsky (1995), involves adding material not present in the numeration during the course of the derivation, and as such violates inclusiveness (cf. Collins 2002, Seely 2006). From an empirical perspective, it has been claimed that effects previously attributed to labelling can be derived by other means. For example, Collins (2002) argues that labelling is not needed for c-selection, and that a label-free theory of selection actually seems more explanatory in some cases. Nonetheless, it seems that labels are theoretically problematic but in some cases empirically necessary (cf. Boeckx 2008, Citko 2008).[4] A relevant question is therefore whether labelling is a crucial component of the LCA. In this following section I will consider an attractive way to eliminate the need for labelling from the LCA, based on Uriagereka's Multiple Spell-Out, before showing that it is empirically problematic.

2.1. Multiple Spell-Out

Uriagereka (1999) proposes an approach to linearization which would appear to eliminate the need both for labelling and dominance in the LCA. As we have seen, the label-free product of merge is not asymmetric enough to enable linearization via the LCA as soon as a complex specifier is present (cf. (2b) above repeated here as

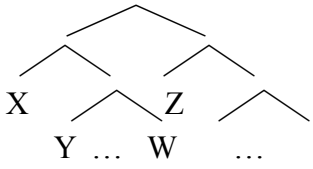
[3] I am simplifying here for reasons of space. Kayne makes a distinction between terminals and categories, as is standard in X-bar theory, so dominance is required in any case to relate the two. Under BPS, however, the role of dominance becomes more suspect.

[4] This is implicitly recognized by Hornstein (2009), when he proposes that labelling or rather endocentricity is *the* defining characteristic of natural language (NL). In his terms, labelling is *the* central first-factor property of NL, merge and other locality principles are third factor, and thus more general properties of biological systems.

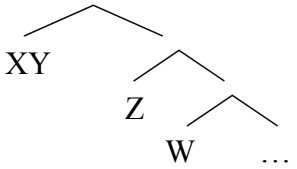
(8)).[5] What Uriagereka proposes is that a strict LCA, as in (7) coupled with the need for total order essentially rules out structures like (8) and forces them to look like (9):

(7) *Strict LCA*: If α asymmetrically c-commands ß, then α precedes ß.

(8)



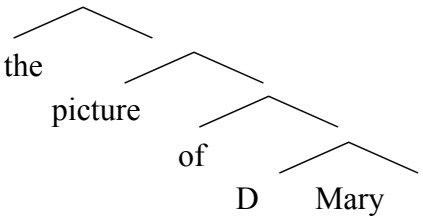
(9)



To derive this, he proposes that the number of applications of Spell-Out (SO) in the course of a derivation is subject to last resort. Because of the existence of Multiple Spell-Out (MSO) and (7), all complex phrases will undergo SO before they can be merged in a specifier position. Without this additional application of SO, complex specifiers could not be ordered with respect to the clausal spine via (7):

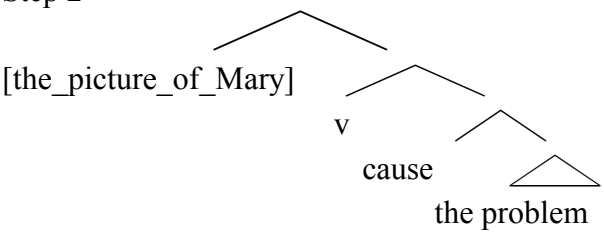
Figure 1: Multiple Spell-Out

Step 1



SO ⇒[the_picture_of_Mary],

Step 2



For this reason, all underlying specifiers are predicted to disallow subextraction, as they behave like complex lexical items. This appears to derive Huang's (1982) Condition on Extraction Domains (CED):[6]

(10) ***Who** did [**a picture of** t] cause the problem? (two applications of SO)
(11) **Who** have you seen **a picture of**? (one application of SO)

MSO and the strict LCA are therefore highly Minimalist as they allow us to eliminate the need for labels and dominance and also serve to derive the CED.

2.2. Empirical problems with Multiple Spell-Out

Despite the obvious appeal of MSO, it is unfortunately too restrictive. The immediate challenges can be summarized as follows:

[5] A potential objection arises from the fact that without labels it is actually not clear why it is specifiers and not head+complements which are targeted for SO. I assume that SO of head+complement is ruled out by the presence of selection features on the projecting head.

[6] Huang's CED is actually stated in terms of government and as such the predictions it makes are more nuanced than presented here.

(i) Condition on Extraction Domains (Huang 1982:505)
A phrase A may be extracted out of a domain B only if B is properly governed.

The strong islandhood of most adjuncts plausibly has the same explanation, as Uriagereka (1999) proposes.

(i) The existence of remnant movement,[7]
(ii) The special behaviour of derived specifiers,
(iii) The non-universality of subject islands,
(iv) Object extraction in head-final languages.

Nunes and Uriagereka (2000) claim that extraction from derived subjects is impossible, using the following example:

(12) *Who was [a picture of t] taken (by Bill)?

They propose to explain the ungrammaticality of (12) by making SO a subcomponent of move (giving us 'freezing'). In their system, this is not stipulated, but rather it is forced by chain uniformity, based on the premise that any complex specifier will (eventually) require an additional application of SO to be linearized. This assumption, coupled with the chain uniformity condition conspires to rule out extraction from an eventual derived specifier at any point in the derivation as follows:

(13) *Who was [a picture of ~~who~~] taken [a picture of ~~who~~](subject unlinearisable)
(14) *Who was <a picture of who> taken [a picture of ~~who~~] (non-uniform chain)
(15) *Who was <a picture of who> taken <a picture of who>(no extraction)

In (13) the derived specifier cannot be linearized according to the strict LCA, for by now familiar reasons. In (14), extraction should technically be permitted from the lower, un-linearized copy, but the derivation crashes because the two copies of *a picture of who* form a non-uniform chain. Finally, in (15), the chain is uniform, but both copies behave like complex lexical items, banning extraction. Nunes & Uriagereka (2001) note that their account predicts that extraction from moved constituents should generally be banned. In actual fact, their analysis also rules out any kind of remnant movement, which would be an equivalent configuration to (13-15): extraction taking place from a complex phrase which will eventually move to a specifier position. Given the strong empirical evidence for remnant movement (Müller 1996), this is the first way in which label-free MSO is too restrictive.

A further problem comes from the fact that the data regarding derived subjects are more complex than implied above. Ross (1967) notes that in some cases, pied-piping seems to rescue extraction from derived specifiers. As Chomsky (2008) notes, this is true only of *derived* subjects, pied-piping does not substantially improve extraction from *underlying* subjects:[8]

(16) Of whom has a picture been taken?
(17) *Of whom did a picture cause the problem.

It would appear that MSO, as it stands, cannot account for this distinction.

A further empirical challenge comes from the fact that not all languages have a subject/object asymmetry with regard to subextraction (cf. Lasnik and Saito 1992, Mahajan 1992, Stepanov 2007). In Japanese, for example, extraction from a clause marked with nominative case is no worse than extraction from a clause marked with

[7] Note that the existence of remnant movement of head-initial phrases will also prove problematic for the alternative proposed later in the paper. I return to this point below.
[8] Additional, highly interesting complications are discussed by Sauerland & Elbourne (2002).

accusative case, according to Lasnik & Saito. Thus extraction is marked but not impossible in both cases:

(18) ??dono hon-o Mary-ga [John-ga *t* katta koto]-o
which book-acc Mary-nom John-nom bought fact-acc
mondai-un siteru no
problem-to marking
'Lit. Which book is it that John is calling the fact that John bought it into question?' object

(19) ??dono hon-o Mary-ga [John-ga t katta koto]-ga
which book-acc Mary-nom John-nom bought fact-nom
mondai-da to omotteru no
problem-cop COMP think
'Lit. Which book is it that Mary thinks that the fact that John bought it is a problem?' subject [Japanese, Lasnik and Saito (1992:42)]

This is also unexpected given MSO, which predicts *all* left branches in *all* languages to behave like strong islands.

Finally, given the crucial role of the LCA in regulating MSO, it is critical that the latter can accommodate LCA-based approaches to head-finality. The latter necessarily involve either snowballing, or roll-up movement (cf. Kayne 1994, Koopman and Szabolcsi 2000 *inter alia*). As MSO appears to completely block remnant movement, it follows that head-finality must be derived along the lines proposed by Kayne (1994): very local comp-to-spec movement. Unfortunately, a problem also arises in relation to this kind of approach: left-branching structures in OV languages are expected to be strong islands, contrary to fact (e.g. German, Hindi):

(20) saare phal ravi-ne socaa ki siitaa-ne [$_{XP}$ t khaaye] the
all fruits Ravi-ERG thought that Sita-ERG eat.PERF.PL be.PAST.PL
'All the fruit, Ravi thought that Sita had eaten.' [Hindi, Mahajan (2003:233)]

(20) presumably involves movement of XP (VP or a larger constituent) to a position asymmetrically c-commanding the auxiliary.[9] If SO were a subcomponent of move, then this would result in freezing of the object inside this XP, contrary to fact. In fact, as is often noted, OV languages are often more permissive than VO languages with respect to object scrambling (cf. Kayne 2004). It would appear, then, that MSO is too restrictive on several counts. In the next section I show that these empirical challenges can be resolved in an explanatory way by a copy theory of labelling.

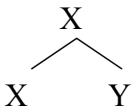
3. Why the LCA needs labelling after all

3.1. Labelling as copying

While the operation 'copy' is involved in the labelling operation as described in Chomsky (1995), it is clear that the *label* of a complex phrase does not have the status of a *copy* in any real sense. Rather, as discussed by Seely (2006), the label X in (21) is shorthand for the set formed by merge (i.e. {Z,{X,Y}), because "each node is understood to stand for the sub-tree of which it is the root" (Chomsky 1995: 398-99):

[9] This is less obvious in German because of verb cluster effects.

(21)



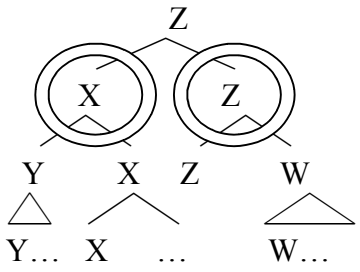
In relation to the LCA, the asymmetric c-command domain of a label X will necessarily define the linear position not just of X but of *all the terminals dominated by X* (in the set denoted by X, i.e. X & Y). As a result, if we adopt the Chomskyan notion of labelling then we are forced also to adopt dominance as part of the LCA.

If, on the other hand, we take the 'copy theory of labelling' seriously and take X to be simply a copy of the terminal X then we get a very different result. In this case, the asymmetric c-command domain of X will have no effect on the linear position of Y. Let us consider what the implications of this would be. Assume a simple projection algorithm such as the following (abstracting away from adjunction here):

(22) If X selects and merges with Y then copy X to dominate {X, Y}.

This will lead to the same contradictory ordering commands discussed above in relation to X-bar theory and BPS:

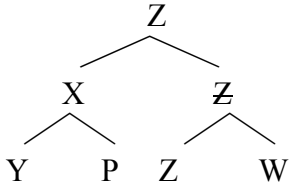
(23)



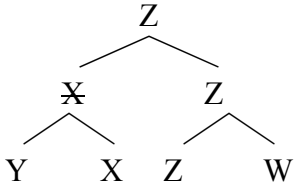
In (23), a copy of Z asymmetrically c-commands a copy of X and vice versa. Given that all three copies of Z are non-distinct, we cannot have recourse to the notion of segment/category to distinguish them so this problem must be otherwise resolved.

In influential work, Nunes (1995, 2004) has proposed that where contradictory ordering commands arise as the result of XP-movement, they are resolved via 'deletion' at the mapping to PF. Let us assume that the same thing applies to labels: problematic labels/copies are deleted at the PF interface in order to enable linearization. In (23), the PF component must delete one of the circled labels in order to enable a total ordering between Z & X. Following Nunes, we can also assume that economy will favour the deletion of lower copies over higher copies, all else being equal.[10] Thus deletion of the highest label of X will be less economical than the deletion of the intermediate copy of Z and (24) will be preferable over (25):

(24)



(25)



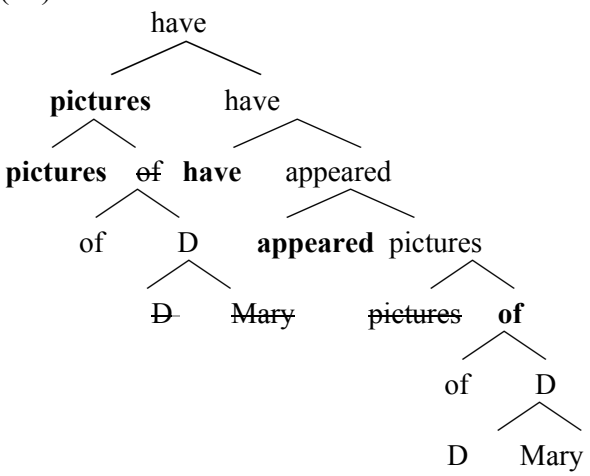
[10] This holds if selection is mediated by uninterpretable features in the same way that movement is. If this is the case then different copies of Z will presumably have different feature specifications in the same way that different copies of moved XPs will have different feature specifications.

Note that there is no advantage here to deleting the other copies of Z/X as they do not give rise to ordering paradoxes. Assuming deletion to be a last resort mechanism, these copies should remain at PF. Up to now it might seem that 'labelling as copying' is a notational variant of BPS. In actual fact, though, labelling as copying makes clearly distinct predictions regarding patterns of linearization and CED, which I explore in the following sections.

3.2. Derived subjects

The copy theory of labelling makes it possible to linearize derived specifiers in one fell swoop in relation to the clausal spine. This is true because the asymmetric c-command domain of *pictures* in (26) does not affect the linear position of *of Mary*. In a sense, when the phrase *pictures of Mary* moves, the projecting head *pictures* moves 'higher' but its complement does not. Following Bošković (2001), I assume that scattered deletion is available as a last resort at PF, where full copy deletion is blocked. While I assume, following Nunes, that PF privileges derived copies, I propose that the need for total linear order overrides this preference. In its base-generated position, *of Mary* can be linearized with respect to the clausal spine (i.e. *have* & *appeared*), whereas in its derived position it cannot.[11] This situation gives rise to obligatory 'complement extraposition', whereby the complement contained in a moved XP is stranded in its base (complement) position via scattered deletion. In this way, a total order is obtained without the need for an additional application of SO:

(26)



Note that complement stranding can only apply to complements contained in a phrase merged in a complement position, underlying specifiers will always require an additional application of SO. More generally, the prediction is that complement extraposition via scattered deletion will be preferred over an additional application of SO.

A complication arises from the fact that (27) is available as an alternative to (26):

(27) Pictures of Mary have appeared (recently).

Sheehan (2009) argues that this is linked to specificity, which induces strong islandhood with representational nominals. Complex NPs which are strong islands in a complement position will also be strong islands in a specifier position. 'Indefinites' are ambiguous between a specific and non-specific reading (Diesing 1992). Sheehan

[11] Note that neither of the two copies of *of Mary* is any 'higher' than the other in terms of c-command.

proposes that these readings correlate with different underlying syntactic structures (DP vs. NumP). NumPs, but not DPs, give rise to obligatory complement stranding:

(28) a. *The pictures have been published of the fire.
b. The pictures of the fire have been published.

(29) a. Many pictures have been published of the fire.
b. Many pictures of the fire have been published.

Now recall the fact that pied-piping served to rescue extraction from derived subjects.

(30) Of which person have many pictures appeared?

This can be seen to result from a structure involving scattered deletion, hence where NumP is not a strong island (cf. Sheehan 2009 for details).

Note also, that some speakers accept stranding of *of* after appeared, and all speakers accept this where a heavier preposition is used:

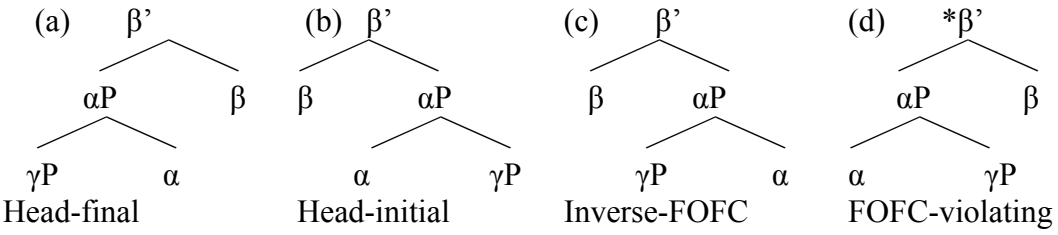
(31) (??)Which celebrity have some nice pictures appeared of?
(32) Which subject has a decent book appeared about?

This is predicted by the account proposed here. Stranding affects all moved XPs which are not inherently islands (i.e. strong islands also when in complement position). For this reason, all else being equal, extraction from stranded complements is expected to be possible.[12]

3.3. The Final-over-Final Constraint

Holmberg (2000:124) points out an interesting asymmetry between the two possible disharmonic (mixed head-initial/final) word order combinations in natural languages: (33c) is fairly common, whereas (33d) is unattested in many syntactic domains:

(33) Harmonic and disharmonic combinations



(34) The Final-over-Final Constraint (FOFC) [First Version]:
If α is a head-initial phrase and β is a phrase immediately dominating α, then β must be head-initial. If α is a head-final phrase, and β is a phrase immediately dominating α, then β can be head-initial or head-final.

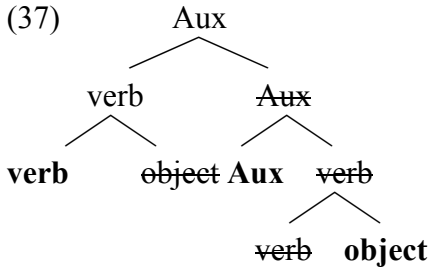
[12] Note that adjunct extraposition behaves differently from complement extraposition in being permitted form underlying specifiers and in many other respects. I leave this matter to one side here for reasons of space.

Evidence in favour of FOFC comes from a number of typological gaps as well as from the ungrammaticality of certain word order combinations in certain mixed languages such as Basque and Finnish. For a full discussion see Biberauer, Holmberg and Roberts (2007, 2008), Biberauer, Newton and Sheehan (to appear-b, to appear-b). A simple way to think of FOFC is (35) which can be restated as in (36):

(35) Head-finality must begin at the bottom of the tree.
(36) Roll-up movement must begin at the bottom of the tree.

If all head-final phrases are the result of roll-up movement then FOFC receives a principled explanation from the copy theory of labelling coupled with Uriagereka's strict LCA. As long as there is no SO trigger, we expect roll-up movement to be subject to obligatory complement stranding: if a non-spelled-out head-initial phrase moves to the specifier of a higher head, it will always strand its complement:

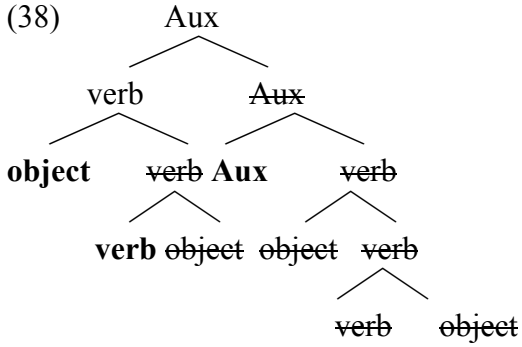
(37)



As Biberauer, Holmberg and Roberts (2008) note V-O-Aux is unattested in any diachronic/synchronic variety of Germanic, but V-Aux-Obj is well-attested in Old Norse and Old English (cf. Hróarsdóttir 2008 & Pintzuk 2005).

Note that harmonically head-final specifiers are correctly predicted not to display FOFC or CED effects. Head-finality is derived by comp-to-spec movement and specifiers, unlike complements, always asymmetrically c-command a phrase head at PF. For this reason they so can be ordered parasitically based on the position of said head:

(38)



In (38), the derived copy of *object* can be targeted for SO as it asymmetrically c-commands *verb*, and a copy of *verb* asymmetrically c-commands *Aux,* giving the total linear ordering object>verb>Aux. The crucial difference between (37) & (38) is that in (37) the derived copy of *object* has no order with respect to *Aux*, whereas that in (38) does (parasitic on that of *verb*). This fact accounts for the FOFC asymmetry as well as the lack of CED effects in Japanese and Turkish.

4. Apparent counterexamples

An apparent problem with the proposal is that it appears to predict that any XP which moves will necessarily strand its complement. Firstly, it is important to emphasise that this prediction relates only to first-merged complements. XPs which are

externally merged in a specifier position will necessarily be spelled out prior to insertion as per Uriagereka's MSO. Thus underlying specifiers are predicted never to permit complement extraposition, as appears to be correct, once we differentiate between adjunct and complement extraposition (cf. Coopmans and Roovers 1986):

(39) a. **More pictures of celebrities** would provoke a scandal.
b. ***More pictures** would provoke a scandal **of celebrities**.

More problematic are non-nominal categories which appear to move without giving rise to complement stranding in English: PP, VP, CP. In many cases, these very same phrases do *not* appear to be strong islands in complement position:

(40) a. [That pigs eat apples] is believed by most people.
b. *That is believed (by most people) pigs eat apples.
c. What do most people believe [that pigs eat t]?

There are at least two potential solutions to this problem. Either (i) (40a) does not involve movement, but rather base-generation of the complex CP in a specifier position, or (ii) the moved CPs in (40a) is a covert DP. I will not pursue this matter here for reasons of space, but it is interesting to note that both (i) and (ii) have actually been proposed in relation to sentences like (40a) on independent grounds (cf. Alrenga 2005 for an overview of the debate).[13]

5. Conclusions

It has been argued that the LCA necessitates some system of labelling in order to allow for complex specifiers. A simple copy theory of labelling which satisfies inclusiveness has been proposed and some of its implications explored. Crucially, it has been shown that the copy theory of labelling is not a notational variant of BPS but that it actually makes some interesting predictions regarding linearization, at least some of which seem to hold. For example, complement extraposition and the Final-over-Final Constraint are explained, as are patterns of extraction from derived subjects. Ultimately, the result is a reduction in the number of word orders which can be generated via relatively free movement combined with a strict LCA.

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[13] Note that Scandinavian remnant VP-fronting remains problematic for the approach proposed here. In fact the prediction is roughly that OV languages should allow remnant VP movement whereas VO languages should not. I leave this interesting matter to future research.

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Epistemic Modality in Romanian: the role of BE

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This paper contributes to the view that the epistemic/root distinction in modals across languages relies on structural differences. I will address the behavior of Romanian modals in combination with perfective Aspect, in comparison with other Romance languages (French, Spanish and Italian). It is a well-known fact that Romance languages, inasmuch they distinguish between perfective and imperfective Aspect, have ambiguous modals in the perfective; they allow either the root or the epistemic reading. In Romanian the root, veridical reading is triggered with perfective on the Modal. I will claim that the explanation for that relies in the fact that Romanian Modals have bi-clausal structures. I will also address the conditions in which the epistemic readings can arise, and provide an explanation of their preference for embedded verbs (or Small Clauses) denoting stative situations, further developing the idea of a structural difference between the relevant readings. I will also propose a possible connection between epistemics and evidentials in Romanian.

1. Introduction

Romanian Modals – in particular CAN – and Romanian modal *presumptive* periphrases have properties that allow for a better understanding of syntactic mechanisms at work in epistemic readings.

1.1 Ambiguities of modal verbs relying on scope-reordering of Asp and Mood

It has been shown that cross-linguistically, perfective aspect affects the veridicality of the event, inducing an Actuality Entailment [AE] in languages that distinguish between perfective and imperfective Aspect (cf. Bhatt (1999), Condoravdi (2002), Demirdache & Urribe-Extebarria (2005), Laca (2005), Hacquard (2006), Borgonovo (2008)). Perfective modals allow for both epistemic and root readings, as illustrated in (1) for French.

(1) *Pierre a pu ouvrir la porte*
→It is possible that Pierre opened the door (OK if he didn't)
→Pierre managed to open the door (*he didn't)

A contrast arises between Romanian and other Romance languages with respect to the optionality of AE in the context of perfective modals, cf. (2); Romanian forces the AE in those contexts.

(2) a. *Petre a putut să deschidă uşa* (perfective; ability reading)
Peter has could Subj open door-the
b. *Petre a putut deschide uşa* (perfective; ability reading)
Petre has could open door-the
→ *It is possible that P opened the door
→ P managed to open the door

A first question that naturally arises is why Romanian should lack scope-reordering. I will argue that this is so because of the bi-clausal structure of Romanian modals, especially CAN, and that Bhatt's (1999) and Hacquard's (2006) analyses should be completed with one more parameter, the bi-clausal vs. mono-clausal construction for modal verbs. The monoclausal construction allows the modal to be inserted at different levels in the sentence, hence the ambiguous readings. This is confirmed by the fact that, in some contexts, the epistemic reading is allowed with the monoclausal construction of CAN in the languages where, like Romanian, the two possibilities exist. The particular contexts where the relevant reading appears indicate that the epistemic operator still has to scope over a proposition. In structural terms, the category of the complement would is in this case be CP/ForceP, whereas in the root case, it would probably be a mere vP.

1.2 An 'evidential' periphrasis in Romanian : the presumptive
Romanian has another way of expressing epistemic modality and evidentiality, namely the presumptive paradigm, illustrated in (4) (cf. Irimia 2008). The Romanian presumptive can be compared with the French modal future, illustrated in (3), or to Italian and Spanish progressive, but it only has the modal reading.

(3) *Il aura lu le livre*
he may have read the book

(4) a. *o fi citind cartea*
will be reading book-the
"he may be reading the book"
b. *o fi citit cartea*
will be read book-the
"he may have read the book"

On the basis of the Romanian data investigated here, and of the possible parallelism between the epistemic reading of modals and the periphrastic presumptive, I will claim that in both types of constructions (the first being bi-clausal and the second mono-clausal), epistemic modality relies on a syntactic structure in which the modal is inserted high, and on a stative semantics.

1.3 Goals
This paper aims, on the first hand, at supporting a multiple-layered analysis of modality in the context of bi-clausal vs. mono-clausal constructions of Romanian CAN. Secondly, it will investigate the role of BE in epistemic contexts; show that the high position of the modal and stativity (BE-insertion) play a crucial role in the epistemic constructions. Finally, it will show that there is a connection in terms of structure between epistemic and evidential construals.

2. Ambiguity of perfective modals in Romance

2.1 Modals and implicatives

Karttunen (1971) observes a difference in interpretation between modals and what he calls implicatives. In (5), the modal CAN does not entail the realization of the event denoted by the embedded verb, whereas the implicative *manage* in (6) does:

(5) *He could open the door* -/→ he opened the door

(6) *He managed to open the door* → he opened the door

Bhatt (1999) and Hacquard (2006) observed that languages with perfective / imperfective morphology have 'implicative' constructions with modals in perfective sentences.

Let me first summarize the types of readings allowed by modals.

Imperfective modals allow for epistemic vs root (abilitative) readings, which are all averidical readings (cf the possibility to continue with "in fact, (s)he didn't")

(7) a. *Pierre pouvait gagner la course (ou ne pas la gagner)*
b. *Pierre pouvait gagner la course (il avait la meilleure voiture)*

(8) a. *Pierre pouvait / devait gagner la course*
b. *Pedro podia / debia ganar la carrera*

(9) a. *Pierre peut / doit gagner la course* (epistemic, circumstantial)
b. *Pedro debe ganar la carrera* (idem)

Perfective modals allow for root and epistemic readings. Veridicality arises in the root reading; note that the epistemic reading in this case is the marked, not the default option:

(10) a. *Pierre a pu / a dû gagner la course* (epistemic/root)
b. *Pedro ha podido / ha debido ganar la carrera* (epistemic/root)
c. *Pedro pudo / debio ganar la carrera* (epistemic/counterfactual)

(11) a. *Pierre a pu$_{ROOT}$ gagner la course #et il ne l'a pas gagnée.*
b. *Pierre a pu$_{EPIST}$ gagner la course comme il a pu ne pas la gagner.*

(12) *Pierre a dû$_{ROOT}$ sortir #mais il n'est pas sorti.*

In the case of the epistemic reading, the T/Asp is read on the lower verb, and the Modal Evaluation Time (MET) corresponds to the Utterance Time. In the case of the root reading, the MET is prior to the Event Time; T/Asp is read on the modal. The root reading yields A(ctuality) E(ntailment), hence the ambiguity of perfective modals in those languages that distinguish between perfective and imperfective past.

In previous analyses, this situation has been explained by scope-reordering, triggered by Asp's raising at LF (Hacquard (2006)), by raising of the Modal (Cinque 1998), or by a difference in height (Stowell (2004), Borgonovo (2008), Zagona (2008)). For reasons of space, I will not discuss these analyses and their shortcomings. The data analyzed below bring support for the latter type of analysis, in

which the different readings are triggered by the level of insertion of the Modal in the structure.

2.2. Bi-clausal constructions and unambiguous perfect

As pointed out above, Romanian do not show the same systematic ambiguity as the other Romance languages[1]: only root readings are available for perfect modals, as shown by the (obligatory) AE; epistemic readings are absent in (2b)/(13) with the perfect (compus) modal. Asp and Mood do not interact in the same way in French and Romanian – a situation not predicted by Bhatt (1999) and Haquard (2006).

(13) a. *Petre a putut să deschidă/ deschide uşa #şi n-a deschis-o.* (only root)
Peter has could sbj open / open.Inf door-the and did not open it
"Peter could have opened the door (and he didn't)"
b. *Petre a trebuit să deschidă uşa #şi n-a deschis-o.* (only root)
Peter has musted sbj open door-the and did not open it
"Peter must have opened the door and he didn't"

Borgonovo (2008) establishes a classification of the position of Aspect connected with the kind of modal reading obtained. Thus, the order Mood>T>Asp corresponds to the epistemic reading; the ordering T>Asp>Mood corresponds to the implicative reading, and T>Mood>Asp corresponds to the counterfactual reading, that I do not discuss here.

In (14) vs (15), we see that languages like French and Spanish may have "opaque" morphology, in that they allow Asp of the lower verb to be read on the Modal, whereas Italian seems by default not to have this possibility. Romanian is like Italian, as illustrated in (16).

(14) FR : Pierre a pu sortir. = P. peut être sorti (epist)
SP : P. pudo salir = P. puede haber salido. (epist)
IT *P. è potuto uscire; P. può essere uscito (epist)
Mod T Asp

(15) FR : P. a pu sortir (root)
IT : P. è potuto uscire (root)
SP: P. pudo salir (root)
T Asp Mod

(16) a. **P. è potuto uscire; P. può essere sortito*
b. **P a putut să plece; P (se) poate să fi plecat*
P has could sbj leave; P (se) can sbj be leaved

[1] Note that otherwise, Romanian Modals [RM] exhibit the same ambiguities as modals in other languages (in the present and the imperfective):
(i) *Petre poate/putea imita / să imite orice sunet; e foarte talentat* (ability)
Petre can/could imitate any sound, he is very talented
(ii) *Petre poate/putea imita / să imite pe oricine; n-o să-l pedepsim* (deontic)
Petre may/could imitate anyone, we will not punish him
(iii) *Petre poate/putea fi / să fie beat la ora asta /aia* (epistemic)
Petre may/could be drunk by now/then
(iv) *Poate să plouă mîine/ a doua zi* (epistemic)
it may rain tomorrow/ the next day

Romanian *a putea* 'can' shares with a larger class of Italian modal and aspectual verbs the choice between the mono-clausal and the bi-clausal construction (Rizzi's (1982) restructuring). Romanian Modals combine with subjunctive, with one exception: *a putea* 'can', which still has the (bare) infinitive/subjunctive alternation (Dobrovie-Sorin (1994), Avram & Hill (2007), Hill (2008)), as illustrated below.

(17) a. *Ioana poate să plece*
Ioana can Subj.leave
b. *Ioana poate pleca*
Ioana can leave.Inf

(18) a. *Ioana trebuie să plece*
Ioana must Subj.leave
b. **Ioana trebuie pleca*
Ioana must leave.Inf

A putea combining with Bare Infinitive shows 'restructuring' properties, with obligatory clitic climbing indicating that the modal and the infinitive form a V-complex (19a-b); the VP status of the complement of *a putea* is clearly shown by the absence of the inflectional infinitival particle [a] (19c) and the impossibility to insert the perfect auxiliary *fi* 'be'

(19) a. *Petre (nu) (o) poate (*nu) (*o) citi*
Petre (not) (her) can read
b. *Petre (nu) (se) poate (*se) rătăci*
Petre (not) (SE) can lose
c. **Petre nu se poate a rătăci*
Petre not SE can (to) lose
d. **Petre nu se poate fi rătăcit*
Petre not SE can BE lost

Subjunctive complements of Modals realize irealis ForceP/MoodP; they host pronominal clitics, negation, auxiliaries, as illustrated below:

(20) se poate (impersonal)
se can 'it is possible that'
a. …să (nu)-l iau / să (nu) le iei / să (nu) le ia…
$part_{SUBJ}$ (not) cl $take_{1sg/2sg/3sg}$
b. …să (nu) le fi luat
$part_{SUBJ}$ (not) cl have taken

On the basis of the correlation between bi-clausal structure and unambiguous epistemic meaning, the following hypothesis can be formulated:

(21) The availability of the monoclausal construction is a condition for the ambiguity of perfective modals.

This hypothesis is supported by the fact that epistemic-only *a putea* 'may/can' and *a trebui* 'must' in bi-clausal constructions always disallow the perfective, cf. (22)[2]. The epistemic meaning is only possible with the perfective on the embedded verb, as shown in (23-24).

(22) a. *Trebuie / *a trebuit că ştia el ceva*
it-must/ has musted that knew he something
b. *Poate / *a putut să vină de la o clipă la alta.*
he-can / he could Subj come from a moment to another

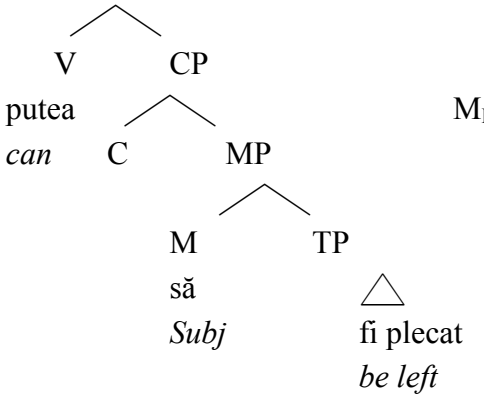
(23) a. *Petre poate / putea să fi luat trenul*
Petre can / could Subj. aux taken the train
b. *Petre trebuie / trebuia să fi luat trenul*
Petre must / must.Ipf Sbj aux taken train-the
"Petre must have taken the train"

(24) a. **Petre a putut să fi luat trenul*
b. **Petre a trebuit să fi luat trenul*
"Petre has could / must.ipf have taken the train"

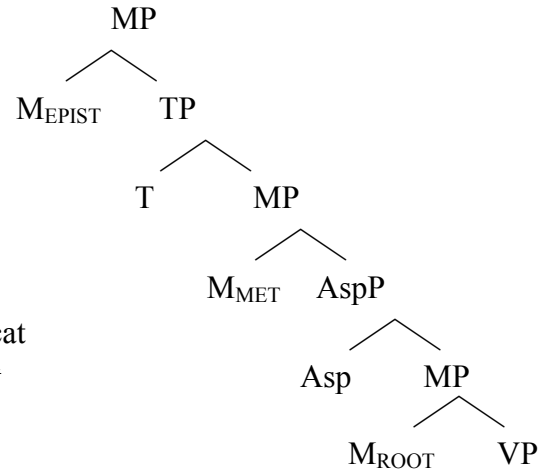
2.4. Towards an analysis: bi-clausal epistemic construction

The analysis I would like to propose goes in the following terms. Modal constructions are multiple-layered: the level of insertion of the modal (basically corresponding to CP/TP, AspP, vP) determines the interpretation. Since Romanian modals have bi-clausal constructions, the "transparent morphology" condition follows: separate inflectional levels are present on the modal as well as on the lower verb, obeying semantic restrictions (epistemics cannot be in the scope of the perfective). In the (Romance) epistemic construal, the modal is inserted above T; in Romanian, it can be inserted clause-externally (as a main clause).

(25) Romanian, biclausal



(26) Romance, monoclausal (ambiguous)



[2] Avram (1999) suggests that this has to do with the aspectual nature of those verbs. I think this is on the right track; epistemic modals reject perfective morphology but are forced to bear it when there is no other support for it, i.e. when they appear in monoclausal constructions.

2.5. Some more arguments for the clausal-external position of epistemics
Romanian data clearly show the 'monadic' character of epistemic modals: they have only one argument, a full sentence. The impersonal construction, with the invariable, impersonal construction *se poate*, is always tied to the epistemic reading. In Romanian, in a structure like (27), the DP *Maria* would be in a Topic position, where it raised from the subject position of the embedded subjunctive clause.

(27) *(Maria) SE poate să fi luat trenul*
Mary SE can să have take the train

The behaviour of *a trebui* goes in the same direction; since it can only have the bi-clausal (+impersonal) structure, it always rejects the perfective in the epistemic meaning:

(28) a. *Maria a trebuit să ia trenul* (deontic)
Mary has must to take the train
"Mary had to take the train"
b. *A trebuit ca Maria să ia trenul* (metaphysical)
It musted that Mary take the train
"It was necessary that Mary take the train"
c. *(Maria) trebuie că (Maria) a luat trenul* (epistemic).
(Mary) has that (Mary) has taken the train
d. *Maria trebuie să fi luat trenul* (epistemic)
Mary must Subj be taken the train
"Mary must have taken the train"

Invariable *poate* & *trebuie* with indicative clauses developed into epistemic adverbial operators taking scope over the whole clause:

(29) a. *Poate că Petre s-a rătăcit*
maybe that Peter se-has lost
b. *Trebuie că Petre s-a rătăcit*
mustbe that Peter se-has lost

The same connection between the epistemic reading and the impersonal construction holds in the case of Italian *potere,* unlike *dovere* (cf. Rocci (2005)):

(30) a. *Devono essere le cinque, visto che si sta facendo buio.*
It must be five p.m., given that it's darkening.
b. *?Possono essere le cinque, visto che si sta facendo buio.*
It may be five p.m., given that it's darkening.
c. *Forse/ può darsi que sono le cinque, visto che si sta facendo buio.*

3. Monoclausal constructions and epistemic readings

3.1. A prediction and a further observation
If the present analysis is on the right track, the ambiguity of modals in the perfective is expected in languages where modals take monoclausal constructions. Since

Romanian has access to the two types of constructions, the ambiguity should arise in the monoclausal construction only[3].

We saw that Romanian *putea* 'can' also enters monoclausal constructions with bare infinitives; the prediction would be that, in this case, *a putea* allows epistemic readings in the perfect, and this prediction seems to be borne out, cf (31)a-b. This seems however to depend on the kind of embedded infinitive: there seems to be a preference for unaccusatives, since in (31)c involving an unergative activity, the entailment reading is again the only one available. Note the obligatory climbing of the clitic *se* (the hallmark of the impersonal epistemic construal).

(31) a. *Petre s-a putut rătăci*
Petre se-has could lose
"Petre might be lost"
b. *S-a putut întîmpla ceva rău.*
se-has could happen something bad
"something bad might have happened"
c. *Petre a putut cînta*
Petre has could sing
"Petre was able to sing"

This is a new observation that I would like to further question in the following section. It would be indeed interesting to know why unaccusatives should favor epistemic readings in the monoclausal construction, and what this tells us about the structure associated with these readings.

3.2. Epistemic readings, unaccusatives and (may)BE

First, note that unaccusatives do not normally give rise to root readings:

(32) a. *#les feuilles peuvent tomber (ou ne pas tomber)*
the leaves can fall (or not fall)
b. *#ça peut arriver (ou non)*
this can happen (or not)

Passives are unlikely with root readings too:

(33) a. *Jean peut être invité à la fête (*Jean est capable d'être invité à la fête)*
John can be invited to the party (John is able to be invited to the party)
b. *Le livre peut être lu (*le livre est capable d'être lu)*
The book can be read (the book is able to be read)

Interestingly, there is a difference between s-level and i-level predicates in Small Clauses with respect to epistemic vs. ability readings; i-level predicates only allow epistemic readings, whereas s-level predicates allow both:

(34) a. *Jean peut être intelligent (ou ne pas être intelligent)*
John can be intelligent (or not be intelligent)

[3] In Italian, the possibility of clitic climbing distinguishes the monoclausal – restructuring construction from the biclausal one (Giuliana Giusti, p.c.). The bi-clausal construction (without clitic climbing) seems to be associated to the epistemic meaning. Further investigation is needed to see how the restructuring construction behaves.

b. *Jean peut être malveillant (il est capable d'actes malveillants)*
John can be evil (he is capable of evil actions)

The types of predicates allowing epistemic readings in monoclausal constructions in Romanian look like a natural class. However, I would like to argue that there is more to be said. Actually, I propose that the reason why these predicates in the monoclausal construction favor epistemic readings is that they are statives, or allow stativizers; and BE is such a stativizer. In a sense, the three types of predicates having this property require BE-insertion at some level.

This intuition meets the one of Vetters (2004), who notes that the epistemic modality is a modality of BE, whereas root modality is a modality of DO. The fact that agentivity is connected to ability readings and raising verbs (which modify the relation between what is and what is apparent) to epistemic reading has often been noticed. See also Copley (2008) for the idea that epistemics need statives and reject eventives.

In a nutshell, I propose that epistemic operators select (an overt or covert) BE + propositional content, whereas root modals select activities (agentive vPs).
Further support for this idea comes from the fact that BE lexicalizes in clausal adverbs like *maybe*; like the clitic *se* in the impersonal construction, it modifies the th-grid of *can*:

(35) a. *peut-être (il se peut) qu'il viendra*
can-be (it se can) that he come.Fut
b. *maybe he will come*
c. *Could be !*
d. *se poate !*
se can

Another interesting fact concerns special forms of epistemic *can* in Italian. In Italian (36)b, we can notice a formal difference between the full *potere* verb and the truncated one. A similar phenomenon seems to exist in Romanian, and the truncated form also appears with the epistemic reading rather than with the root one (cf 36a-b); moreover, exclusive epistemic forms do not allow truncation, as shown in (37)c.

(36) a. It *potere* → *può (darsi, essere)*
b. Rom *putea* → *poate (+ că Ph) / poa' să*

(37) a. *Poa' să plouă*
can to rain
'it may rain'
b. ??*Petre nu poa' să facă tema la matematică*
John not can to do homework at mathematics
c. **Poa' (poate) că va ploua*
can that will rain
maybe it will rain
d. **Poa' ploua*
can rain.Inf

The data strongly suggest that epistemic CAN appears in a truncated form when it is licensed by the insertion of BE and correspondingly acquires an epistemic meaning. I would like to propose that this insertion can be overt or covert. If BE is overt on

'can', the combined form may appear outside CP/TP (cf. peut-être que). If BE is covert on 'can', like I suggest it is the case for Romanian, the modal combines with a Mood/TP or attracts the Mood marker forming a verbal complex (poa' să). Further investigation is needed to establish the exact position of the modal with respect to the embedded verb. For now, I take these data as an indication for the presence of a covert BE in epistemic contexts.

On the basis of the above observations, I propose the following analysis for monoclausal CAN in Romanian:

(38) Epistemic construal: M>BE+SC

(39) Root construal: M>$VP_{agentive}$

This proposal is coherent with the longstanding intuition in the literature that the epistemic construal is monadic, whereas the root one is dyadic (involves two arguments).

3.3 More evidence from evidentials: BE in the Romanian presumptive

An interesting connection can be made between modal epistemic verbs and a modal periphrase encoding evidentiality. Irimia (2008) shows that evidentiality in Romanian is modal, and not a conversational implicature. It may appear as a side effect of epistemic construals with modal *a putea* 'can' & *a trebui* 'must' and in the presumptive paradigm, a marker of Indirect Evidentiality.

I will not go into an analysis of evidentiality nor try to decide if epistemics and evidentials have to be kept distinct or rather as pertaining to the same category. I will try to put forward some common properties between the modal and the periphrastic construction, which happen to admit the both readings.

Below, I illustrate the general format of the presumptive paradigm:

(40) o fi citind / citit
MOOD + BE.Inf + GER (Present) / PST.PRT (Past)
'(he) might read (present presumptive) / he might have read (past presumptive)'

The "Mood" marker may be an inflected one (i.e., a future or a conditional particle) or an uninflected one (a subjunctive particle)[4]. The presumptive though distinguishes itself from the other corresponding irealis paradigms by its meaning (which is not a futural or a conditional one) and formally by the fact that it involves an aspectual distinction reflected in the present vs. past participle alternation.

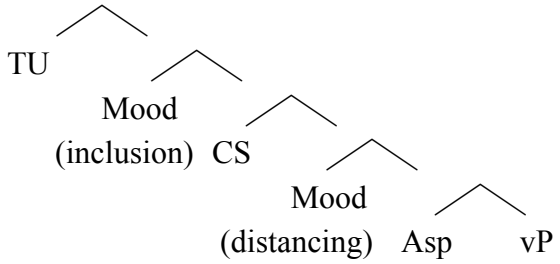
My concern here is that the presumptive, as well as the whole irealis paradigm of the Romanian verbal system, involve BE as a perfective auxiliary[5]. Note that there is no have/be alternation in the Romanian indicative perfect. BE in these contexts has been previously analyzed as a perfect auxiliary (D'Hulst et al (2004)) or as bearing modal and tense features (Avram & Hill (2007)), both analyses coming with different problems. A new and interesting analysis is developed by Irimia (2008), which offers a modal analysis of Indirect Evidentials in Romanian, adapting Izvorski's (1997)

[4] See Irimia (2008) for a detailed presentation of the Romanian presumptive.

[5] Notice that the position of BE corresponds to the one that BE takes in the parallel (i.e., conditional, futural or subjunctive paradigm), which can be shown by the different position of the clitics, high with the former and low with the latter (subjunctive) markers.

analysis for present perfect. In her terms, FI 'be' spells out the C[onsequent]S[tate] of (subpart of) an eventuality, as in (41).

(41)



I take this semantic analysis to be in the same spirit as the one in the present paper. BE acts like a stativizer from a semantic point of view. Intuitively, it seems to me to mean "is true", "holds", and probably does the same job in 'maybe' adverbials combining with a CP/proposition.

The question that I would like to raise now is what is the syntactic role of BE. In this paper, I take BE insertion to provide a raising structure in epistemic-evidential constructions. It plays the same role in both constructions with *a putea* and with the presumptive, which both have been argued to express evidentiality. The origin of this construction is actually a (popular) modal future of BE combined with a propositional content.

(42) a. *cine-o fi?*
who-aux be?
"who could (that) be?"
b. *o fi mama*
would be mother
"it would be my mother"

(43) A. *Cred că P [Paris 8 e în grevă/ a venit mama]*
I-think that P [P8 is on strike/ has come mother]
B. *O fi!*
"it could be so, maybe"

It is interesting to notice that in (3) and (4) in the Introduction, here above (44)-(45) (only) the future of BE in French seems to induce epistemic/evidential readings:

(44) *Il aura lu le livre / #il lira le livre* (wrong in the modal reading)

(45) a. *o fi citind cartea*
will be reading book-the
"he might be reading the book"
b. *o fi citit cartea*
will be read book-the
"he might have read the book"

4. Still an open question: the control vs. raising distinction

The analysis sketched above for Romanian monoclausal constructions reminds the control vs. raising debate in the syntax of modals, which I think could be reopened. Ruwet's data (1983) discussed by Rooryck (1992) bring evidence that the modal ambiguity may be a structural one. The modal flavor associated to the expletive construction (46b) is an evaluative, attitude-like meaning. Raising diagnostics come e.g. from idiom chunks (cf. (46c)).

(46) a. *cet home peut vous surprendre* (ambiguous)
this man can you surprize
"this man can surprize you"
b. *ça peut vous surprendre*
it may surprize you
c. *justice peut être rendue*
justice may be done

Interestingly, this contrast also shows up in the case of other verbs, being associated with a change in the verb's meaning, like *menacer* or *promettre* which exhibit an alternation between a control and a raising behavior.

(47) a. *le toit de la cathédrale menace de tomber*
the roof of the cathedral threats to fall
b. *ce jeune homme promet d'être un grand pianiste*
this boy promises to be a great pianist

Interestingly, the high, "modal-flavoured" reading is incompatible with the perfective:

(48) a. *le toit de la cathédrale *a menacé / menaçait de tomber*
the roof of the cathedral has threat.Pf / threated.Ipf to fall
b. *#le jeune homme a promis (√a fait la promesse) / promettait de devenir président*
the young man has promise.Pf (made the promise) / promised.Ipf to become president

These facts point into the same direction as our observations above. It seems to be the case that some verbs alternate between a raising and a control construction from a syntactic point of view, alongside with a high vs. root reading from a semantic point of view. The high reading would be connected to the raising construction, i.e. to the fact that the verb is unable to assign a th-role to its subject position, and takes only a CP complement; in semantic terms, it behaves like a propositional operator.

There are of course problems with the raising/control analysis of the epistemic/root distinction in modals, and I will not try to find a simple answer to this (cf. e.g. Wurmbrandt (1999), Avram & Hill (2007) for Romanian). However, I think that the split between monoclausal and biclausal construction in Romanian, as well as the observations regarding the conditions on which epistemic reading appears in monoclausal constructions (i.e., insertion of BE) strengthen the idea that the difference in readings does correspond to structural distinctions. A way of implementing this is a multiple-layered analysis of modality, as suggested above. One might also think in Rooryck's (1992) terms, and investigate the existence of "degrees of raising". In this case, Romanian modal constructions would show the first steps in developing raising configurations for epistemic meanings.

If the present observations and analysis are on the right track, we expect the 'implicative' effect to appear in other contexts in Romanian, which has a number of 'raising' periphrases expressing different relations between events. In fact, this is indeed the case: other Romanian periphrases also reject perfect, namely periphrases with *a urma*, which order a situation in the future with respect to another situation which can be the speech-act situation or another situation in the past. Here also, the perfective is out[6]:

(49) a. *urmează să plecăm*
follows to leave.1pl
we shall leave
b. *urma să plecăm*
followed to leave.1pl
we were supposed to leave
c. *?*a urmat să plecăm*
has followed to leave

5. Conclusions

In this paper, epistemic readings have been shown to depend on the existence of a raising configuration: the Romanian data show that when this configuration does not obtain, veridical readings are induced with past modals.

The raising configuration is provided by merge of BE with a CP or a Small Clause; this explains why epistemic readings in monoclausal constructions are possible with unaccusatives, passives and adjectival predication. The same idea can be maintained for the role of BE in the Romanian presumptive paradigm, in agreement with the long-standing intuition of BE as a core raising verb.

This analysis could also capture observations by Mari & Martin (2008), concerning the lack of actuality entailment in some circumstantial (probably metaphysical) readings in the perfective; while these authors propose the existence of different kinds of abilities, I propose a structural distinction between the relevant uses of CAN.

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[6] The same for another Romanian future-in-the-past periphrasis with have: cf. *avea să plece* 'he would leave' which does not allow the perfective.

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Identificational Focusing: Focus Raising and Stress–Focus Correspondence

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This paper revisits the division of labor in the grammar in identificational focus constructions in Hungarian. It is argued that if applied to identificational focus (rather than focus in general), Chomsky's (1971, 1976) proposal that focusing involves a syntactic readjustment operation analogous to Quantifier Raising can and should be upheld: identificational focus undergoes movement in order to be interpretable. Since identificational focus is a subcase of focus (defined as involving alternatives), the PF manifestation of identificational focus movement is affected by prosodic constraints on focus, including a Stress–Focus Correspondence requirement (Cinque 1993, Reinhart 1995). The interaction of this requirement with general principles of economy determines the realization of focus movements at PF. It is shown how the basic structure of the Hungarian clause, without a specialized functional head for focus, accommodates both the semantic and the prosodic needs of identificational focus elements in a variety of focus "constructions."

1. Introduction

Chomsky (1971, 1976) proposed that focusing in English involves a covert syntactic readjustment operation analogous to Quantifier Raising (QR).[*] This view was criticized by much subsequent work, for instance, on the grounds that such covert focus movement would apparently incur island violations (in English). *Overt* focus-related displacements, nevertheless, have often been given a syntactic movement account, even in those cases where the relevant displacement is not amenable to an analysis in terms of some independently existing construction, like a cleft (as in Hungarian, Basque, Italian, Greek, Finnish, etc). According to the current purely syntactic mainstream implementation of this approach, the displacement of a focus phrase targets a specialized functional projection (e.g., Rizzi 1997), and involves feature-checking. At present, in one form or another, this is the received view of focus movement in Hungarian too (e.g., Brody 1990, 1995, Puskás 1996, 2000, É. Kiss 1998, 2002, 2006, Horvath 2005, 2007, Kenesei 2009).

An alternative recent approach to overt focus-related displacements is purely stress-based (e.g., Zubizarreta 1998, Neeleman and Reinhart 1998). On this

[*] For questions and comments I am grateful to audiences at the Workshop on Interface-based Approaches to Information Structure at UCL and at IGG-35 in Siena, where portions of this material were presented. The present work was supported by project grant #73537 of the Hungarian Scientific Research Fund, and partly by the author's Janos Bolyai Research Grant, which is hereby gratefully acknowledged.

approach, focus-related movements are triggered to create a syntactic structure that will observe an independent stress–focus correspondence requirement (1) (see Cinque 1993, Reinhart 1995, Szendrői 2003).

(1) *Stress–Focus Correspondence (SFC)*
Any constituent that (reflexively) contains the Nuclear Stress (NS) of the Intonational Phrase is a possible focus.

Hungarian focus movement (HFM) has been given such a purely stress-based treatment by Szendrői (2001, 2003). On her account the focused phrase is fronted in HFM in order to get into a position where main stress is assigned (this position is projected in syntax through prior verb movement).

The merits and demerits of either the purely syntactic or the purely prosodic accounts of HFM cannot be discussed here in any detail.[1] What this paper has to offer instead is the outline of an alternative approach to HFM, which explores just how much of the "syntax" of HFM falls out once *both* the prosodic and the semantic needs of identificational focus are properly taken into account. On the semantic side, I will be exploiting the assumption that focus involved in HFM is interpreted as an identificational predicate of propositions. On the PF side, the Stress–Focus Correspondence condition is maintained. It is shown that in fact no special (morpho)syntactic assumptions specific to (identificational) focus (like a dedicated clausal functional head, or an uninterpretable focus feature) need to be postulated in narrow syntax in order to account for the basic properties of a relatively wide range of "focus constructions" in the language.

2. The semantics of identificational focus

Let us begin by spelling out the semantics of identificational focus that will be assumed. Identificational focus (FOC_{ident}) is taken to be a predicate of propositions that, when applied to an open proposition (a proposition containing a free variable), yields a proposition asserting the identity of two elements. Roughly the same view is expressed by Chomsky (1976), and for Hungarian, by Kenesei (1984, 1986), and Szabolcsi (1994).[2] The two elements involved in

[1] Horvath (2005) provides a detailed critique of Szendrői's purely stress-based approach to HFM, noting the following two major issues. Szendrői's approach involves massive look-ahead into the prosodic component within the restrictive mainstream model, where the flow of information between the modules of prosody and syntax is uni-directional, and where syntax is geared to optimally feed the SEM component rather than PHON (Chomsky 2005 et seq). HFM is not bona fide focus movement: on the one hand, HFM is associated with exhaustivity, and on the other, some focused expressions (like information focus, and *also*- and *even*-phrases) do not undergo HFM. An additional problem is posed by covert instances of HFM, which are argued to apply to in situ 'identificational' foci (see Surányi 2007): such focus movement is left without an account.

[2] See a.o. Partee (1998/2000) and Heller (2005) for the same view of English specificational / identificational copular clauses. Szabolcsi (1994) develops Kenesei's (1986) proposal, which traces back in turn to Chomsky's (1971, 1976) analysis of focus. Szabolcsi furnishes an explicit compositional semantics for id-focusing, employing an abstract identificational operator, given in (i), where z, x, and y may be plural individuals. According to this formulation, the constituent that the identificational focus phrase (of type e) is identified with through the application of this operator is taken to be predicative (type ⟨e,t⟩).

(i) $\lambda z \lambda P[z = \iota x[P(x) \,\&\, \forall y[P(y) \rightarrow y \subseteq x]]]$

identification need to be of the same type if the predication of their identity is to be interpretable.[3]

Consider the garden-variety identificational focus movement construction in (2a) with a fronted focus. (2b) represents the identificational predicate FOC_{ident}, labeled A in (2a). FOC_{ident} is uninterpretable in situ (whether it is object or subject), due to a semantic type conflict. Hence, it needs to extract in order to be interpretable in a higher position (analogously to what happens in QR). The iota operator in (2b) gives rise to an existential presupposition (obligatory with FOC_{ident}, see Bende-Farkas 2006), as well as uniqueness/exhaustivity (Szabolcsi 1981, É. Kiss 2009). (2c) corresponds to the proposition containing the free variable resulting from the extraction of FOC_{ident} (Heim and Kratzer 1998). Note that (2c) must be a full proposition with all arguments saturated (possibly by an unbound variable). Also, it must contain at least one free variable, otherwise the iota operator would quantify vacuously when (2b) is applied to (2c), yielding (2d).[4]

(2) a.$[\text{JÁNOS}]_A$ [jött *t* vissza]$_B$
J.-nom came back
'It's John who has come back.'
b. $\lambda p.(\iota x.p = \mathbf{j})$ c. come-back(y) d. $\iota y.\text{come-back}(y) = \mathbf{j}$

3. The basic structure of the Hungarian clause

The SFC in (1) and the identificational semantics illustrated in (2) interact with the basic clause structure of the language to yield the essential properties of focus movements in Hungarian. To be able to proceed, the basic structure of the clause needs to be laid out.

In neutral clauses (roughly, declarative clauses without identificational focus, negation, or a *wh*-phrase), the immediately pre-verbal position is normally occupied by some element belonging to the class dubbed 'verbal modifier' VM. The class of VMs includes verbal particles (PRT), and secondary predicates of different types, among others. I take the VM of a neutral clause to occupy the specifier of TP, as in (3). Hungarian is not a subject-prominent language (e.g., É. Kiss 2002), the agreement features of the subject are satisfied without overt movement of the subject to TP, whose head is host to the raised finite verb. T bears an EPP feature, which is checked by raising VM to Spec,TP.

(3) a. $[_{TP}$ VM $[_T$ V [T]] […]]
b. $[_{TP}$ El $[_T$ küldte] […]]] János a cikket Dávidnak
PRT sent-3sg John-nom the paper-acc David-to
'John sent the paper to David.'

As for clausal negation, the null hypothesis is that it is base generated in the position where it surfaces. As clausal negation immediately precedes the finite

[3] In this short paper, I will concentrate on focused individual-denoting expressions, but the semantics of identificational focus should be flexible enough to express the identity of two elements of various different (but matching) semantic types.

[4] A null constant (realized as a resumptive pronominal element; associated with topicalization/CLLD, e.g., Cinque 1990, Rizzi 1997), as opposed to a variable, is therefore incompatible with HFM.

verb, I take it to be first Merged in Spec,TP, where it satisfies T's EPP property. Indeed, clausal negation and a VM cannot both precede the (finite) verb at the same time in any order: given that clausal negation is generated in Spec,TP, the movement of VM is no longer triggered.

(4) a. [$_{TP}$ NEG [$_{T}$ V [T]] […VM…]]
b. Nem küldte el a cikket
not sent-3sg PRT the paper-acc
'He didn't send the paper.'

4. Focus fronting

I adopt the view that the VM in a neutral clause and the fronted focus in a clause with focus are raised to the specifier of one and the same functional projection (see É. Kiss 2005), which I take to be TP (see also Horvath 1995).

(5) [$_{TP}$ FOC [$_{T}$ V [T]] […VM…]]

Recall that identificational focus moves for reasons of semantic type conflict resolution at SEM (and not, say, in order to satisfy the SFC at PF). Whether this movement is overt or covert will have to be determined by factors independent of semantic interpretation. The SFC is a key condition that affects PF realization of the focus movement "chain." Another factor coming into play is computational economy. First, as argued by Chomsky (1995, 2000, 2001), overt movement is more costly than covert movement (which I take to be 'category' movement). This alone would favor the covert movement of identificational focus. Second, applying 'main stress shift' in prosody is more costly than having the Nuclear Stress fall where it does by default (e.g., Reinhart 1995, 2006, Neeleman and Reinhart 1998).[5] The Nuclear Stress Rule in Hungarian places the NS on the leftmost phonological phrase (φ-phrase) of an intonational phrase (ι-phrase) (É. Kiss 2002, Szendrői 2003). As TP is mapped to an ι-phrase in prosodic structure, the NS will fall on the φ-phrase at the left edge of TP. The copy of FOC_{ident} must therefore be *overt* at PF when focus movement targets this position.

Apparently, then, the overtness of focus movement to TP in a structure like (5) (the structure of (2a)) is independent of the EPP property of T. Even though both the movement and the overt PF realization of identificational focus are independent of the EPP property of T, T's EPP is nevertheless satisfied by the overt copy of the identificational focus in Spec,TP once it is realized there. Economy of movement dictates that if EPP on T is satisfied by a raised focus, no VM element needs to be pulled up to Spec,TP. Indeed focus and VM are in complementary distribution before the (finite) verb.

An immediate prediction is that identificational focus should be possible to move to TP and be overtly realized there even if T's EPP property is satisfied independently by clausal negation, which is base-generated there. Indeed, a fronted focus can precede clausal negation:

[5] 'Main stress shift' is understood broadly to involve stress strengthening, or stress strengthening and simultaneous stress reduction elsewhere.

(6) a. [$_{TP}$ FOC NEG [$_{T}$ V [T]] […VM…]]
b. A CIKKET nem emailezte el
the paper-acc not emailed-3sg PRT
'It's the paper that he did not email.'

5. Multiple foci

5.1. True multiple foci

We correctly account for the behavior of a second identificational focus (call it FOC_2) in a true multiple foci construction (cf. Krifka 1991). FOC_2 must undergo covert movement to a scope position *below* that of the pre-verbal identificational focus (call it FOC_1). If FOC_2 raises to scope *below* FOC_1 in Spec,TP, then, since the NS does not fall on this lower position, the movement of FOC_2 will remain covert (just like QR). The reason is that the movement of FOC_2 targets a position *inside* the ι-phrase corresponding to TP, rather than a position at the left edge of that ι-phrase. As the position targeted by the raised FOC_2 is inside the ι-phrase, the default NS will not fall on it. 'Main stress shift' (i.e., stress strengthening of FOC_2) cannot be avoided by spelling out the raised occurrence of FOC_2 overtly. As stress strengthening needs to apply in order to observe the SFC condition in (1) independently of whether the raising of FOC_2 is realized at PF as overt or covert movement, covert movement will be selected. Indeed, as discussed in Surányi (2002, 2007), a FOC_2 in a true multiple foci construction raises covertly.

In the rough form presented here, the account leaves open whether FOC_2 raises covertly to a position below T (where it can still be sister to some (open) propositional category lower than TP, see (7a)), or it raises covertly above T, but below FOC_1 (an inner specifier position, see (7b)) (both positions are marked by a parenthesized FOC_2 symbol below).

(7) a. [$_{TP}$ FOC_1 [$_{T}$ V [T]] [$_{\alpha P}$ (FOC_2) […VM…FOC_2…]]]
b. [$_{TP}$ FOC_1 [(FOC_2) [$_{T}$ V [T]] […VM…FOC_2…]]]

That covert focus movement indeed takes place in true multiple foci constructions is corroborated by Beck-intervention effects, and sensitivity to islands (ibid.). A relevant contrast is illustrated in (8). In (8a) FOC_2 is embedded inside an infinitival complement clause, while in the (non-rethorical) (8b) it is located within an infinitival purpose adjunct.

(8) a. Kinek kell megpróbálnia [megbuktatni csak KÉT DIÁKOT]?
who-dat must PRT-try-inf PRT-fail-inf only TWO student-acc
'Who must begin to fail only TWO students?'
b.*?Kinek kell bemennie [megbuktatni csak KÉT DIÁKOT]?
who-dat must in-go-inf PRT-fail-inf only TWO student-acc
'Who must go in(side) in order to fail only TWO students?'

The fact that covert focus movement of a FOC_2 can be scopally interpreted at any scope position between the scope positions of any two post-verbal quantifiers indicates that there is a degree of flexibility as to what position FOC_2 in (7a) covertly raises to (Surányi 2002, 2004).

That covert focus movement can indeed target both TP, as in (7b), and a (propositional) projection labeled αP in (7a) is evidenced by the following example.

(9) a. Who is it that could possibly have read only TWO papers?
b. JÁNOS olvashatott el CSAK KÉT CIKKET
J.-nom read-mod-past-3sg PRT only two paper-acc
'It's John who could possibly have read ONLY TWO PAPERS.'
(^{OK}FOC$_1$ > MOD > FOC$_2$)

The interpretation indicated is available in (9) only if FOC$_2$ is raised to a position below the modal operator associated with the modal suffix of the verb. Whether that operator is assumed to take scope in the overt position of the verb, or in some lower position (e.g., in a ModP generated lower than T), FOC$_2$ is interpreted below that position. In other words, FOC$_2$ in (9) cannot be analyzed as covertly raised to a(n inner) Spec,TP, but has to be moved to some lower position.

Finally, if FOC$_2$ is to scope *above* FOC$_1$ (rather than below it), then in principle it needs to raise above it in syntax, say, to an outer specifier of TP. But then NS falls on FOC$_2$, which is located at the left edge of TP, rather than on FOC$_1$, therefore it is the movement of FOC$_2$ that will have to be overt. This case then reduces to (7b), with FOC$_2$ replacing FOC$_1$ of (7b), and with FOC$_1$ replacing FOC$_2$ of (7b). We therefore derive that in a multiple foci construction, a post-verbal focus cannot take scope over the pre-verbal one:

(10) a. JÁNOS ette meg A LEVEST
J-nom ate-3sg PRT the soup-acc
b. 'It is John who is such that it is the soup that he ate.'
c. *'It is the soup that is such that it is John that ate it.'

5.2. Complex focus

A post-verbal focus may be related to the pre-verbal one in what Krifka (1991) calls a 'complex focus' construction, i.e., when it is pairs of elements that get focused semantically. The in situ focus in 'complex focus' constructions arguably covertly raises to the position of the pre-verbal focus (Surányi 2002, 2007): it cannot be located within an island, it yields Weak Crossover Effects, it is sensitive to (Beck-type) quantificational intervention between it and the first, pre-verbal id-focus, and (similarly to English *wh*-in-situ in multiple *wh*-questions, cf. Bošković 2000 and Dayal 2002) it is degraded when separated from the first focus by a finite clause boundary (Surányi ibid.).

For concreteness, consider a clause with just two focus phrases, a pre-verbal id-focus (FOC$_1$) and a second, post-verbal id-focus (FOC$_2$). Given that there is only a single default NS, which falls on the leftmost φ-phrase of the ι-phrase corresponding to TP, stress strengthening of FOC$_2$ is inevitable. This is because the two focus phrases correspond to two independent φ-phrases, only one of which can bear the default NS. The (correct) prediction therefore is that only one focus will raise overtly, receiving the default NS in Spec,TP, while the other

focus undergoes only covert movement, which is the more economical choice when compared to overt movement.[6]

6. Verbal focus

Narrow focus on the verb does not involve any extra movement, see (11).

(11) a. [Vissza EMAILEZTE a dokumentumot], nem [vissza FAXOLTA]
back EMAILED-3sg the document-acc not back FAXED-3sg
'He EMAILED the document back, he didn't FAX it back.'
b. *EMAILEZTE [vissza _ a dokumentumot], nem FAXOLTA [vissza _]

This is because the movement configuration analogous to that in (2a), required for an interpretation along the lines of (2b), obtains even without an extra focus-movement step, since the verb is raised out of its base position to T independently of focusing. Recall from the previous section that there must be at least one propositional projection below T (cf. (7a)). As the verb raises out of that propositional category, it finds itself in the right configuration for identificational focus interpretation. As far as the SFC condition is concerned, the NS of the clause will be able to fall on the verb in T only by way of 'stress shift,' as the verb is located in an ι-phrase internal position, preceded by a VM that is raised independently to Spec,TP to satisfy T's EPP property. In other words, 'stress shift' is unavoidable to achieve a narrow focus interpretation of the verb. It can be concluded that the verb in verb-focus constructions is interpreted as identificational focus even though it does not undergo focus-movement per se: it occupies its normal ι-phrase internal position, viz. T.

7. Focus movement and verb raising in infinitival clauses

In an infinitival clause, verb inversion to T is optional in the presence of negation and in the presence of fronted id-focus (see Brody 1995). This is illustrated in (12) for fronted id-focus:

(12) a. Jó volna IDŐBEN emailezni el
good Cop.cond time-in email-inf PRT
b. Jó volna IDŐBEN el emailezni
good Cop.cond time-in PRT email-inf
'It would be good to email it over IN TIME.'

This alternation is analyzed by Brody (ibid.), who assumes a clause structure with a FocP projection above TP, as being due to the optionality of V-raising to

[6] Adapting Krifka's (1991) treatment to the present account of identificational focusing, the interpretation of a single complex semantic id-focus involves the composition of the two focus exponents into a single identificational predicate. For such a complex focus interpretation to be available a second focus must move to the position of the fronted focus. Apparently, the formation of a complex semantic id-focus requires some form of structural adjacency, similarly to what has been suggested independently for multiple *wh*-phrases in *wh*-questions asking for a list of n-tuples (e.g., pairs) as an answer (see Dayal 2002 and references therein).

T. The raising of T to Foc remains obligatory, but in the absence of V-to-T, T-to-Foc, which is responsible for verb inversion, applies vacuously.

On the present account the alternation in (12) does not need to be put down to optionality in movement (and a concurrent optionally 'strong' property of T in these clause types). Instead, it can be reduced to a basic difference in the Numerations on which the two derivations are based. Specifically, I propose that whereas T is present in (12a), it is absent from (12b). As the Numerations are different, (12a) and (12b) do not belong to the same reference set of derivations. If T is present, V-movement to T is obligatory, yielding the verb-inversion pattern. If T is absent, no V-raising is possible. In this latter case no TP is erected on top of the next lower propositional projection (labeled αP in (7a)). [7] When no T(P) is part of the infinitival clause, negation and identificational focus will only be able to attach to αP. Attaching negation and/or identificational focus to αP does not alter the basic VM > V order within αP.

8. Ordinary focus

One consequence of the indirect nature of the link between the movement of identificational focus and the quest to avoid the costly operation of stress shift concerns the syntax of non-identificational, i.e., ordinary focus. As discussed in detail by É. Kiss (1998), in contrast to identificational (free) focus, ordinary (free) focus does not undergo syntactic movement in Hungarian. Consider why that should be so, given the present assumptions.

The requirement of identificational focus to apply to an open proposition is irrelevant to achieving an ordinary focus interpretation. The Stress–Focus Correspondence condition, on the other hand, applies to focus generally, including both identificational and ordinary focus. As we have seen, the two options to satisfy the SFC are to apply movement to the default NS position, Spec,TP, or to shift the main stress without movement. In the case of ordinary focus, Hungarian apparently opts for the latter choice, as does English. It can be inferred that the cost of applying a syntactic movement operation is higher than that of stress shift, which is why ordinary focus remains in situ, and NS is shifted to it. In a case where the movement operation must independently be applied (as is the case for identificational focus), realizing this movement as an overt displacement is more economical than resorting to stress shift, if the movement targets the default NS position.

It follows that ordinary focus does not undergo any movement, whether overt or covert. If a focus remains post-verbal in a sentence whose Spec,TP position is not occupied by an identificational focus, but by a VM element (i.e., the neutral word order pattern), then that post-verbal focus can only be ordinary focus, but not identificational focus.

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[7] In the absence of TP, no CP projection is present either. Participial verbal morphology is not due to T in infinitivals, where the verbal stem is affixed by an infinitival marker *–ni*. Depending on one's general assumptions regading the place of morphology in the grammar, it can be generated either in morphology, or as a participial head. The infinitival *–ni* form of the verb may also simply be the default form of the verb: this form is found in V(P)-doubling contexts with V(P)-fronting:

(i) Szeretni [szerettem Marit]
love-inf love-past-1sg M-acc
'As for loving (her), I did love Mary.'

This latter is both similar to and different from É. Kiss's (1998) generalization, who suggests that ordinary post-verbal focus in neutral word order clauses is information focus, and it does not undergo movement. In difference to É. Kiss (1998), I have suggested that the type of post-verbal focus at issue, rather than being information focus, is in fact ordinary focus based on alternatives. As (13) demonstrates, such post-verbal foci are not necessarily informationally (discourse-)new; instead, their interpretation involves alternatives.[8]

(13) A: Mari beszélt Jánossal, Péterrel és Ivánnal. Te tudod, kiket hívott meg?
'Mary talked to John, Peter and Ivan. Do you know who she invited?'
B: Csak annyit tudok, hogy meg hívta JÁNOST
only that.much-acc know-1sg that PRT invited-3sg John-acc
de nem hívta meg PÉTERT
but not invited-3sg PRT Peter-acc
'All I know is that she invited JOHN, but didn't invite PETER.'

This means that the relation between ordinary focus and identificational focus is one of proper inclusion: identificational focus is an alternatives-based focus that functions as an identificational predicate (of propositions). É. Kiss (1998) observes that ordinary post-verbal focus is not interpreted exhaustively. It is not the case that such foci do not have to be interpreted as exhaustive, but rather, they cannot be. On the present account this can be properly rationalized as a blocking effect: given that the more "specific," viz. the exhaustive, interpretation is achieved by syntactic movement to TP, by chosing not to move a focus to TP a *non*-exhaustive interpretation becomes obligatory.

9. Conclusion

The approach to focus movement sketched in these pages is based on the conception that 'identificational focus movement' takes place to avoid semantic type conflict in situ by bringing the focus into an appropriate configuration for it to be interpretable. The landing sites targeted by focus movement and the PF (namely, overt vs covert) realization of focus movement are determined in a complex interaction of relatively simple grammatical factors: the semantics of identificational focus as a predicate of propositions (i.e., the needs of id-focus at the SEM interface), the Stress–Focus Correspondence requirement, and computational economy principles. Concomitantly, no dedicated narrow syntactic machinery—in the form of a special functional projection / uninterpretable feature, or otherwise—needs to be postulated to account for the syntactic behavior of focus in Hungarian.

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[8] As (13) illustrates, not only identificational focus, but also ordinary (post-verbal) focus can be contrastive.

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The subject/object relative clause asymmetry in Italian hearing-impaired children: evidence from a comprehension task

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We investigated the comprehension of subject and object relative clauses in hearing-impaired (HI) children using a cochlear implant compared to that of hearing children, by using an agent selection task. We show that HI children performed significantly poorer than their typically-developing peers. Despite their low performance, HI children show nonetheless a typical gradient of difficulty, with subject relatives (OS) easier to comprehend than object relatives with preverbal subject (OO) and these latter are easier than object relatives with postverbal subject (OOp). These asymmetries are explained in terms of some recent minimalist proposals on locality theory and on the fragility of Agreement occurring with postverbal subjects. A correlation between performance on OOp and digit span tasks was found only in the HI group.

1. Introduction

Relative clauses (RCs, henceforth) have been widely investigated in language acquisition and development, due to the complexity of their structure and to the presence of long-distance dependencies between sentence constituents. Much psycholinguistic research carried out on different populations across a number of head-first languages showed that subject RCs are usually easier to process and comprehend than object relatives. This response pattern was found in typically developing children (Guasti & Cardinaletti, 2003, Arosio et al., 2006, Utzeri, 2007, Adani, 2008); adults (De Vincenzi, 1990) for Italian; SLI children (Stavrakaki, 2001 for Greek, Friedmann & Novogrodzsky, 2004 for Hebrew; Adani 2008, for Italian); aphasic patients (Garraffa & Grillo, 2007, Grillo, 2008).

However, to the best of our knowledge, this phenomenon has not yet been investigated with Italian hearing-impaired (HI, henceforth) children. Since acquisition in contexts of auditory deprivation is atypical and delayed (Taeschner et al., 1988, De Villiers 1988, Volterra & Bates, 1989, De Villiers et al., 1994, Tuller & Jakubowicz, 2004, Chesi, 2006, Delage, 2008), we decided to extend the study of RCs to HI children using a cochlear implant, in order to test whether their comprehension of RCs patterns with that of hearing children and, if not, in what way it differs.

In our experiment, we tested right-branching subject and object restrictive RCs, i.e. those where the embedded clause follows the main clause. We assume a raising analysis of relative clauses, in which the head raises from a position internal to the CP, forming a chain with the gap in the VP internal position (Vergnaud, 1985, Kayne, 1994). Subject and object relative clauses differ with respect to the position from which the head moves: as for subject

RCs, the head raises from embedded subject position (cf. 1) and in object RCs the head raises from embedded object position (cf. 2)[1]:

(1) …il cavallo [che <il cavallo> insegue i leoni] OS
'…the horse [that <the horse> chases the lions]'

(2) …il cavallo [che i leoni inseguono <il cavallo>] OO
'…the horse [that the lions chase <the horse>]'

In addition, we also tested the type of object relatives where the embedded subject surfaces in post-verbal position, which is also possible in Italian:

(3) …il cavallo [che *pro* inseguono i leoni <il cavallo>] OOp
'…the horse [that *pro* chase the lions <the horse>]'

In this typology, a null pronoun (*pro*) is postulated in embedded preverbal subject position.[2] This paper is organized as follows. Section 2 explains how hearing impairment affects language acquisition and development. Section 3 offers a literature review on studies investigating RCs on typical and atypical populations. In Sections 4 and 5 our experimental method and results are presented. In section 6, we discuss our results in the light of recent minimalist theories of locality and Agreement in order to account for the difficulties experienced with object relatives.

2. The effect of hearing impairment on language acquisition: existing studies

Hearing impairment strongly affects the acquisition and development of a language since it drastically reduces the quantity and quality of linguistic input available to HI individuals. In fact, the first months of life are crucial for a child to establish the basis for intact syntax development. If the input is absent or impoverished, syntactic skills cannot develop normally.

Cross-linguistic studies assessing speech production of deaf children and adults with different degrees of hearing loss revealed patterns of performance that were not observed in hearing individuals (Taeschner et al., 1988, De Villiers, 1988, De Villiers et al., 1994, Chesi, 2006).

In a recent study, Chesi (2006) explored linguistic abilities of 13 Italian hearing-impaired children (age range: 6-17 years). As the following speech sample shows, their elicited productions were often problematic and, crucially, they produced sentences that are not produced by hearing individuals at any stage of development:

(4) Ma c'è la professore ø c'è segni anche parlano (T3.37s – Chesi, 2006:92)
'but there is the.FEM.SG professor.MAS.SG ø there is signs also speak.3.PL'
TARGET: Ma ci sono professori che parlano anche con i segni
'but there are professors who speak also with the signs'
'but there are professors who also use signs'

[1] In examples (1)-(3), the constituents in <> specifies the phonologically null original position of the RC head.

[2] In the three examples, the first letter ('O') refers to the fact that the RC head is the object of the main clause, whereas the second letter indicates its grammatical role within the embedded clause (either subject 'S' or object 'O'). The final 'p' indicates when the subject of the embedded clause is in post-verbal position.

Similar findings were reported by De Villiers (1988) for English-speaking HI individuals aged 11 through 19. By eliciting their spoken production, she found out that they also produced non-standard structures, such as two separate simple sentences instead of conjoined or subordinate constructions. In a subsequent study, De Villiers et al. (1994) investigated the use of medial wh-questions in 52 orally-trained deaf students ranging in age from 11 to 19 years. Apart from difficulties deriving from the presence of long-distance movement in questions, HI children produced, in their answers, errors not occurring in hearing subjects of any age:

(5) a. The girl decided to wear what by looking in a magazine.
b. Ask father that which of two decision is better.

Comprehension of RCs in Hebrew HI children (age range: 7;7-11;3) has been recently investigated by Friedmann & Szterman (2006). They tested the comprehension of subject and object RCs and found that overall HI children performed significantly poorer than TD peers (68% vs. 86%). However, whereas their performance on subject relatives was quite intact (117 correct responses out of 130), their performance on object relatives was significantly poorer. This difficulty seems to be related to the several operations necessary to interpret long distance dependencies, namely the formation of a trace, the assignment of a thematic role to the trace and the linking of the trace to the moved constituent via a chain. Furthermore, Friedmann & Sztermann (2006) also found a strong correlation between linguistic performance and age of first intervention: children wearing hearing aids before the age of eight months performed significantly better than the other children.
The aim of the current study is to extend the investigation of movement derived sentences (such as RC) to Italian-speaking HI children. Considering that in production tasks, their performance may differ from that of hearing children, we want to investigate whether such atypical behaviour also appears in comprehension tasks or HI children follow the same pattern as their hearing peers.

3. Typical and atypical acquisition and development of relative clauses

RCs have been widely investigated in a variety of languages since the late 70's (see Guasti (2002) for a review). A common finding across these studies is that subject relatives are generally easier to produce and comprehend than object relatives. For the purposes of this paper, we will focus our discussion on the Italian data.
Guasti & Cardinaletti (2003) investigated the production of RCs by a group of 30 Italian-speaking children (age-range 5;1- 10;0). They found that subject relatives show a high rate of accuracy, while object relatives are more problematic and are, in most cases, turned into subject relatives, by adopting different relativization strategies.
Arosio et al. (2006) investigated the comprehension of subject relatives (cf. 1) and of two types of object relatives (with preverbal (cf. 2) and post-verbal embedded subject (cf. 3)) in 5- to 11-year-old typically developing children. Most difficulties were experienced on OOp. In 5-year-old children, the comprehension of OO is above chance (70%) and that of OOp is below chance (25%). Only by the age 11, the comprehension of RCs with post-verbal subject is comparable to adult performance. By using a different methodology, but the same sentence typologies, Adani (2008) tested 3 to 7 year old Italian children and replicated the gradient of accuracy (OS > OO> OOp) found by Arosio et al. (2006). However, children were more accurate in this task: whereas subject relatives are at ceiling from age 3, OO are 83% correct at age 4 and OOp are 70% correct at age 7.

Further evidence of the difficulties experienced in the interpretation of object relatives as opposed to subject relatives is offered by Garraffa & Grillo (2007) and Grillo (2008), who tested long-distance dependencies in agrammatic patients and found out a high level of accuracy on subject relatives and chance levels on object relatives.
The asymmetry between subject and object relatives (tested both in production and comprehension) was also found in Hebrew and Greek SLI children (Friedmann & Novogrodzsky 2004, Stavrakaki 2001).

4. Experimental study: Method

4.1. Participants

Thirty-two Italian monolingual children participated in this study. They were distinguished between a group of HI children using a cochlear implant (N=8, age range: 6;9-9;3; mean age: 7;9) and three groups of typically-developing controls. The first control group (GC: N=8, age range: 3;6-5;11; mean age: 4;10) was matched to the HI group on the basis of morpho-syntactic abilities (p=0.86), a second group (VC: N=8; age range: 5;4-7;0; mean age: 6;5) was matched on the basis of receptive vocabulary (p=0.70) and a third group (AC: N=8; age range: 7;1-7;8; mean age: 7;5) was matched to the HI group on the basis of chronological age (p=0.48).
As for the HI group, all our participants are hearing impaired since birth, born to hearing parents. Only one participant has parents with hearing loss. None of them has ever used the Italian Sign Language. They have been exclusively exposed to the oral language. Age of hearing loss detection varied from birth to 1;6. They were fitted with hearing aids (HA) within the second year of life. Age of cochlear implantation (CI) varied between 2;1 to 4;4. All children have been trained orally and all of them receive speech-language therapy from two to three times per week. They do not show any other associated disabilities. At the time of testing, they were attending primary schools in hearing classes. A summary of each child's clinical history is reported in the following table:

Table 1: Clinical data of HI participants.

ID	Age (Y:M)	Age of HL Diagnosis	Age of HA	Age of CI	CI Use Duration	HL	HL with CI (dB)	Sign language
101	6;10	1;2	1;3	2;5	4;5	>90	25	no
102	7;11	1;0	1;1	2;1	5;10	>90	30	no
103	7;4	1;6	1;7	2;10	4;6	>90	30	no
104	6;11	0;4	0;6	3;4	3;7	>90	25	no
105	7;4	0;0	0;3	4;4	3;0	>90	30	no
106	9;3	0;7	0;9	2;7	6;8	>90	30	no
107	8;7	1;5	1;5	3;2	5;5	>90	30	no
109	7;1	0;9	0;10	3;2	3;11	>90	25	no

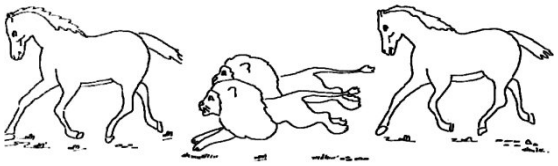
HL: Hearing loss; HA: Hearing aids; CI: cochlear implantation.

4.2. Material

The types of structure under investigation are those shown in (1), (2) and (3). Each trial began with 'Indica' (point to). Only animate nouns and transitive verbs were used. The verbs used in the experimental task are: *rincorrere* (to run after), *tirare* (to pull), *inseguire* (to chase), *beccare* (to peck), *seguire* (to follow), *lavare* (to wash), *guardare* (to look at), *mordere* (to bite), *spingere* (to push).
Given that (1) and (3) in Italian are potentially ambiguous between a subject or object reading when the two DPs display the same number, each experimental trial was

disambiguated through number agreement between the subject and auxiliary verb. The relative head was always singular whereas the embedded noun was always plural. The verb could either agree with the relative head (as in 1) or with the embedded noun (as in 2 and 3). The test was composed of picture/sentence pairs. The pictures were selected from those used by De Vincenzi (1996) to test subject/object wh-questions in Italian and were partially modified in order to make the image clearer. The pictures always had the same structure: animal X on the left, a pair of animals Y in the middle and animal X on the right. For example, a horse that is chasing two lions and these two lions are chasing another horse (Figure 1) was paired with one of the structures in (1), (2) and (3):

Figure 1: Sample of experimental picture



Hence, correct answers were always on one of the peripheries of each picture. Each structure (OS, OO or OOp) occurred 8 times in the list. In addition to the 24 experimental trials, 12 fillers sentences were introduced, yielding a list of 36 items in total. Filler sentences were used in order to introduce some correct responses corresponding to the character in the central position. We used sentences with either intransitive verbs or transitive verbs with inanimate objects (which are not reversible and therefore easier for children). The same picture appears only once in the experimental list and each picture was paired with only one sentence. The direction of the action in the experimental trial pictures was towards the left in 14 pictures and towards the right in 12 pictures. The position of the target was on the left 14 times, on the right 12 times and in the center 10 times. To control for potential order effects on trials, we created two lists (List1 and List2), in which the presentational order of trials was reversed and each list was presented to half of the participants.

4.3. Procedure

Typically-developing children were tested at their school or kindergarten. A preliminary meeting in the classroom preceded the actual individual testing session. During this familiarization time, we introduced ourselves and our puppet Camilla to the children. Camilla was a little snail who wanted to learn Italian and children were very happy to help her in this purpose. After this preliminary session, hearing children were tested individually in a quiet room. HI children were tested by the speech therapist and the first author during their individual speech therapy sessions.

Each participant was presented with some pictures and was asked to point to the right character after listening to the test sentence. All sentences were recorded by a female voice and to hearing children, they were administered using speakers connected to a laptop. For HI children, the sentences were instead uttered by the experimenter.

The session started with a verb comprehension pre-test, in order to make sure that all children (especially the 3-year-olds) were familiar with the lexical verbs used in the test. Furthermore, in order to make sure that participants knew all the characters, we began each trial by naming them aloud (or encouraging the child to do so). This was done in order to make sure that the child scanned the whole experimental setting, minimize lexical access just before the experimental sentence was uttered and make both RC head candidates salient in the reference context. For example, for sentence (1), the preamble was: *Look, here there's*

a horse, here there are two lions and here there's another horse. Now, we will listen to a voice saying something and you will show Camilla which is the right character". We began with three practice sentences and then moved to the experimental trials.
Children's responses were annotated on the response form by the experimenter. One point was attributed for each correct response.

5. Results and Data Analysis

Correct response percentages are summarized in the following table:

Table 2: Correct response % for each condition in each group.

	HI	GC	VC	AC	Sentence type Mean
OS	89	100	97	97	96
OO	55	81	83	92	78
OOp	22	45	53	67	47
Group Mean	55	76	78	85	

The main results of the correct response analysis confirm that subject relatives are significantly more accurate than object relatives. As for the two object relatives, OO are significantly more accurate than OOp. As for groups, children with CI are significantly less accurate than each control group whereas no significant difference yields among typically-developing children.
Given the categorical nature of our data, a repeated-measure logistic regression analysis was conducted in order to explore the variation of errors (Non-Target) and correct (Target) responses.
We found significant main effects of Group [$\chi^2(3)= 8.59$, $p=0.035$] and Sentence [$\chi^2(2)= 24.02$, $p<0.001$]. Contrast estimate results show that, from HI to GC, the odd Non-target/Target significantly decreases at a 0.28 rate ($p= 0.01$); this means that errors (rather than correct responses) are 3.6 times more frequent in HI (mean accuracy: 55%) than GC (mean accuracy: 76%). From HI to VC, the odd Non-target/target significantly decreases at a 0.23 rate ($p= 0.007$); this means that errors (rather than correct responses) are 4 times more frequent in HI (mean accuracy: 55%) than VC (mean accuracy: 78%). From HI to AC, the odd Non-target/Target significantly decreases at a 0.12 rate ($p<0.001$); this means that errors (rather than correct responses) are 7 times more frequent in HI (mean accuracy: 55%) than AC (mean accuracy: 85%). No other significant differences were attested among control groups.
As for the main effect of Sentence, contrast estimate results show that from OS to OO, the odd Non-target/Target significantly increases at a 7.3 rate ($p<0.001$); this means that errors (rather than correct responses) are 7 times more frequent in OO (mean accuracy: 78%) than in OS (mean accuracy: 96%). From OS to OOp, the odd Non-target/Target significantly increases at a 34.58 rate ($p<0.001$); this means that errors (rather than correct responses) are 35 times more frequent in OOp (mean accuracy: 47%) than OS (mean accuracy: 96%). From OO to OOp, the odd Non-target/Target significantly increases at a 4.73 rate ($p<0.001$); this means that errors (rather than correct responses) are almost 5 times more frequent in OOp (mean accuracy: 47%) than in OO (mean accuracy: 78%).
In order to assess whether individual pattern of responses to different conditions mirrors our group results, data from each child in the four groups were calculated to derive a pass/fail score. Children were credited to succeed in a particular condition if they produced at least 5 (out of 8) correct responses (Binomial distribution for n=8, setting the chance level at 0.33 ,

p= .046). The number of subjects in each group who were performing at above chance level is reported in the following table:

Table 3: Number of children performing above chance for each group.

	HI	GC	VC	AC
OS	8	8	8	8
OO	3	6	8	7
OOp	1	4	3	4

Only one HI child scored above chance on OOp whereas 3 children out to 8 scored above chance on OO. It is important to notice that the low performance of HI children is particularly striking if compared to the one of the youngest language control group (GC), whose age ranges from 3;6 and 5;11.
Furthermore, we have checked whether language performance in HI children showed a significant correlation with some of the following factors: (a) age of HA; (b) age of CI; (c) age at the time of testing; (d) duration of CI use; (e) memory span (back and forward). We found a significant positive correlation only between performance on OOp sentences and memory span. Specifically, both correlations between performance on OOp and forward span (r_s = .941, N=8, p<.001) and performance on OOp and backward span (r_s = .9, N=8, p<.004) were significant.

6. Discussion

The performance of the HI children in the comprehension task show a typical gradient of difficulty, namely OS are easier to interpret than OO and OO are easier than OOp.
The asymmetry between subject and object relatives is captured by the Relativized Minimality principle (Rizzi, 1990, 2000, 2004a, Starke, 2001), accounting for the intervention effects involved in sentences containing long-distance dependencies[3]. RM is a principle of locality, occurring in configurations like (6):

(6) …X…Z…Y…

This principle states that a relation between X and Y cannot be established when an intervener, Z, potentially represents a candidate for the local relation.
The RM principle predicts the high percentage of correct responses in subject relative clauses in all groups. In this type of sentences, no Z-type element occurs between the relative head and the gap in embedded subject position:

(7) Indica il cavallo [che < il cavallo > sta inseguendo i leoni]

To account for the asymmetry between subject relatives (OS) and object relatives with preverbal subject (OO) by using RM some further remarks are necessary. RM effects in object relatives with preverbal subject are due to an intervening element occurring between the moved object, namely the RC head, and its gap in the embedded clause.
The requirement for the intervening element to be a potential candidate is specified in terms of "feature identity/sameness", i.e. Z and X have to belong to the same structural type (Rizzi 2000). Recent Cartographic studies, drawing detailed maps of syntactic configuration

[3] We assume Chomsky's (1995) Copy Theory of Traces, on the basis of which traces are full (unpronounced) copies of their antecedents.

(Cinque 1999, 2002, Rizzi 2004b), help clarify the concept of "feature identity/ sameness". Indeed, each position in clause structure is associated to a set of morphosyntactic features, as (8) shows:

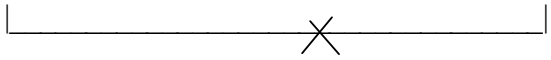
(8) a. *Argumental:* person, gender, number, case
b. *Quantificational: wh-*, Neg, measure, focus, R[4]
c. *Modifiers:* evaluative, epistemic, Neg, frequentative, celerative, manner..
d. *Topic*

In relative clauses, the DP head (and consequently its trace) belongs to the Quantificational class (R), while the embedded DP belongs to the Argumental class (A). A mature system is able to operate a distinction between the two classes and to attribute the correct set of morphosyntactic features to the two DPs. In this case, the chain between the moved DP and its trace is correctly formed:

(9) +R +A +R
Indica il cavallo [che i leoni stanno inseguendo < il cavallo >]

In immature systems, scope-related features and features checked against positions in the periphery of the clause, namely wh/R features, are more likely to get compromised and to remain underspecified due to limited processing capacities (Garraffa & Grillo 2007, Adani 2008, Grillo 2008). Hence, the distinction between Quantificational and Argumental classes is no longer available:

(10) +A +A +A
Indica il cavallo [che i leoni stanno inseguendo < il cavallo >]



The presence of the intervening element and the decay of the R-feature lead to RM blocking chain formation[5].
Although Relativized Minimality suitably explains children's performance OO, it does not immediately capture the low accuracy on OOp. Let us consider the example of an OOp:

(11) Indica il cavallo [che *pro* **stanno** inseguendo **i leoni** <il cavallo>]
Point to the horse that ARE chasing the lions
'Point to the horse that the lions are chasing'

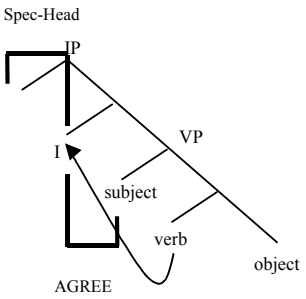
This sentence involves a long chain between the expletive *pro* and the post-verbal DP (Rizzi 1982, 1986). Preverbal *pro* intervenes between the relative head and the post-verbal NP. Hence, on the basis of RM predictions, we would expect the same intervention effects as those provoked by the preverbal embedded subject in OO. The performance on the two types of object relatives would be expected to be similar. On the contrary all groups (especially the HI group) achieved lower scores on OOp than on OO.
The role of different intervening elements in sentences containing long-distance dependencies in Hebrew was investigated by Friedmann et al. (2008), who found out that the presence of arbitrary *pro* does not cause any intervention effect and the sentence is

[4] In this analysis, following Adani (2008), we assume that the relative feature R is also included in the Quantificational class.
[5] Another approach in terms of RM has been proposed by Friedmann et al. (2008) for Hebrew-speaking typically developing children, where the source of intervention is the lexical restriction (+NP).

correctly interpreted. It is worth clarifying that *pro* (arbitrary) in Friedmann et al. (2008) and *pro* (expletive) in our experiment are different. Nonetheless, in the same way as arbitrary *pro*, we claim that expletive *pro* in our experimental trials is not problematic per se. Low performance scores might be attributed instead to the presence of a post-verbal subject in the low area of clause structure and to the way agreement between the subject and the verb takes place.

In order to account for this phenomenon, we adopt the minimalist theory of Agreement (Chomsky 1995, 2000, 2001) and following Guasti & Rizzi (2002) and Franck et al. (2006), we assume that agreement is a two-step process, composed of two distinct components, AGREE and Spec-Head checking, subsequent to the movement of the subject (MOVE) from its original position. AGREE is the relationship established between the subject within VP and the relevant functional projection in the upper area of the syntactic tree (IP)[6]. Through this agreement process, the number and person features of the subject are copied onto IP. A second agreement step takes place when the subject moves to the specifier of IP, thus entering a Spec-head configuration with the verb in I and allowing local checking:

(12)

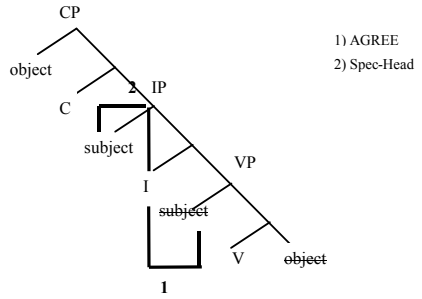


Subject-verb agreement is robust in syntactic configurations in which derivation involves both AGREE and Spec-head checking, because agreement is double-checked. Agreement is instead more fragile in Verb-Subject configurations, in which this relation is established exclusively under AGREE and no local checking in Spec-head takes place.

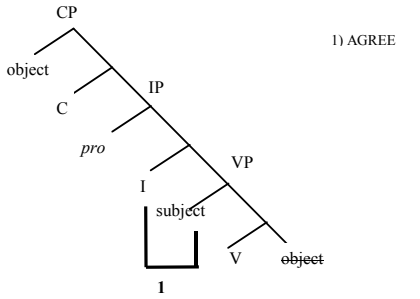
We found that OO are performed significantly better than OOp (see section 5). In the case of OO, agreement checking occurs both under AGREE and in the Spec-Head configuration (13a). In the case of OOp, there is uniquely long-distance AGREE between the verb in I and the subject in the low portion of the clause structure. This agreement is then not confirmed by Spec/Head checking (13b):

[6] In this paper, we used a simplified representation of clause structure only containing the nodes CP-IP-VP.

(13) a. OO



b. OOp



Hence, we suggest that difficulties in the interpretation of OOp are related to the fragility of agreement between verbs and post-verbal subjects, based on AGREE only (Guasti and Rizzi, 2002, Frank et al., 2006). We claim that this phenomenon is easily found in all groups in the course of linguistic development, but it has even stronger consequences in presence of immature systems and especially in HI children.

The difficulties of HI children with OOp may be justified by the heavy processing load needed to interpret these structures, since memory is forced to keep plural morphology on the verb in stand by, until the post-verbal subject is encountered. Since the plural morphology on the verb needs to be checked against the subject in post-verbal position, the human parser presumably forces the syntactic reanalysis of OOp, which are interpreted as OS. Interestingly, we found a significant correlation between performance on OOp and both forward and backward digit spans in HI children.

Our results are corroborated by some studies investigating the relationship between sentence comprehension and memory. Typical and atypical acquisition seems to be affected by some developmental constraints. Papagno et al. (2007) found that sentence comprehension depends on syntactic complexity and on the involvement degree of verbal short memory in processing syntactically complex sentences. Correlation between impaired acquisition and limited working memory is also predicted by the Derivational Complexity Metric (Jakubowicz 2005, Jakubowicz & Tuller, 2008), which accounts for the difficulties French-speaking SLI children experience in the computation of sentences containing long-distance dependencies, and for their tendency to avoid long-distance movement.

7. Conclusions

In this paper, we have analysed the performance of HI children in comparison with that of hearing children in the comprehension of subject and object relative clauses. A between-group analysis proved that HI children significantly distinguish from hearing children as far as the comprehension of these structures is concerned. The HI group showed lower accuracy than all control groups. It is evident that the role of accessible linguistic input is fundamental for a child to acquire and develop the grammar of his/her own language and the lack of natural and adequate exposure to a natural language (either oral or sign language) since birth has had strong consequences on these children's language development.

Despite the significant difference in performance between the HI group and the hearing controls, a within-group analysis has revealed that HI children pattern with hearing children as far as the relative clauses gradient of difficulty is concerned. OS are more accurate than OO, and OO are more accurate than OOp. We explained the extra difficulty attested with the two types of object relatives by using an approach that combines recent linguistic proposals in terms of locality and agreement. The analysis of results has demonstrated that

OS are well mastered by all hearing populations and also for HI children these structures are not problematic. In OO, the increasing load brought in by the intervening element is responsible for the low performance in immature systems. Hence, the consequences of Relativized Minimality are even more evident in children with hearing loss. In OOp, the difficulty is not due to RM. We have claimed that it is due to fragile subject-verb agreement occurring with post-verbal subjects, which is only based on the AGREE relation. This contributes to overload working memory and makes the comprehension of these structures extremely problematic for children using cochlear implants.

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