UNIVERSITÀ CA' FOSCARI VENEZIA

UNIVERSITY OF VENICE WORKING PAPERS IN LINGUISTICS

VOLUME 17 - 2007

edited by Laura Brugè

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Stampato in Italia presso Selecta SpA, Milano

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LIS – Antisymmetry and split CP

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1. This work aims at analyzing some empirical data[1] from Italian Sign Language (LIS) related to its CP domain, in the light of Antisimmetry and the so-called Split-CP.
It focuses on the possibility that in LIS too, Topicalization, conditional clauses, relative clauses, along with different kind of interrogative and soubordinate clauses are explained with the hypothesis that IP be the complement of a CP placed at its left, following different proposals recently made for other languages both spoken and signed.

1.1. The position of CP

(1) Giorgio told me THAT he saw you yesterday / G.told me THAT yesterday he saw you
GIORGIO$_{LFT}$ $_{LFT}$SAY$_1$ (Ø) YESTERDAY (YOU$_1$) VENICE$_{RGT}$ $_2$GO$_{RGT}$ DONE

(1') a. Giorgio told me (Ø) he saw you yesterday / G.told me (Ø) yesterday he saw you
(1') b. Giorgio mi ha detto CHE ieri ti ha visto / G. mi ha detto CHE ti ha visto ieri

[1]. I thank Mirko Santoro and Monica Squizzato with all my hearth for being very patient informants and I also thank Guglielmo Cinque for his objections which gave me the opportunity to improve some aspects of the analysis.

(2) I went/have gone to Venice BECAUSE there was an exam/I had an exam
(I_1) $VENICE_{LFT}$ $_1GO_{LFT}$ BECAUSE(reason) EXAM EXIST

The sentences (1), (1'a-b) and (2) all display the same order: [IP_{MATR} [CP [IP_{SUB}]]] , with the difference that in Italian the CP is always realized overtly (CHE) whereas in LIS and English it is not overtly realized at least in some cases (Ø) .

When some overt lexical material appears in LIS, the sign BECAUSE in (2), it is in the same position observed in spoken languages with left CP, as Italian or English.

The sign BECAUSE in (2), though beeing usually glossed as the NP "reason" (it.*motivo*), has a different function and a different position from that of an NP. For instance, the sign "reason" employed as an NP complement of the verb *remember* in (3a) appears in the canonic object position S *O* V typical of LIS declarative plain sentences and agrees in PLACE with the verbal index. On the contrary, the sign "reason" employed as causal marker BECAUSE (2)-(3) does not agree and comes before the verb consistently with the hypothesis that it resides in CP according to the order [IP_{MATR} [CP [IP_{SUB}]]].

(3) ...Because I remember it (it. *perché lo ricordo)*
...REASON I_1 REMEMBER <*ind*>$_X$ *(no NP-verb agreement)*

(3') a I remember the reason (it. *ricordo il perché*)
I_1 $REASON_{CEN}$ REMEMBER <*ind*>$_{CEN}$ *(the verbal index does agree in PLACE with the NP)*

1.2. Split-CP: Topicalization

Compare a plain declarative sentence (5) with its counterpart (5'a) whose object is topicalized, marked by the facial expression "raised brows", moved leftward and separated with an intonational break (,) from the remaining sentence.

(5) I never go home
(I_1) $HOME_{LFT}$ $_1GO_{LFT}$ NEVER

(5') a. Home, I never go (there)

top.expr.

$HOME_{LFT}$, (I_1) $_1GO_{LFT}$ NEVER

Compare also, the declarative sentence (6) with the object topicalization in (6'a)

(6) I have never signed *(="spoken" in LIS)* to that student

I_1 STUDENT $THAT_{LFT}$ $_1SIGN_{LFT}$ NEVER

(6') a. To that student, I have never signed *(="spoken" in LIS)*

top.expr.

STUDENT $THAT_{LFT}$, $_1SIGN_{LFT}$ NEVER

In both cases (5'a) and (6'a), the moved (topicalized) phrase is marked by a special facial expression, whereas the remaining sentence retains the neuter expression (no special mark) usually employed in declarative sentences, (5)-(6).

In a Split-CP frame (Rizzi, 1997), these data about Topicalization suggest that the CP domain is in the left periphery, since topicalized items (marked by the facial expression "raised brows") usually appear in the Left Periphery of the sentence due to a raising movement into the specifier of TopP.

Topic precedes interrogative clauses:

(6') b. To that student, have you ever signed?

top.expr. y/n question

STUDENT $THAT_{LFT}$, $_2SIGN_{LFT}$ NEVER?

1.3. Split-CP: *if* clauses and interrogative clauses

(7) If (you) go to Venice, (I) go to Rome

cond.expr.

(YOU_2) $VENICE_{LFT}$ $_2GO_{LFT}$ (I_1) $ROME_{RGT}$ $_1GO_{RGT}$

The *if* clause must be at the left of the matrix clause and must be marked by a special "doubtful" facial expression (7) whereas the matrix clause retains a neuter expression.

Inverting the *if* clause with the matrix clause yields agrammaticality in LIS (7b) as it does in American Sign Language, an SVO language, and in Nederlandese Sign Language (NGT, Nederlandse GebarenTaal) which is similar to LIS in having an SOV word order and a postverbal negation.

(7') b. (I) go to Rome if (you) go to Venice

cond.expr.

*(I_1) $ROME_{RGT}$ $_1GO_{RGT}$ (YOU_2) $VENICE_{LFT}$ $_2GO_{LFT}$

For ASL and NGT, Pfau (2006) proposes the hypothesis that *if* clauses reside in a layer of the CP domain, in the left periphery of the matrix clause: this projection is placed at the left of InterP, the interrogative phrase where the author suggest that all interrogative clauses raise.

(8) If it rains in the evening will the party be cancelled?

cond.expr. y/n question

EVENING RAIN PARTY CANCELLED (Pfau 2006, (26a))

Although further research is expected, LIS data seem consistent with this theory:

(9) If it rains in the evening, will (you) come to (me)?

cond.expr. y/n quest

EVENING RAIN $_2COME_1$?

It must be remembered that also polar questions *are* preceded by Topicalizations, thus following the layer hierarchy in the CP domain suggested by Pfau.

1.4. Correlative clauses

(10) A boy that called left

a. BOY_i *prorel* $_i$ CALL (HE_i) LEAVE DONE

(Cecchetto, Geraci and Zucchi, 2004)

b. BOY_i CALL *prorel* $_i$ (HE_i) LEAVE DONE

(Cecchetto, Geraci and Zucchi, 2004)

In relative clauses like (10), the sign glossed as *prorel* can appear close to the noun or at the end of the clause. Cecchetto, Geraci e Zucchi (2004) suggest that these clauses are correlative clauses similar to those observed in Hindi, and that LIS *prorel* is the counterpart of the Hindi relative *jo* found in (11) which moves rightwards into [Spec, CP]:

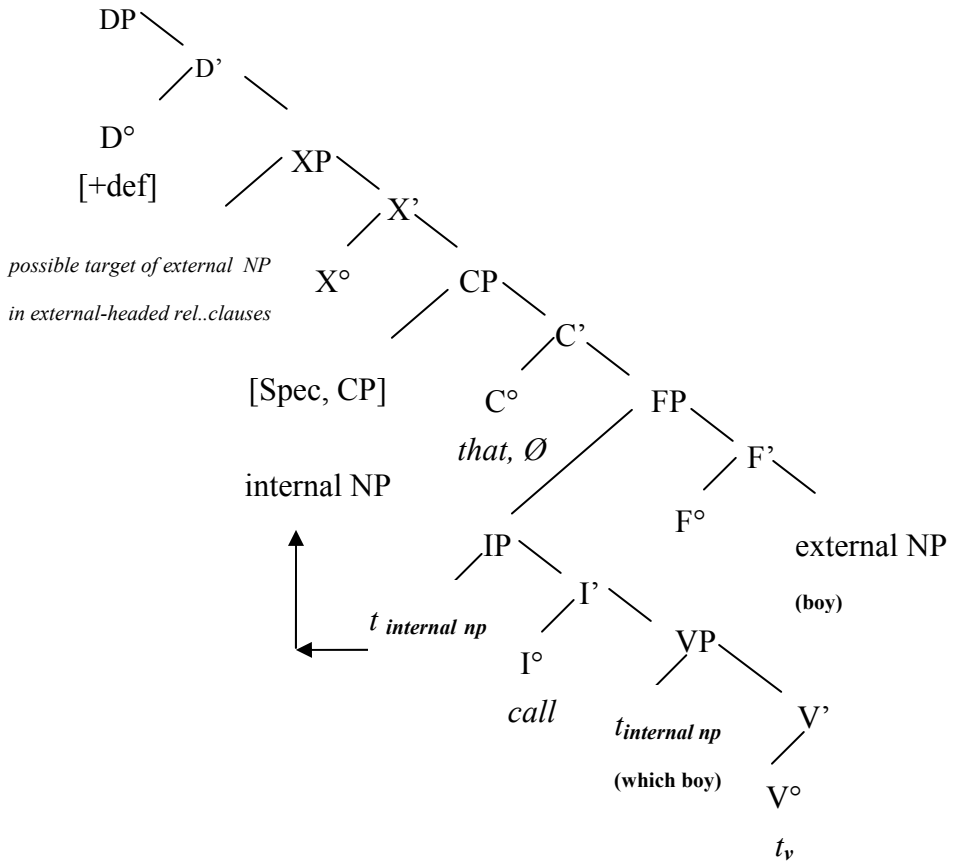
(11) the girl which is standing is tall
jo larKii khaRii hai vo larKii lambii hai
*(*lit.: *which girl standing is, that girl tall is)*

Cinque (2005a) proposes a unitary theory for the different relative clauses according to which the head-noun is merged *twice* both inside and outside the relative clause: the internal head is a quatified NP and the different kinds of relative clauses are derived through a sequence of leftward raisings in the frame of a strict Spec-Head-Compl structure[2].

In other words the difference between correlative clauses and external-headed relative clauses simply reflects a mere difference of raising. Indeed, in all relative clauses the internal head, i.e. the quantified NP, raises leftwards into [Spec, CP]: only at this point the derivation diverges.

The structure is presented below, omitting the description of the different AGReements visible in the verbal morphology of LIS.

[2]. For an application of this model to Hindi correlative and external-headed relative clauses, to which LIS sentences are compared here, see Ramaglia (2005).



In external-headed relative clauses, the external NP raises higher than CP (probably to check definitness) takes scope over the internal head which is identified and cancelled, so that the clause is realized as an external-headed relative clause, for instance in English *The boy which calls/called* or in Italian *Il ragazzo che chiama / ha chiamato*.

In correlative clauses, on the contrary, the internal head takes scope over the external one (since this does not raise) and identifies it: the external head is thus cancelled and the clause is realized as a relative clause with a quantified internal head, that is as a correlative clause.

(12) jo larKii khaRii hai vo larKii lambii hai (*jo larKii* is the quantified internal NP)
a. BOY *prorel* CALL (HE) LEAVE DONE
(*BOY prorel* is the quantified int. NP)

The postnominal position of the quantifier in LIS (12a) and (10a) is consistent with the raising of the NP due to the pied-piping movements proposed by Cinque (2000).

In LIS, indeed, the sign order related to the NP is N-A-Num-Dem / N-A-Num-Q (Bertone, 2007). This order matches that of Standard Arabian discussed by Cinque (2000): comparing different spoken languages, he suggests that the different orders can be derived from one and the same Spec-Head-Compl structure through an NP raising followed by various successive remnant movements (pied-piping) in the projections inside the DP.

Thus different sequences can be explained, as the following in LIS:

(13) BOY TALL
- a. BOY THAT
- b. BOY TALL THAT
- c. BOY TALL TEN THOSE (not all LIS nouns show overt agr. in the plural)
- d. BOY ALL
- e. BOY WHICH-interrog.

In this frame, also the following sequence can be analyzed:

(13) f. BOY *prorel*

where the NP is quantified by the postnominal sign *prorel* found in the sentence (12a), reported here as (14):

(14) BOY PROREL CALL (HE) LEAVE DONE

In the sentence (10b), here reported as (15), the sign *prorel* appears after the verb, instead, and would require *prorel* to move rightwards as observed by Cecchetto, Geraci and Zucchi (2004).

(15) BOY_i CALL $prorel_i$ (HE_i) LEAVE DONE

If the sign *prorel* in (12a) is analyzed as a quantifier, the sequence BOY CALL looks like a whole constituent, which behaves similarly to the sequences Noun-Adjective according to the usual pied-pipe movements found in the DP of LIS: BOY TALL THAT, BOY TALL FIFTEEN, BOY TALL WHICH...

Indeed, according to the judgement of the informants a construction similar to (15) can be employed even with adjectives: just compare the plain declarative sentence (16) with its counterpart (16a) which displays the sign *prorel*, instead, and is still grammatical although having a slightly difference in the meaning.

(16) I (have) bought a/the red pen
PEN$_{RGT}$ RED I BUY
a. I (have) bought the pen (that) red
PEN$_{RGT}$ RED *prorel* $_{RGT}$ I BUY

This leads to think that two different structures are involved: (12a) is a correlative with a sequence noun-quantifier-verb whereas in (12b) and (14) the verb behaves as an adjective. More research is needed, still some support for this hypothesis is found in the fact that the morphology of LIS does not distinguish past participle verbs from adjectives so that PEN BREAK means both «the pen has/is broken» and «the broken pen» depending only on the context.

1.5. External-headed relative clauses

In LIS, besides correlative clauses, also external-headed restrictive relative clauses exist: the external head-noun is signed before the time adverbs and, although being often marked as a topic, does not bear the facial expression "half-closed eyes" which only marks its relative clause (Brunelli, 2006) and the adjectives derived from relative clauses (Bertone, 2007).

(17) Tomorrow I will read the book which (my) father bought yesterday

top.expr. raised brows

restr.expr. "half-closed eyes"

BOOK THAT$_{LFT}$ YESTERDAY FATHER$_{RGT}$ BUY TOMORROW I$_1$ READ$_{LFT}$
(lit.: *the book which (my) father bought yesterday, tomorrow I (will) read*)

Still, topicalization is not always necessary, and in such cases only the restrictive facial expression appears which leaves outside the external head.

On some occasion also pronouns can be used: leaving apart, for the purpose of th present work, the indexes coarticulated with two hands, it is worth focusing on the position of the pronoun inside the relative clause.

(18) The man who I "signed" (spoke in LIS) to yesterday is engaged with my sister

_____ restr.expr. "half-closed eyes" _____

MAN YESTERDAY $_{1}$SIGN$_{CEN}$ THAT-THAT$_{MID}$ SISTER-I ENGAGED TOGETHER$_{MID}$

<*ind.*> $_{MID}$ <*ind.*> $_{MID}$_____

In the frame of Cinque's hypothesis (2005a) this kind of external-headed relative clause is simply derived by raising the external head leftwards and higher than the [Spec; CP] occupied by the internal head observed in correlative clauses at par. 1.5: thus, the external head takes scope over the internal one, which in turns is idenitifed and cancelled. An external-headed relative clause results, indeed.

It is important to note that the raising of the external head is related to the need to check the feature of definitness (see structure at paragraph 1.5): indeed, in (17) the NP "MAN" which is not accompanied by any over determiner, is still interpreted as definite: *the man with whom...*

The behaviour of the external-headed relative clauses, too, is thus consistent with a rigid Spec-Head-Compl structure.

The reduplicated pronoun THAT-THAT (=*he-he*), if overtly realized, appear at the end of the clause, differently from the unmarked SOV order of, for instance, I HE SIGN: it must be taken into account that the reduplicated pronoun displayed inside the relative clause is the same employed for focalized objects (par. 1.8)

However, despite being dispalced from its canonical position, its agreement in PLACE with the verb is retained (in this case in a central position between the speaker and the listener/seer).

1.6. *Wh-* interrogative sentences

As observed by many authors *wh-* particles, too, are sentence-final in LIS. *Wh-* interrogative clauses are marked by a special facial expression "knitted brows": differently from other facial expressions (like Topic or Conditional ones), its extension varies as observed by Cecchetto, Geraci and Zucchi (2004).

(19) Which book did Paolo steal?

wh quest

PAOLO STEAL BOOK-WHICH (Cecchetto, Geraci and Zucchi, 2004)

(20) What did Gianni eat?

wh quest.

GIANNI EAT WHAT (Cecchetto, Geraci and Zucchi, 2004)

If subordinate clauses are also present, the non-manual mark correctly spreads only on the interrogative clause:

(21) Who said that Paolo arrived later on?

wh quest.

PAOLO ARRIVE AFTER SAY WHO (Cecchetto, Geraci and Zucchi, 2004)

This reflects the fact that the subordinate clause PAOLO ARRIVE AFTER is a different constituent from the matrix interrogative clause SAY WHO.

The sign order is inverted with respect to an unmarked declarative sentence as for instance:

(22) Marco says that Paolo arrived later on
MARCO SAY PAOLO ARRIVE AFTER

It must be noted that a sentence like (22a) is *partially* accepted only with a Topic expression:

top.expr.

(22) a. ?? PAOLO ARRIVE AFTER MARCO SAY

whereas (22b) is judged as ungrammatical regardless of the facial expression and the PLACE agreements between the verb and its arguments (not reported here):

(22) b. Marco says that Paolo arrived later on
*MARCO PAOLO ARRIVE AFTER SAY

On the other hand, for the interrogative clause (21), the hypothesis of a mere raising of the *wh-* sign into [Spec; CP] is not sufficient to account for this multiple inversion (matrix

clause verb after the subordinate clause, *wh-* after everything else): it is not possible either with a right [Spec; CP] theory or with a left [Spec, CP] theory; a remnant movement must be posited, instead.

Yet, the remnant movement cannot be a Topic movement, since in LIS and other sign languages Topicalization is marked by a specific non-manual component. According to informants, Topicalization with a *wh-* question *is* possible but the constituent moved in TopP must be marked by its own facial expression accompanied by the typical intonational break.

(23) That Paolo arrived later on, who said (this) to you?

top.expr. wh quest
PAOLO ARRIVE AFTER , SAY WHO

Still, such a construction, is not compulsory and (21) is well-formed even without any topicalization, therefore a different projection must be involved. Moreover, whatever this remnant movement be, it seems that the topicalization can cooccur with it:

(24) As for the LIS exam, who said that Paolo arrived later on?

top.expr. wh quest.
EXAM LIS , PAOLO ARRIVE AFTER SAY WHO

Proposal: the subordinate clause undergoes a raising into GP, the GroundPhrase occupied by background information already given in the discourse, but not central for it, differently from the Topic which is dedicated to given information also central for the speech.

The remnant movement in GP was posited for independent reasons and even in spoken languages to account for the inversion in French (Kayne & Pollock 2001) and for the *wh*-final interrogative clauses of some dialects, especially the bellunese variety of veneto (Poletto&Pollock 2004) and has thus the advantage of explaining some phenomena of LIS without resorting to ad-hoc hypotheses.

The information stored in GP can be omitted beacuse it is given and not necessary so that, with the proper context (21) might be reduced to:

(25) Who said it? (that Paolo arrived later on)

wh quest.

(PAOLO ARRIVE AFTER) SAY WHO.

The GP projection is open also to some material of the matrix clause namely because the decison on what must be questioned and what is known enough to be omitted depends on the context; sentences like (20), reported here as (26) are possible in a context in which Gianni has already been introduced and can be omitted:

(26) What did he (Gianni) eat?

wh quest.

(GIANNI) EAT WHAT

Likewise (26a) was judged consistent with a situation in which it has already been said that Gianni has eaten and one must just ask *what* has been eaten.

(26) a. What? (did Gianni eat)

wh quest. wh quest.

(GIANNI EAT) WHAT or even (GIANNI EAT DONE) WHAT

In an unmarked situation, on the contrary, (26b) can be uttered

(26) b. What did Gianni eat?

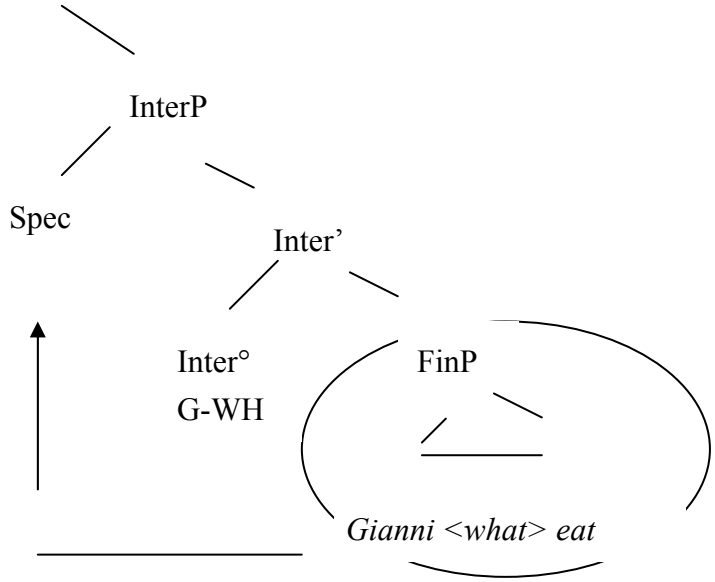
wh quest.

GIANNI EAT WHAT

Yet, the inversion of verb and *wh-* must be explained. The Indopakistani Sign Language displays a similar phenomenon. Aboh, Pfau and Zeshan (2005) noted that this language usually employs only a general interrogative sign which they glossed as G-WH and which means *what*, *when*, *where*….

They suggest that this sign be in fact a *typing-clause morpheme* located in Inter° and that the rest of the sentece, containing a phonetically null *wh-*, raise to [Spec; InterP]: in this way one can account for the fact that under Spec-Head agreement the *wh-* facial expression spreads over the remnant too and one can also explain why the interrogative sign is sentence-final.

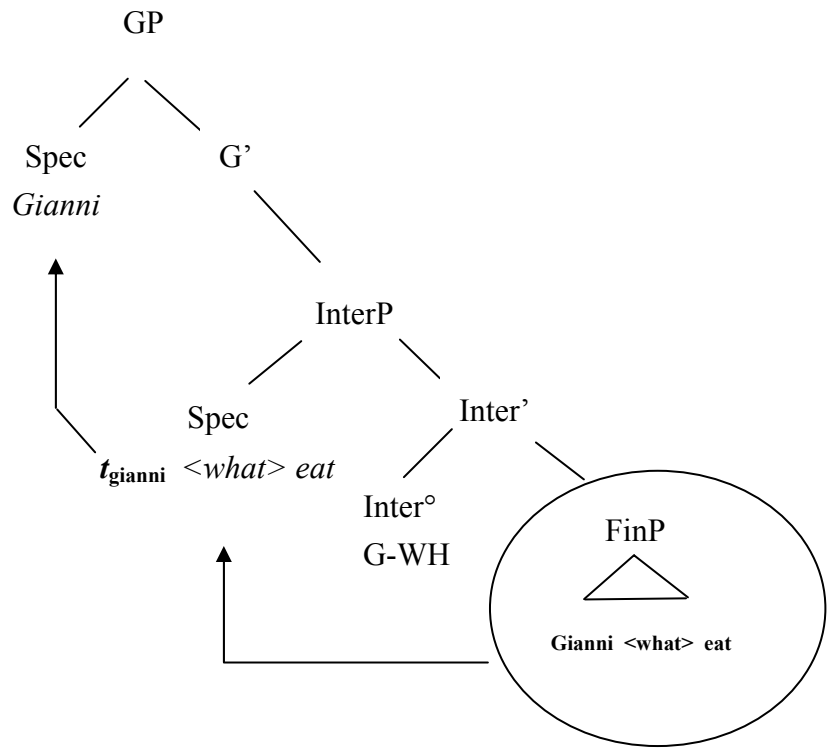
Indeed, in LIS the sign glossed as WHAT holds also for *when, how much* and in some varieties even for *where* : only the labial non-manual component coarticulated with the sign can help to disambiguate the meaning. In other words, it would be an general interrogative like the G-WH studied by Aboh, Pfau e Zeshan. Therefore, the structure of (26b) is:



The G-WH (usually realized as WHAT) would sit in Inter° while the rest of the sentence would undergo a remnant movement to [Spec; InterP] together with a silent-*wh*. Under Spec-Head agreement the non-manual component (facial expression *wh*-) spreads over the whole sentence.

Adding to this movement an extraction of background material to GP, yields parts of sentence which are external to InterP and therefore not marked by any facial expression.

The structure of (26) would be:



Still, this theory does not apply perfectly to more "specific" interrogative *wh*-signs which in LIS have their own phonetical forms to express WHO, WHICH, HOW, HOW MANY, WHY.

In such cases IndSL allows for the use of compound signs such as FACE G-WH , TIME G-WH, NUMBER G-WH to build more specific interrogatives *who*, *when,...*: to account for this phenomenon it has been suggested that [Spec; InterP] hosts the sign FACE, TIME or NUMBER after this has raised thorugh [Spec; FocP]. Yet, it is not clear how the whole sentence can be marked by the *wh*- facial expression since in this case that the remnant material can not enter a Spec-Head relation with the generic interrogative G-WH.

In particular, LIS sentences like (21) here repeated as (27) can not be explained because a specific wh-sign WHO appear instead of the general interrogative, the verb is "inverted" with respect to the interrogative sign and yet the facial expression spreads over the whole interrogative clause (SAY WHO?) as if the sequence VERB+WH were one constituent despite the inversion.

(27) Who said that Paolo arrived later on?

dom. wh

PAOLO ARRIVE AFTER SAY WHO

However, it must be noted that *wh-* signs are widely accepted to undergo some processes of focalization and for this reason Pfau suggests that FocP plays a role in the compound interrogatives of IndSL.

In addition to this, Pfau (2006b) also compares IndSL data with informations about NGT and even spoken languages, observing that *wh-* features and *interrogative* features are realized independently from each other; he notes that in some languages wh-questions can be built without any wh-sign i.e. he proves that the wh-sign (or the wh-word) *per se* is not a prerequisite to build wh-interrogative clauses.

Proposal: there is a specific projection, whose head encodes the *wh*-features, which is higher than InterP but lower than GP. The wh-sign raises into [Spec; FocP] and is overtaken by a remnant movement towards [Spec; InterP] which yields the sequence SAY WHO.

Subsequently InterP, containing FocP, raises to the projection reserved to wh-features: here the whole interrogative sequence gets the *wh-* facial expression and becomes a *wh*-interrogative clause.

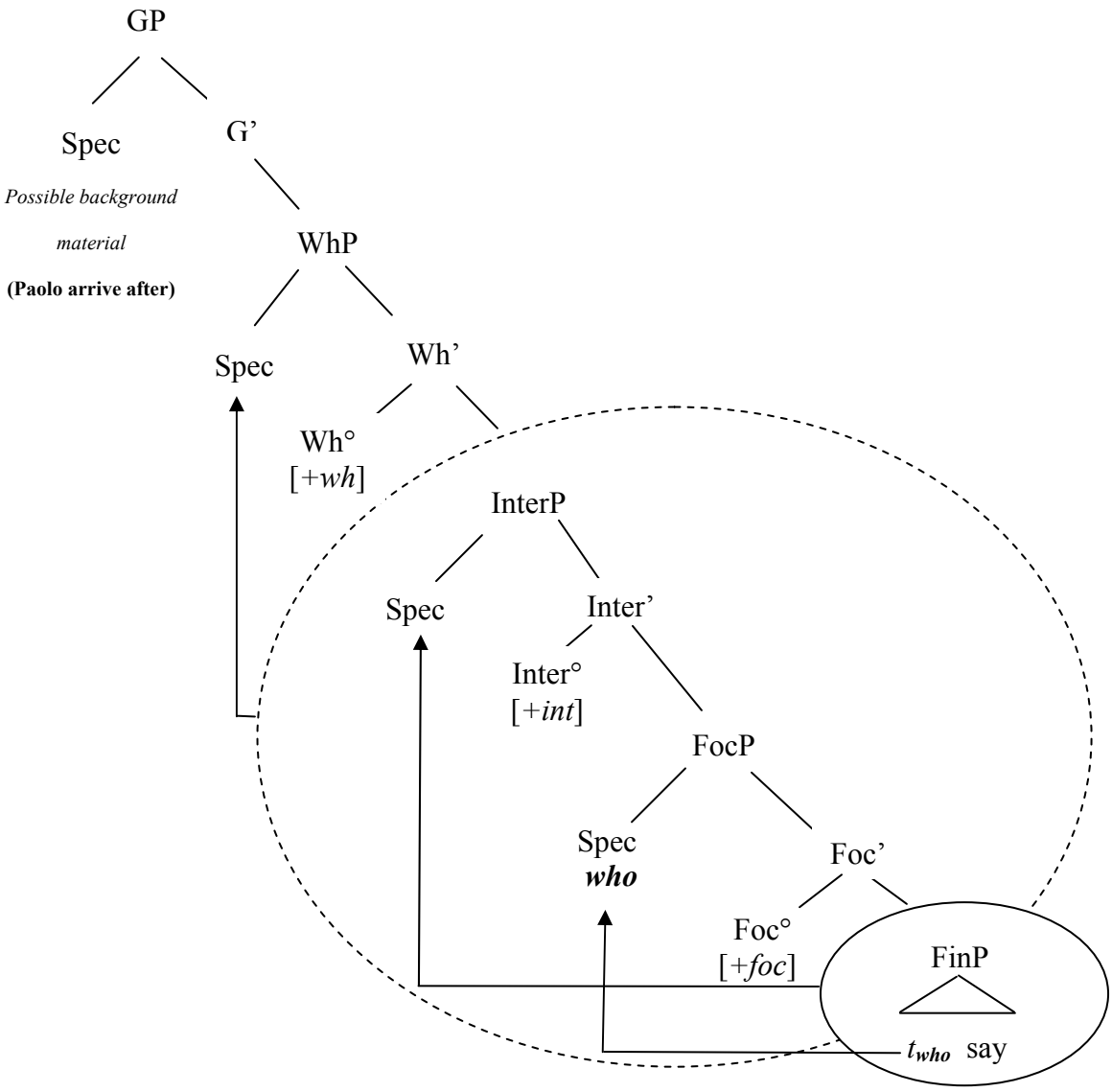
Indeed a projection *WhP* related to *wh* contexts was suggested by Hoekstra (1993) in order to explain the sequences of three complementizers of some Dutch varieties.

Also Poletto&Pollock (2004) and Poletto (2006) suggested the existence of one or more projections related to *wh*-features in their analyses of some romance varieties with final-*wh* similar to LIS final wh-signs. The theory is based on the distinction among *clitic-wh, weak-wh* and *strong-wh* (but see Bertone 2007 for an anlysis of LIS strong, weak and clitics pronouns) and has the advantage of explaining final-wh interrogative and double-wh interrogative clauses within one and the same framework.

Still, it involves the raising of some lexical material into a Topic projection, which is not observed in LIS where Topics are usually marked by a specific non manual component.

However, the presence of a specific projection for *WHs* is suggested in LIS by the fact that the faciale expression marking *wh*-questions is very different from that displayed on polar questions.

The structure of sentences like (25) and of *wh* questions in general can be posited to be as follows:



In this way [Spec; WhP] hosts the whole sequence SAY WHO which gets the *wh*-non-manual component (*wh*-facial express.) as a whole constituent.

If some background material is present, it is extracted to GP as suggested above "getting it out" of the spreading of the *wh* facial expression and placing it before the interrogative portion of the clause (the content of InterP raised to [Spec; WhP] together

with the FocP below). Thus, also marked sentences can be derived, like for instance (28) reported by Cecchetto, Zucchi and Geraci where the *wh* sign has not moved: the *wh-* is just not focalized and as a consequence it has not raised into FocP so that the whole sentence, with unchanged order, has raised:

wh quest.
(28) WHO ARRIVE *(who arrived!?)*

Whereas unmarked interrogative clauses display the inversion due to Focus

wh quest.
(28) a. ARRIVE WHO *(who arrived?)*

1.7. Focus

In some declarative sentences the focalized object appears sentence-finally, differently form the SOV order which is typic of LIS: for instance the informants have judged the following sentence as grammatical:

(29) I spoke (in LIS) to *him* / to *that*
(I) $_1$SIGN$_{SIN}$ THAT-THAT$_{SIN}$

Where the unmarked order would be:

(29) a. I spoke (in LIS) to him
(I) HE$_{LFT}$ $_1$SIGN$_{LFT}$

One can guess that the focalized item raises into [Spec; FocP] and is outrun by a remnant movement, possibly in GP.

In external-headed restrictive clauses too, the pronoun (if any) appears at the end of the clause and it often displays the reduplicated form typical of focus.

Likewise, it is often assumed that in interrogative clauses *wh* words/signs must check also focus features somehow and in LIS *wh*s appear sentenc finally, indeed.

2. Conclusion

Different phenomena related to LIS left periphery have been analyzed (topicalization, conditionals, correlative clauses, position of the head in external-headed relative clauses, some kinds of *wh* questions) in the light of different theories proposed for both signed and spoken lnguages. Such phenomena have been found to be largley consistent with a Spec-Head-Compl structure of the CP domain in LIS, according to the theory of Antisymmetry (Kayne, 1994) and the so-called split-CP (Rizzi, 1997).

Apparently there are few exceptions lik some interrogative clauses (those containing *wh* signs) and some phenomena inside external-headed relative clauses (position of the pronoun, if any, inside the relative clause): these structures display some relations with focalization processes.

Thus, the sentence-final position of these items must be probably related to the way Focus works in LIS, rather than in a Compl-Head-Spec structure.
A slight change to Aboh, Pfau and Zeshan's proposal (2005) and Pfau's theory (2006b), allows for the hypothesis that the variations in the extension of *wh* facial expressson be related to the extraction of background material into GP.

In addition to this, it is suggested that wh-questions involve the presence of a projection WhP associated with wh-features, consistently with the observation that many languages build wh-interrogative clauses regardless of the presence of overt wh-material and that many languages (both signed and spoken) realize wh-features independently from interrogative features and focus-features. This "captures" the intuition that wh-questions are derived by "superimposing" these features in different layers of the CP domain.

This is also consistent with the fact that at least in LIS, wh-questions are marked by a different facial expression from that observed on polar questions and with the fact that such non-manual component can not spread over the whole interrogative clause, although the sign order proves the presence of raising.

The assumptions made here to explain the behaviour of LIS have some "pendant" with the hypotheses made for other languages (both signed and spoken) proving that Italian Sign Language is a real language consistent with the general principles of Generative Grammar.

Yet some issues remain open:

- analyzing more deeply the consequences of the above proposal as for other languages

- defining the status of wh-signs in LIS (strong, weak o clitics see Bertone 2007) analyzing Topics with respect to the Poletto&Pollock's (2004) and Poletto's (2006) proposal
- start studing Focus phenomena in LIS.

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On different types of clitic clusters*

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1. Introduction

The purpose of this paper is twofold. On the one hand, it shows that in spite of the many previous discussions of Italian and Romance clitic clusters, some properties have gone unnoticed in the literature. Mainly using Italian data, I discuss the properties listed below:

(i) not all clitic clusters occurring in proclisis are also possible in enclisis. In Italian, proclisis seems to be more liberal than enclisis.[1] Following Kayne (1994), I make the hypothesis that (Italian) clusters can be of two main types, in accordance with the LCA: in one type, the pronouns in the cluster occur on one and the same functional head, in the other, the clitics occur on different (adjacent) heads. Due to verb movement, enclisis is possible only with clusters which form a single constituent;

(ii) assuming that there are two clitic positions in the clause, one very high in the IP layer (INFL, the 'clausal' clitic position) and one very low in the VP layer (the 'lexical' clitic position) (Cardinaletti and Shlonsky 2004), only clitic clusters occurring on one

* . The original nucleus of this analysis was presented at the LSA Summer Institute workshop on *Perspectives on Clitic and Agreement Affix Combinations* held at the University of Illinois, Urbana, on July 28, 1999, at the University of Thessaloniki in September 1999, at the University of Geneva in February 2000, at the Workshop on *Antisymmetry*, held in Cortona on May 15-17, 2000, and at the workshop on *The Bantu-Romance Connection*, held in Leeds on May 25-27, 2006. The audiences are kindly thanked for questions and comments. Many thanks also go to Andrew Nevins and two anonymous reviewers for very stimulating comments and criticism.

1. Italian differs from Greek, where enclisis is more liberal than proclisis (Terzi 1999).

and the same head are possible in the low clitic position, which only allows enclisis. The clausal clitic position must instead be thought of a series of adjacent heads;

(iii) in the spirit of Bianchi (2006a), among others, clitic pronouns check person and number features in the clausal clitic position. Person and number features are not checked in the low clitic position, where case is checked;

(iv) clusters containing 3rd person indirect object (IO) clitics, such as Italian cluster *glielo* 'to-him it', do not behave differently from clusters containing 1st and 2nd person IO clitics such as *me lo* 'to-me it' and *te lo* 'to-you it'. It is thus not necessary to assume a special syntax for *glielo*, *pace* Laenzlinger (1993), Heggie and Ordóñez (2005:26), Bianchi (2006a:2038), among others. I suggest that the similarity stems from the fact that Italian 3sg IO *gli* is a person clitic like *mi*, *ti*, *si*, etc., differently from e.g. French *lui* and Spanish *le*.

On the other hand, I show that extending the comparison to a different language family such as Bantu, some of the conclusions drawn from the analysis of Romance clusters should be revised. In particular:

(i) contrary to apparent abundant evidence from Romance, IO – DO is presumably not the order in which clitics are merged, but DO – IO is, as is clearly shown by Bantu languages, where the argument order is reversed by clitic pronouns;[2]

(ii) Italian clusters like *me lo* and *glielo* are not telling on the internal order of clitic clusters since there is some evidence that they are merged as single words. Their internal order rather complies with the person hierarchy in the high clitic position;

(iii) the universal status of the Person Case Constraint (Bonet 1991) should be rethought of. The order of the clitics inside the cluster seems to be important and should be taken into consideration to understand this constraint.

Although I will not give a full account of the differences between Romance and Bantu, I will try to relate the contrast between Italian and Bantu to an independent difference

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[2]. Following Dryer (1983), Bresnan and Moshi (1990), Krifka (1995), and Cocchi (2000a:88ff), Bantu so called object markers are taken here to be clitic pronouns like Italian / Romance ones. Differently from Hyman and Duranti (1982), I do not distinguish between clitic object markers (e.g. those occurring with no overt object and in Left dislocation) and 'true' object agreement (i.e., those co-occurring with an *in situ* object). This case can be taken to be an instance of clitic doubling similar to what is found e.g. in Spanish (Jaeggli 1982, Suñer 1988, Uriagereka 1995): it displays similar properties, e.g. sensitiveness to grammatical function, definiteness, referentiality, etc. (Krifka 1995:78f, Cocchi 2000a:89f). As for subjects, Bantu displays systematic subject clitic doubling: subject clitics are obligatory, and double a DP subject when present (similarly to what happens in northern Italian dialects, Cocchi 2000a:100); see also Kinyalolo (2003:346).

between the two languages: in Italian, clitics appear before the finite verb, in Bantu they follow tense markers and appear before the lexical verb. It is uncontroversial that Italian proclitic pronouns occur in the high clitic position. Following Barrett-Keach (1986) and Krifka (1995:1412-4), I assume that in Bantu, the Tense affix is in INFL. Object clitics utilize what I have called the low clitic position.

In Italian, person restrictions seem to be operative also in the low clitic position. This can be accounted for by establishing a relation between the two clitic positions, which is visible in the case of clitic climbing. Since in Bantu, clitics do not raise to the high clitic position, no relation between the low and the high clitic position is established.

2. Cluster internal restrictions

Not all languages that have clitic pronouns display clitic clusters. In those which do, like Italian and some of the Bantu languages (Bresnan and Moshi 1990), clitic clusters display order restrictions not displayed by full arguments. These restrictions may be of different sort. We start from one type of these restrictions.[3]

The order of two clitic pronouns may vary depending on the clitic pronouns found in the cluster. For instance, in Italian, the unmarked order of full complements is 'direct object (DO) – locative', (1a), but in clitic clusters, the locative may follow or precede the other clitic depending on its feature specification: cf. *mi ci* (1b) vs. *ci si* / *ce lo* (1c).[4] A similar restriction is found in French. While 1st and 2nd person IO clitics precede DO clitics (2a), the order is reverse when the IO is 3rd person, (2b):

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[3]. When writing about clitic clusters, it must be mentioned that there is much poorly understood Italian-internal variation. Some readers will not to agree on some judgments reported in this paper. Nor do I agree on some data reported in the literature. Just to give two examples, I find *Gianni ce ne parlerà* 'Gianni there on-it will-talk' (Laenzlinger 1993:265) ungrammatical, and I am among the speakers who do not accept *Ti* / *Vi ci affideranno* '[they] you to-us will-entrust' marked as % in Bianchi (2006a:2039, n.34).

[4]. In example (1c) and throughout, the 3sg.masc DO *lo* stands for the whole DO clitic series, containing the four possible combinations of number and gender features: *lo* (3sg.masc), *la* (3sg.fem), *li* (3pl.masc), *le* (3pl.fem).

(1) a. Metterà me / sé / lui in quel posto.
[he] will-put me / himself / him in that place
b. Mi ci metterà. DO– LOC
[he] me there will-put
c. Ci si / Ce lo metterà.LOC – DO
[he] there himself / it will-put

(2) a. Jean me / te le donne. IO – DO
Jean to-me / to-you it gives
b. Jean le lui / leur donne. DO – IO
Jean it to-him / to-them gives

These differences are also relevant in a comparative perspective. Languages may differ with respect to the order displayed by clitics inside the cluster. Italian and French differ with respect to the order of DO and IO clitics (e.g., the order in (2b) is opposite to the one of Italian *glielo*) and of accusative and locative clitics, (3a) vs. (3b):

(3) a. Ce lo metterà. LOC – DO
[he] there it will-put
b. Jean les y a rencontrés. DO – LOC
Jean them there has met

As shown in (4) and (5), Italian and Bantu differ with respect to the order of IO and DO clitics (in (5) and throughout, the glosses of the Bantu examples are those found in the quoted works):

(4) a. Me lo / Glielo darà. IO – DO
[he] to-me it / to-him it will-give
b. *Lo gli / mi darà.

(5) a. A-ka-bi-mú-h-a. DO – IO (Haya, Hyman & Duranti 1982:221)
he-P_3-them-him-give
'He gave them to him.'
b. Umugabo y-a-ki-ba-haa-ye. DO – IO (Kinyarwanda, Dryer 1983:132)
man he-PAST-it-them-give-ASP
'The man gave it to them.'

c. Mukaji u-tshi-mu-p-a. DO – IO (Tshiluba, Cocchi 2000b:50)
woman 1.SU-7.DO-1.IO-give-I
'The woman gives it to him.'

Bantu languages also differ from Romance languages in that differences like those seen in (1)-(2) are not found. The DO – IO order is also found with 1st and 2nd person clitics:

(6) a. A-ka-mu-ku-léét-el-a. DO – IO (Haya, Hyman & Duranti 1982:231)
he-P_3-him-you-bring-app
'He brought him to you'.

b. Nu-mu-m-pe. DO – IO (Tshiluba, Willems 1949)
you:pl-1.DO-1sg.IO-give
'Give her to me!'

I start presenting a proposal concerning the data in (1)-(3) based on the case properties of clitic pronouns. I will conclude that case is not the (only) property responsible for the word order found inside clitic clusters. We will then move on to the main empirical result of this paper, namely a restriction never noticed before as to which clusters can appear in proclitic and enclitic position in Italian, and to the discussion of this restriction. This will allow us to address the different clitic order between Italian and Bantu pointed out above.

3. On a case-approach to clitic clusters

In Romance languages, 1st and 2nd person clitics are not marked for case, being possible both as DO and IO, while 3rd person clitics are marked for case. Two different forms for dative and accusative exist: cf. Italian *gli* (to-him) vs *lo* (him), *le* (to-her) vs *la* (her). A classification of French and Italian clitic pronouns is reported in (7) and (8), respectively:[5]

[5]. Differently from French *leur*, Italian 3pl IO *loro* is a postverbal weak pronoun (Cardinaletti 1991), and it thus does not enter the present discussion.

(7) a. clitics$_{+CASE}$: *le*, *la*, *les*, *lui*, *leur*, *y*, *en*
b. clitics$_{-CASE}$: *me*, *te*, *nous*, *vous*, *se*

(8) a. clitics$_{+CASE}$: *lo*, *la*, *li*, *le*$_{ACC}$, *gli*, *le*$_{DAT}$, *ne*
b. clitics$_{-CASE}$: *mi*, *ti*, *ci*, *vi*, *si*

Assuming that the licensing of case-marked clitics (selected incorporation) is different from that of non-case-marked clitics (free incorporation), Laenzlinger (1993) suggests that (i) two clitics marked for case cannot combine on the same node, and (ii) case-marked clitics must be closer to the host than non-case-marked clitics. This proposal explains the possibility of clusters like French *me le* in (2a) and their order: *me le* vs. **le me*. The clusters *le lui* / *le leur* in (2b) circumvent the constraint in (i) in that *lui* / *leur* are taken to be adjoined to a head lower than the one *le* adjoins to. Locative clitic *y* and partitive clitic *en* behave like *lui* and *leur*: they give rise to the clusters in (9) where they follow other clitics. *Y* and *en* are also taken to occur in a lower head (Laenzlinger 1993:261f) (notice that *lui* and *y* cannot co-occur):[6]

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[6]. An alternative way of phrasing Laenzlinger's proposal is to say that *lui*, *leur*, *y* and *en* are a different type of pronoun, not clitic but weak in the sense of Cardinaletti and Starke (1999). In French, these pronouns would not occupy the clitic position discussed so far, but a lower position. There is some evidence that these French pronouns are weak rather than clitic. Consider first the fact that *lui* in (2b) patterns like postverbal *moi* in that it follows the DO clitic, (ib):

(i) a. Il me le donne. clitic + clitic
b. Donne-le-moi! clitic + weak

Following previous work (Cardinaletti and Starke 1999:221, n.32), I consider IO *moi* as a weak pronoun, which is morphologically different from both clitic *me* and strong *à moi*. The same analysis can be suggested for IO *lui*, which is morphologically different from strong *à lui* in the same way. If this is correct, the series *lui – à lui* would not have a clitic counterpart, differently from the tripartite series *me – moi – à moi*:

(ii)

	clitic	*weak*	*strong*
a.	me	moi	à moi
b.	---	lui	à lui

(9) a. Jean les y a rencontrés.
Jean them there has met
b. Jean l'en informera.
Jean him about-it will-inform
c. Marie lui en parle.
Marie to-him about-it speaks
d. Jean y en parlera.
Jean there about-it will-speak

Laenzlinger's proposal allows us to understand why in Italian, as in French, sequences like *me lo*, *te lo*, *ce lo*, *ve lo, se lo* (to-me / to-you:SG / to-us / to-you:PL / to-REFL it) are possible and occur in that order. It can also explain the different order between French *les y* and Italian *ce lo* (see (3) above): since Italian locative *ci* is the same lexical item as 1pl *ci* (see fn. 9), it differs from French *y* in that it is not marked for locative case. It can adjoin to an accusative clitic and must precede it.

Evidence for the weak status of *y* comes from the fact that in some fixed expressions, as in (iiia), it can occur in the position preceding a past participle, a context which is not available to clitic pronouns, as shown by Italian (iiib):

(iii) a. y compris / inclus … weak pronoun
there included
b. *vi compreso … clitic pronoun
c. ivi compreso … weak pronoun

Interestingly, Italian allows (iiic), where the locative pronoun has the longer form *ivi*. *Ivi* can be taken to be the weak counterpart of the locative clitic pronoun *vi* (see note 10), analysed as *i* + *vi* = support morpheme + clitic pronoun (see Cardinaletti 1994 and Cardinaletti and Starke 1999:193f for support morphemes). Due to the choice principle of Cardinaletti and Starke (1999), *vi* is always chosen over *ivi* because it has a smaller structure. In (iiic), the weak pronoun *ivi* is ruled in because clitic *vi* is independently ruled out from part participles. The phenomenon is not productive, however. For instance, the weak form *ici* (built on locative clitic *ci*) does not exist.

For some differences between Italian and French as regards coordination of clitic pronouns, which might support the above analysis, see Benincà and Cinque (1993:2323).

This proposal seems to find support in Bantu languages, where clitics are not marked for case and restrictions like those seen in Romance are not found. Two 3rd person clitics can combine, as shown in (5). That the two clitics are not specified for case is confirmed by the fact that in some Bantu languages, the sentence is ambiguous, (10):

(10) A-ka-bi-ba-léét-el-a. (Haya, Hyman & Duranti 1982:232)
he-P_3-them-them-bring-APPL
'He brought them (*bi*) to them (*ba*).'
'He brought them (*ba*) to them (*bi*).'

Laenzlinger uses his analysis also to rule out the ungrammatical sequence in (11). In Spanish, two 3rd person clitics, one accusative and one dative, are banned. In the grammatical cluster, dative *le* is replaced by non-case-marked *se* (spurious *se*):

(11) *le(s) lo → se lo 'to-him/them it'

A problematic case for a case-based approach is however provided by the Leismo dialects of Spanish, in which *le* is not case-marked (being used for both accusative and dative 3rd person animates), still it is replaced by *se* in cases like (11) (see Nevins 2007 for relevant discussion). Italian provides other problematic cases for a case-based approach to clitic clusters: (i) the clusters *gli* / *le si* in (12), where case-marked IO clitics *gli* and *le* combine with impersonal and reflexive *si*, respectively, and (ii) the cluster *lo si* in (13), where case-marked DO clitic *lo* combines with impersonal *si*:

(12) a. Gli / Le si è parlato.
to-him / to-her IMP has spoken
b. Gli / Le si è presentato.
[he] to-him / to-her REFL has introduced

(13) Lo si è visto.
him IMP has seen
'One has seen him.'

In (12) and (13), the case-marked clitics *gli*, *le*, and *lo* occur further from the host than the non-case-marked clitic *si*, in contrast with Laenzlinger's condition (ii) The question thus arises as to how *gli*, *le*, and *lo* are licensed in (12) and (13).

Furthermore, it is clear that what matters in the different word orders found with locative *ci* (see (1) above) is not case but other properties of the pronouns in the cluster.

In conclusion, there are some problematic clusters for a case-based approach to clitic clusters. In the following section, we turn to another problematic case, Italian *glielo*.

3.1. On the apparent special status of Italian *glielo*

Laenzlinger (1993:254) suggests that the ungrammaticality of the Italian clusters **le lo* and **le ne* is due to the same constraint that rules out (11) in Spanish: two case-marked clitics cannot combine on one and the same node. To get a grammatical sequence, feminine dative *le* is replaced by (masculine) *gli*:

(14) a. *le_{DAT} lo → glielo 'to-her it'
b. *le_{DAT} ne → gliene 'to-her of-it'

Since *gli* is also a case-marked pronoun (see (8)), this change is however unexpected. To explain it, Laenzlinger (1993:253) suggests that *glielo* forms "a unique clitic constituent at the structural level, as opposed to *me lo* which are two independent clitic constituents". He provides the impossibility of (15) as an argument for the clitic compound analysis:

(15) *Glielo o la presenterà? (Laenzlinger 1993:254, fn.13)
[he] to-him him or her will-introduce?

But this test does not distinguish *glielo* from other 'IO – DO' clusters, which are also impossible in coordination, (16). Something different should be said about Italian *glielo*:

(16) *Me lo o la presenterà?
[he] to-me him or her will-introduce?

Laenzlinger's claim that *glielo* has a special status among Italian clitic clusters is shared by other researchers. For instance, Heggie and Ordóñez (2005:26) have recently proposed that *glielo* is an 'amalgamation', to be best analysed in the morphology. Bianchi (2006a: 2038) assumes that in *glielo*, the two clitics adjoin to one another and move as a unit, while in e.g. *me lo*, the two clitic pronouns move separately (see section

5.1 below for the analysis of the two cluster types in terms of Kayne's 1994 LCA). The common property of these accounts is that clusters containing 3rd person IOs are treated differently from those containing 1st and 2nd person IOs. But the two sequences *me lo* and *glielo* must be treated alike. As I show below, they share all syntactic and phonological properties: they build the same type of cluster, which is possible both in proclisis and enclisis, and in both cases the final vowel of the first clitic is [e] instead of [i]. There is no reason to treat *glielo* differently from e.g. *me lo*. In conclusion, Italian *glielo* seems to be another problematic case for a case-based approach to clusters in that it unexpectedly behaves like e.g. *me lo*.

3.2. *Mi ti* combinations

A further complication is provided by *mi ti* combinations, which are possible for some speakers of Italian (Seuren 1976:32, Evans et al. 1978:160, Monachesi 1995:42, Bianchi 2006a:2040) and display a difference between proclisis and enclisis not encountered so far. Out of the six combinations of grammatical functions found in proclisis, i.e. both DO – IO and IO – DO, only three can appear in enclisis, namely DO – IO sequences:[7]

(17) a. Lui mi ti presentò / affidò. mi_{DO} ti_{IO}
he me to-you introduced / entrusted
b. Lui pensa di presentarmiti / affidarmiti. mi_{DO} ti_{IO}
he thinks to introduce / entrust me to-you

(18) a. ?Lui mi ti presentò / affidò quando eri piccolo. mi_{IO} ti_{DO}
he to-me you introduced / entrusted when [you] were a child
b. *Lui pensa di presentarmiti / affidarmiti. *mi_{IO} ti_{DO}
he thinks to introduce / entrust to-me you

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[7]. Among 1st and 2nd person clitics, *mi ti* is the only possible combination. The others are ungrammatical, in either order and with either interpretation: **mi vi*/**vi mi* 'me you:PL', **ti ci*/**ci ti* 'you:SG us', **vi ci*/**ci vi* 'you:PL us'. Two of these combinations are exemplified by **Ti*/**Vi ci affideranno* in note 3. This contrast suggests, as in Kayne (2000), that *mi* and *ti* form a natural class, while *ci* and *vi* do not belong to the very same class (see also note 35). **Ti vi*/**Vi ti* and **mi ci*/**ci mi* are cases of overlapping reference.

(19) a. Io mi ti presenterò / affiderò. mi_{REFL} ti_{IO}
I myself to-you will-introduce / will-entrust
b. Io penso di presentarmiti / affidarmiti. mi_{REFL} ti_{IO}
I think to introduce / entrust myself to-you

(20) a. Tu mi ti presenti / affidi così? mi_{IO} ti_{REFL}
you to-me yourself introduce / entrust so
b. *Tu pensi di presentarmiti / affidarmiti così? *mi_{IO} ti_{REFL}
you think to introduce / entrust to-me yourself this-way

(21) a. Tu mi ti prendesti come segretaria, non come baby-sitter. mi_{DO} ti_{REFL}
you me to-yourself took as secretary, not as baby-sitter
b. Tu pensavi di prendermiti come segretaria. mi_{DO} ti_{REFL}
you thought to take me to-yourself as secretary

(22) a. ?Io mi ti prendo come segretaria. mi_{REFL} ti_{DO}
I to-myself you take as secretary
b. *Io penso di prendermiti come segretaria. *mi_{REFL} ti_{DO}
I think to take to-myself you as secretary

This is another problematic case for a purely case-based approach to clitic clusters. Before suggesting a different approach, based on both case and person / number properties of clitic pronouns, I turn to the discussion of the different types of clitic clusters found in Italian, some of which display an asymmetry between proclisis and enclisis similar to what we have just seen with *mi ti* sequences.

4. Many different types of clitic clusters in Italian

In Italian, many different types of clitic clusters exist. They display both syntactic and morphophonological differences. First, while all types of clitic clusters can occur in proclitic position, only some of them are possible in enclitic position. Second, only some clitic clusters display morphological changes on the pronouns entering the cluster.

4.1. Type 1: Unrestricted clusters with vowel change

In Type 1 clusters, the first clitic pronoun changes its form when it appears in the cluster. The final vowel is not [i], but [e] (23b,b') (see section 5.3 for discussion). This type of cluster is possible in both proclitic and enclitic position. Proclisis is found with finite verbs, (23a,a',b,b'); enclitic clusters occur with infinitival and imperative verbs, as shown in (23c,c') and (23d,d'), respectively:[8]

(23) a. Mi ha dato un libro.
[he] to-me has given a book
a' Mi ha dato tre libri.
[he] to-me has given 3 books
b. M**e** lo ha dato.
[he] to-me it has given
b' M**e** ne ha dati tre.
[he] to-me of-them has given 3
c. Pensa di darmelo.
[he] thinks to give to-me it
c' Pensa di darmene tre.
[he] thinks to give to-me of-them three
d. Dammelo!
give to-me it
d' Dammene tre!
give to-me of-them three

Combinations of this type contain 1st and 2nd clitics in their personal and reflexive usages, e.g. *me lo* in (23) and *me ne* in (23) and (24), 3rd person dative *gli* (*glielo*), reflexive *si* as in (25), locative *ci* as in (26), and impersonal *si* as in (27) and (28):

(24) a. Mi libero/Ti liberi/Si libera/Ci liberiamo/Vi liberate/Si liberano di questo.
[I] / [you:sg] / [he] / [we] / [you:pl] / [they] REFL get-rid of this
b. M**e** ne libero / T**e** ne liberi / etc.
c. Penso di liberarmene / etc.
[I] think to get-rid REFL of-it

(25) a. Si è preso un libro.
[he] to-REFL has taken a book
a' Si è preso tre libri.
[he] to-REFL has taken 3 books
b. Se lo è preso.
[he] to-REFL it has taken
b' Se ne è presi tre.
[he] to-REFL of-them has taken 3
c. Pensa di prenderselo.
[he] thinks to take for- REFL it
c' Pensa di prendersene tre.
[he] thinks to take for-REFL of-them 3

[8]. From here on, only examples with infinitives will be provided. Enclisis is also possible with gerunds and absolute past participles. I will not discuss these cases here.

(26) a. Ci ho messo un libro.
[I] there have put a book
b. C**e** l'ho messo.
[I] there it have put a book
c. Penso di mettercelo.
[I] think to put there it

a' Ci ho messo tre libri.
[I] there have put three books
b' C**e** ne ho messi tre.
[I] there of-them have put three
c' Penso di mettercene tre.
[I] think to put there of-them 3

(27) a. Si è già parlato di questo.
IMP has already spoken about this
b. Se ne è già parlato.
IMP of-it has already spoken (=One has already spoken about it)
c. Potrebbe / Ritengo essersene già parlato.
[it] could / [I] believe [to] have IMP about-it already spoken too much

(28) a. Si sono comprati troppi mobili, quest'anno.
IMP have bought too-many furniture, this year
b. S**e** ne sono comprati troppi.
IMP of-them have bought too-many
c. Potrebbe / Ritengo essersene comprati già troppi.
could / [I] believe have IMP of-them bought already too.many

Type 1 combinations are the following:

(29) Type 1: ^{ok}proclisis, ^{ok}enclisis, ^{ok}vowel change
a. mi / ti / ci / vi_{IO} lo_{DO} / $ne_{GEN/PART}$
b. mi / ti / ci / $vi_{REFL.IO}$ lo_{DO} / $ne_{GEN/PART}$
c. gli_{IO} lo_{DO} / $ne_{GEN/PART}$
d. $si_{REFL.IO}$ lo_{DO} / $ne_{GEN/PART}$
e. ci_{LOC} lo_{DO} / $ne_{GEN/PART}$
f. mi / ti / ci / $vi_{REFL.DO}$ ne_{GEN}
g. $si_{REFL.DO}$ ne_{GEN}
h. si_{IMP} $ne_{GEN/PART}$

4.2. Type 2: Unrestricted clusters with no vowel change

Type 2 clusters are possible in both proclitic and enclitic position, but they do not display any vowel change on the linearly first clitic. Some examples are provided below:[9]

(30) a. Mi / Ti / Vi ci metterà.
[he] me / you:SG / you:PL there will-put
b. Pensa di mettermici / mettertici / mettervici.
[he] thinks to put me / you:SG / you:PL there

(31) a. Mi ci metterò / Ti ci metterai / Vi ci metterete.
[I] myself / [you:SG] yourself / [you:PL] yourselves there will-put
b. Penso di mettermici / Pensi di mettertici / Pensate di mettervici.
[I] think to put myself there / [you:SG] think to put yourself there / [you:PL] think to put yourselves there

---

[9]. In (30)-(32), the following combinations with locative *ci* are missing because they are ungrammatical:

(i) a. *Ci ci mette. (cf. Ci mette lì / (Lì) ci mette noi)
[he] us there puts ([he] us puts there / (there) [he] there puts us)
b. *Ci ci metteremo. (cf. Ci metteremo lì.)
[we] ourselves there will-put ([we] ourselves will-put there)
c. *Ci ci metterà un po' di latte.
[he] to-us there will-put some milk

I take the two *ci*s to be one and the same lexical item that can perform several functions: pronominal and reflexive 1pl, locative, comitative, instrumental. Since they are one and the same lexical item, two *ci*s cannot enter one and the same numeration, which explains the ungrammaticality of (i) (see Grimshaw's 1977 analysis in terms of the Obligatory Contour Principle). A similar analysis holds for other clitics that can perform more than one function, such as *vi* (pronominal and reflexive 2pl, and locative, see note 10), *si* (3rd person reflexive, impersonal, passive), and *ne* (partitive, genitive, source). Sequences of two *vi*s, two *si*s and two *ne*s are also ungrammatical (see Cinque 1995:195f. For **si si* see note 13). *Ne* is the only clitic that allows haplology (Cardinaletti and Giusti 2006:83): e.g. *Se ne sono andati via molti* 'REFL NE are gone away many'.

(32) a. Mi / Ti / Vi / Gli ci metterà un po' di latte.
[he] to-me / you:SG / you:PL / him there will-put some milk
b. Pensa di mettermici / mettertici / mettervici / metterglici un po' di latte.
[he] thinks to put to-me / you:SG / you:PL / him there some milk

(33) a. Gianni ci si metterà.
Gianni there himself will-put
b. Gianni pensa di mettercisi.
Gianni thinks to put there himself

Type 2 combinations are the following. They all contain locative *ci*:[10]

(34) Type 2: [ok]proclisis, [ok]enclisis, *vowel change
a. mi / ti / vi_{DO} ci_{LOC}
b. mi / ti / $vi_{REFL.DO}$ ci_{LOC}
c. mi / ti / vi_{IO} ci_{LOC}
d. mi / ti / $vi_{REFL.IO}$ ci_{LOC}
e. gli ci_{LOC}
f. ci_{LOC} $si_{REFL.DO}$

4.3. Type 3: Combinations that are only possible in proclitic position

Type 3 combinations, which contain reflexive *si* and what Cinque (1988) calls [+argumental] impersonal *si*, display no vowel change and cannot occur in enclitic position (b. sentences and (39d)). The sentences are possible if the object is realized

[10]. Formal / Literary registers of Italian also possess locative clitic *vi*, as in *Gianni* ***vi*** *si oppose* 'Gianni there REFL opposed', *Nulla e nessuno sembra avere la forza di opporvisi* 'nothing and nobody seems [to] have the strength to oppose there REFL' (il Manifesto, 11.7.2000, p. 13) (see Evans *et al.* 1978:157, n.6). Locative *vi* is more constrained than locative *ci*: e.g., it cannot combine with other clitics: compare **Mi / *Ti vi metterà* with (30). This pronoun is nowadays used very rarely and is not discussed in this paper.

with a strong pronoun, as in (35c)-(39c) and (38c), or a full XP, (39e), (40c). These data show that *si* can occur in enclitic position by itself, but not inside a cluster:[11]

(35) a. Gianni mi / ti / ci / vi / gli / le si è rivolto in inglese.
Gianni to-me/you:SG/us/you:PL/him/her REFL has addressed in English
b. *Gianni pensa di rivolgermisi / rivolgertisi / rivolgercisi / rivolgervisi / rivolgerglisi / rivolgerlesi in inglese.
Gianni thinks to address to-me/you:SG/us/you:PL/him/her REFL in English
c. Gianni pensa di rivolgersi a me / a te / a noi / a voi / a lui / a lei in inglese.
Gianni thinks to address REFL to me / you:SG / us / you:PL / him / her in English

(36) a. Gianni mi / ti / ci / vi si è preso a benvolere.
Gianni me / you:SG / us / you:PL REFL has taken a liking
b. *Gianni vorrebbe prendermisi / prendertisi / prendercisi / prendervisi a benvolere, ma non ci riesce.
Gianni would-like [to] take a liking on me/you:SG/us/you:PL REFL, but [he] cannot
c. Gianni vorrebbe prendersi me / te / noi / voi a benvolere, ma non ci riesce.
Gianni would-like [to] take a liking REFL [on] me / you:SG / us / you:PL, but [he] cannot

(37) a. Gianni ci si metterà un po' di latte.
Gianni there to-himself will-put some milk
b. *Gianni pensa di mettercisi un po' di latte.
Gianni thinks to put there to-himself some milk
c. Gianni pensa di metterci un po' di latte per sé.
Gianni thinks to put there some milk for himself

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[11]. In (36), past participle agreement with 1pl *ci* and 2pl *vi* is optional (*Ci / Vi si è pres**i** a benvolere*), as is always the case with these forms: *Gianni ci / vi ha vist**o** / vist**i*** 'Gianni has seen us/you:PL' (see note 12 and 28). As for the combinations in (39), note the ungrammaticality of **Non ci si parlò con la dovuta attenzione* 'not to-us IMP spoke with the due attention' and the grammatical counterpart with a strong IO pronoun: *Non si parlò a noi con la dovuta attenzione* 'not IMP spoke to us with the due attention'. Impersonal *si* gets a 1pl interpretation (Cinque 1988) and is thus incompatible with a 1pl clitic pronoun. For ci_{REFL} si_{IMP} see note 13.

(38) a. Le ci metterà un po' di latte.
[he] to-her there will-put some milk
b. *Pensa di metterleci un po' di latte.
[he] thinks to put to-her there some milk
c. Pensa di metterci un po' di latte per lei.
[he] thinks to put there some milk for her

(39) a. Non mi / ti / vi / gli / le si parlò con la dovuta attenzione.
not to-me / to-you:SG / to-you:PL / to-him / to-her IMP spoke with the due attention
b. *Non sembra essermisi / essertisi / esservisi / esserglisi / esserlesi parlato con la dovuta attenzione.
[it] not seems [to] have to-me / to-you:SG / to-you:PL / to-him / to-her IMP spoken with the due attention
c. ?Non sembra essersi parlato a me / a te / a voi / a lui / a lei con la dovuta attenzione.
[it] not seems [to] have IMP spoken to me / to you:SG / to you:PL / to him / to her with the due attention
d. *Ritengo esserglisi parlato di questo.
[I] believe [to] have to-him IMP spoken
e. Ritengo essersi parlato di questo a Gianni.
[I] believe [to] have IMP spoken about this to Gianni

(40) a. (Su quel progetto) non ci si è lavorato abbastanza.
(on that project) not there IMP has worked enough
'One hasn't worked enough on that project'
b. *(Su quel progetto) sembra / ritengo non essercisi lavorato abbastanza.
(on that project) [it] seems / [I] believe not [to] have there IMP worked enough
c. Ritengo / Sembra non essersi lavorato abbastanza su quel progetto.
[I] believe / [it] seems not [to] have IMP worked enough on that project

Type 3 combinations are the following:

(41) Type 3: ^{ok}proclisis, *enclisis, *vowel change
a. mi / ti / ci / vi_{IO} $si_{REFL.DO}$
b. gli / le_{IO} $si_{REFL.DO}$

c. mi / ti / ci / vi_{DO} $si_{REFL.IO}$
d. ci_{LOC} $si_{REFL.IO}$
e. le_{IO} ci_{LOC}
f. mi / ti / ci / vi_{IO} si_{IMP}
g. gli / le_{IO} si_{IMP}
h. ci_{LOC} si_{IMP}

4.4. Type 4 and 5: Combinations that are independently impossible in enclitic position

Some combinations are banned from the enclitic position for independent reasons. They all contain what Cinque (1988) calls [-argumental] impersonal *si*, which absorbs Nominative case and is independently ruled out in infinitivals. The first case is provided by the cluster 'impersonal *si* - source *ne*' which in proclisis looks like Type 1 clusters in that it undergoes vowel change, (42a). As shown by (42c) with a full PP, [–argumental] *si* cannot occur in infinitivals (unaccusative verbs such as *uscire* are only compatible with this type of *si*). The properties of this combination are summarised in (43):

(42) a. Da quella situazione, se ne uscirà presto.
from that situation IMP from-there will-go-out soon
b. *Sembra / Ritengo essersene già usciti.
[it] seems / [I] believe [to] have IMP from-there already gone-out
c. *Sembra / Ritengo essersi già usciti da quella situazione.
[I] believe [to] have IMP already gone-out from that situation

(43) Type 4: ^{ok}proclisis, *enclisis, ^{ok}vowel change
si_{IMP} ne_{SOURCE}

The same restriction operates on clusters which look like Type 2, as in (13) and (44a)-(46a). These clusters are banned from the enclitic position, b. sentences. The independent restriction against [-argumental] impersonal *si* with infinitives is illustrated

by the ungrammaticality of (44c) and (46c) with a strong pronoun and (45c) with a full DP:[12]

(44) a. Mi / Ti / Vi si è invitato spesso, ultimamente.
me / you:SG / you:PL IMP has invited often, lately
b. *Ritengo essermisi / essertisi / esservisi invitato spesso, ultimamente.
[I] believe [to] have me / you:SG / you:PL IMP invited often, lately
c. *Ritengo essersi invitato solo me / te / voi, ultimamente.
[I] believe [to] have IMP invited only me / you:SG / you:PL, lately

(45) a. Le si è vendute bene.
them IMP have sold well
b. *Ritengo esserlesi vendute ad un prezzo eccessivo. (Cinque 1988:557)
[I] believe [to] have them IMP sold well
c. *Ritengo essersi venduto poche automobili. (Cinque 1988:556)
[I] believe [to] have IMP sold few cars

(46) a. Ci si va spesso, ultimamente.
there IMP goes often, lately
b. *Ritengo andarcisi spesso, ultimamente.
[I] believe [to] go there IMP often, lately
c. *Ritengo andarsi spesso lì, ultimamente.
[I] believe [to] go IMP often there, lately

The same restriction applies to the sequence ci_{REFL} si_{IMP}, which necessarily contains [-argumental] *si* (see Cinque 1995:197f for discussion and the examples in (47)):[13]

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[12]. Past participle agreement with 2pl *vi* is optional: *Vi si è invitat**i** spesso, ultimamente* is possibile alongside (44a) (see note 28). As discussed in note 11, 1pl *ci* cannot combine with impersonal *si*: **Ci si è invitato / invitati spesso, ultimamente*. Differently from (45c), the following sentence is possible with past participle agreement: *Ritengo essersi vendut**e** poche automobili*. In this case, *si* is [+argumental] and can occur in infinitival clauses, as in (39c,e) and (40c) (see Cinque 1988).

[13]. *Ci si* is suppletive for **si si*, as in *Ci si è arrabbiati* 'REFL IMP has got-angry' (= One has got angry), and *Ci si è aiutati* 'REFL IMP has helped' (= One has helped each other).

(47) a. A Beirut ci si è sparati addosso tutta la notte.
in Beirut REFL IMP has fired all night long
b. *A Beirut sembra essercisi sparati addosso tutta la notte.
in Beirut [it] seems IMP to have fired at each other all night long
c. *Ritengo essercisi aiutati inutilmente.
[I] believe IMP to have helped each other in vain

Type 5 combinations, which contain [-argumental] impersonal *si*, are the following:

(48) Type 5: ^{ok}proclisis, *enclisis, *vowel change
a. mi / ti / $vi_{DO}si_{IMP}$
b. lo_{DO} si_{IMP}
c. ci_{LOC} si_{IMP}
d. ci_{REFL} si_{IMP}

4.5. Summary

The following table summarizes the different types of clusters that are found in Italian.[14] While all of them occur in proclisis, some are banned from the enclitic position. Another property which differentiates Italian clusters is vowel change on the first clitic:

(49)

	+ enclisis	– enclisis
+ vowel change	Type 1 (e.g.: *me lo*)	Type 4 (e.g.: *se ne*)
– vowel change	Type 2 (e.g.: *mi ci*)	Type 3 (e.g.: *mi si*)
		Type 5 (e.g.: *lo si*)

If types 4 and 5 are not taken into consideration (since they cannot occur in enclisis for independent reasons), a correlation arises between phonological and syntactic properties:

[14]. See Monachesi (1995:Ch.4) for other clusters, which enter the types discussed here.

(50)

	+ enclisis	– enclisis
+ vowel change	Type 1 (e.g.: *me lo*)	-------
– vowel change	Type 2 (e.g.: *mi ci*)	Type 3 (e.g.: *mi si*)

Clusters that exhibit vowel change are possible in both proclitic and enclitic position. The reverse is not true, however: Some clusters with no vowel change can appear in enclisis, while others cannot.

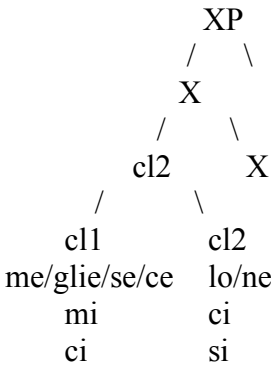
5. Ingredients for the analysis

5.1. The representation of clitic clusters in antisymmetry

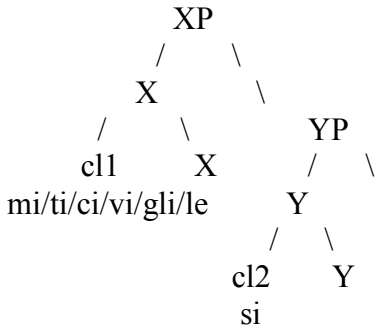
In order to differentiate the clitic sequences that appear in an unconstrained manner from those that can only appear in the proclitic position, I propose that the two types instantiate different ways of adjunction to their host, namely the two possibilities made available by LCA (Kayne 1994). The first type of clitic clusters (Type 1, 2 and 4), instantiate the structure in (51), where the two clitic pronouns are adjoined one to the other and thus occur inside one and the same functional head (Kayne 1994:20). The other type of clitic sequence (Type 3 and presumably Type 5), is represented as in (52a), where the two clitic pronouns are adjoined to two distinct adjacent heads (Kayne 1994:21). As shown in (52b), there can also be sequences of three adjacent heads, as in *Le ci si può mettere un po' di zucchero* 'to-her there IMP can put some sugar':[15]

[15]. Our conclusions differ from Terzi's (1999), who denies the existence of the structure in (52) in Romance languages (see however Ordóñez 2002 for Spanish). As for Type 5 clusters, the comparison with Type 3 suggests that they also utilize structure (52), although the enclitic test is unavailable for independent reasons (section 4.4).

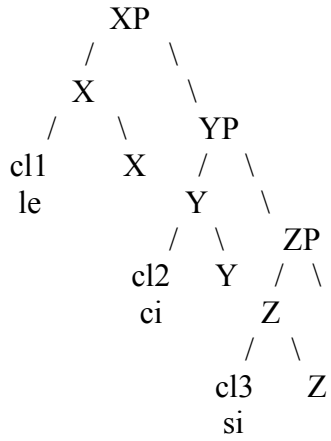
(51) adjunction of one clitic to the other



(52) a. adjunction to distinct functional heads



b. adjunction to three distinct functional heads



The combination of the two possibilities in (51) and (52), hypothesized but not made explicit by Kayne (1994:21), is found in other sequences containing three clitics (or more). In (52), the material adjoined to the higher functional head or the material

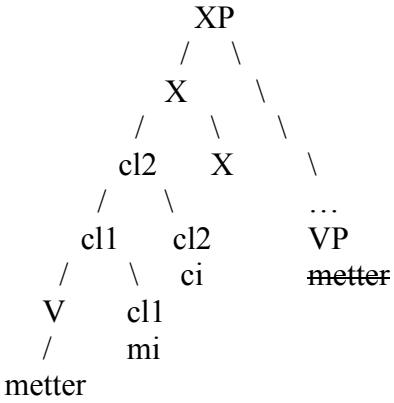
adjoined to the lower functional head can be itself a clitic cluster. In *Me lo / Glielo si dice spesso* 'to-me it / to-him it IMP says often', the cluster *me lo* / *glielo* is adjoined to the higher functional head as in (51), while impersonal *si* is adjoined to the lower one (the cluster in *Quando ce le si è comprate*, … 'when to-REFL them IMP has bought', from Cinque 1995:195, see note 13, is of the same type). In *Mi* / *Gli ce ne vorranno due* 'to-me/him there of-them will-want two' (= I / He will need two of them), it is the reverse: *mi* / *gli* is adjoined to the higher head, while the cluster *ce ne* is adjoined to the lower functional head as in (51). An anonymous reviewer suggests the following example of a sequence of more than three clitics: *Mi ci se ne mette molti* 'to-me there IMP of-them puts many': Here, *mi ci* forms a unit that adjoins to the higher head, while s*e ne* adjoins to the lower head.

In the next section, we discuss why only structure (51) gives rise to enclitic clusters.

5.2. Proclisis vs. enclisis

Following many previous proposals (Kayne 1991, 1994, Belletti 1993, 1999, Rizzi 2000), I assume that enclisis arises via verb movement across the clitic (cluster), specifically via adjunction of the verb to the clitic (cluster). In structure (51), the verb adjoins to the Cl1 inside the cluster, and enclisis is produced, as in (53):

(53)



In structure (52) there is no way for the verb to attach to the clitic pronouns. If it adjoins to the clitic in the higher head, it skips the lower clitic. If it adjoins to the lower clitic, it should move further pied-piping the clitic, but this is only possible in languages where

the higher pronoun is not clitic but weak (for Greek and some Spanish varieties see Ordóñez 2002:216-223).[16]

The structure in (53) allows us to understand Benincà and Cinque's (1993:2325) claim that Italian has 'one word' encliticization. Among other properties, their proposal relies on the observation that the verb and the enclitic(s) are written as one single word (for orthographic conventions, see also section 5.5). This claim is to be interpreted in structural terms: in order for enclisis to be possible, the verb must adjoin to a cluster that is formed via structure (51). The verb and the clitic pronoun(s) end up being dominated by one and the same head, as shown in (53).

Benincà and Cinque's (1993) claim cannot be interpreted in phonological terms, however. The sequence 'verb + enclitic pronoun(s)' is not a single phonological word. Phonological processes that apply word-internally do not apply in enclitic clusters. The process of s-sonorization, for instance, which is found word-internally in intervocalic contexts (as in *ca[z]a* 'house'), does not take place between the verb and an enclitic pronoun: **mettendo[z]i* 'put.GER REFL'. The verb and the enclitic(s) are different phonological words. In Selkirk's (1995) terminology, (en)clitic pronouns are neither 'internal clitics' nor 'affixal clitics', but 'free clitics', which are adjoined to the same Phonological Phrase as the verb (see Cardinaletti and Repetti 2007 for subject enclitics).[17]

5.3. Vowel change

Vowel change can be captured via the lowering rule in (54) (Cinque 1995:194):[18]

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[16]. Differently from Greek and Spanish varieties, Italian does not display different ordering possibilities for one and the same combination of clitics.

[17]. S-sonorization does not apply in proclisis either: *Lo [s]o* / **[z]o* '[I] it know'.

[18]. Vowel change is not some sort of vowel harmony. It applies in front of all 3rd person clitics, which display low (*me la*), middle (*me lo*, *me le*) and high vowels (*me li*).

Desouvrey (2005:63) differs from the standard analysis in considering *me* in e.g. (23b) to be the same as the strong pronoun *me*. A number of considerations speak against this analysis. First, a strong DO pronoun never occurs between the subject and the verb, (ia) and (iia). Second, vowel change is also possible with 1pl *ci* and 2pl *vi*, whose strong counterparts are *noi* and *voi*, not *ce* and *ve*, (iib) vs. (iic):

(54) $[_A$ …i] → $[_A$ …e] / ____ [nasal or liquid], where A is a clitic.

Since it does not apply whenever the phonological context is found, vowel change is not a purely phonological rule. For instance, it does not apply between a clitic pronoun and the verb, as in (55), or between a clitic determiner and the noun, as in (56) (Kaisse 1985):[19]

(55) Mi / *Me lava / nuoce.
[he] me washes / harms

(56) i / *e laghi / nidi
the lakes / nests

Vowel change is a morphophonological process that only applies cluster internally. As we have seen, it applies inside a particular type of clitic sequences, namely (some of) those corresponding to structure (51), where the two clitics are dominated by one and the same head. The rule in (54) can be made more precise as follows:

(i) a. *Gianni me vede.
Gianni me sees

b. Gianni vede me.
Gianni sees me

(ii) a. *Gianni noi vede.
Gianni us sees

b. Gianni vede noi.
Gianni sees us

c. *Gianni vede ce.
Gianni sees us

Desouvrey (2005:78, n.30) notes the potential problem raised by *glielo*, where [e] is found which is not present in the corresponding strong from *lui*, but suggests that this "is due to the phonological harmonization of the third person cluster with clusters including first and second person pronouns". The more traditional analysis in terms of /i/ to [e] change does not need to make any of these controversial assumptions.

[19]. In many Italian dialects, both in the North and in the Center / South, clitic pronouns display final *–e* (Rohlfs 1968:151ff), and the starred form in (55) is possible.

(57) [$_A$ …i] → [$_A$ …e] / ____ [coronal sonorant], where A is a clitic pronoun in structure (51).

Things are however more complex in clusters composed of three clitics. As noted by Kayne (2000:154, n. 10), some speakers allow vowel change also on the clitic that is not immediately followed by a clitic beginning with a coronal sonorant. See his example *Me ce ne vorranno due* 'to-me there of-them will-want two' (= I will need two of them) and (58). For some speakers, the same holds for enclitics, as shown in (59):[20]

(58) a. M**e** se ne sono presentate due.
to-me REFL of-them have introduced two
'Two of them introduced themselves to me.'
b. A Mario, lo zucchero, nel caffè, non gli**e** ce l'ho messo.
'to Mario, the sugar, in-the coffee, [I] not to-him there it have put

(59) a. Hanno deciso di presentarm**e**sene due.
have decided to introduce to-me REFL of-them two
b. Ho deciso di non metterglie**e**celo.
[I] have decided to not put to-him there it

The rule in (54) cannot however be simplified as in (60) because the same speakers do not accept vowel change in Type 2 clusters, e.g. **Me ci metterà* '[he] me there will-put', **Ha deciso di mettermeci* '[he] has decided to put me there':[21]

(60) [$_A$ …i] → [$_A$ …e] where A is a clitic pronoun in structure (51).

A different analysis thus seems to be necessary, which does not make reference to the phonological environment, but still captures the correlation observed in (50) above.

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[20]. The enclitic clusters in (59) must have a representation similar to (51), in which the three clitics are dominated by one and the same head.

[21]. In the varieties mentioned in note 19, such as the Central variety I speak, both clitics would end in *–e*: *Me ce metterà*, *Ha deciso de mette(r)mece*.

Notice that Type 1 clusters display the same vowel that is found in the combinations of preposition and determiner such as *in* + *il* > ***nel*** 'in the' or *di* + *il* > ***del*** 'of the', where the linking vowel is [e] and not the epenthetic vowel [i] that appears in clitic pronouns (***mi, ti,*** etc.), prepositions (***in, di***), and determiners (***il***) when they occur in isolation (for epenthesis, see Vanelli 1992, Repetti 2003, Cardinaletti and Repetti 2007, and the references cited there). As we will see below, the syntactic properties of this type of cluster seem to suggest that they are merged as lexical units. This proposal accounts for another property that Type 1 clusters share with single phonological words, namely vowel lengthening (Cardinaletti and Ferrari, in preparation). Clusters like *me lo*, *glielo*, etc. are pronounced with a long vowel: [me:lo], [λe:lo], etc. We conclude that some clusters are phonological words, and that [e] appears instead of [i] only in this type of clusters. These units consist of a consonantal clitic (*m-, t-, s-, c-, v-, gl-*, see Kayne 2000:135, Cardinaletti and Shlonsky 2004:534), the linking vowel [e], and the accusative (*lo*) or partitive/genitive (*ne*) clitic.

The absence of s-sonorization in cluster *ci si* (**metterci[z]i* '[to] put there REFL') confirms that although Type 2 clusters form a constituent in structure (53), they are not phonological words, hence they do not display vowel change (the same holds for proclisis: *Ci [s]i* / **[z]i va* 'there IMP goes').[22]

5.4. On the replacement of *le* by *gli*

The above proposals also provide a way to understanding why *le* is replaced by *gli* when it combines with accusative and partitive/genitive clitics, as in (14) above. This replacement does not occur when *le* combines with other clitics, such as locative *ci*, reflexive *si*, and impersonal *si*, as shown in (61):

(61) a. Le ci vuole un'ora per prepararsi. (see (38a))
to-her LOC takes an hour to prepare-REFL

[22]. Rohlfs (1968:168, n.1) makes the interesting observation that vowel change only obtains with clitics that derive from vowel-initial pronouns (ILLU > lo, INDE > ne) and had to have an initial *–e* in the earliest stages of Italian. In Old Italian, vowel change was not obligatory, but it is by far the most frequent form found in enclisis (Cardinaletti 2004b), where the two clitics and the verb form a constituent as in Modern Italian.

b. Gianni le si è rivolto in inglese. (= (35a))
[he]to-her REFL has addressed in English
c. Le si affidò completamente.
[he] to-her REFL entrusted completely
d. Non le si parlò con la dovuta attenzione. (= (39a))
to-her IMP spoke with the due attention
e. Le si è vendute bene. (= (45a))
them IMP has sold well

The comparison between (14) and (61) suggests that in proclisis, the replacement of *le* by *gli* only occurs in clusters that are inserted as single words. In (61), *le* and *si* instead occur as separate constituents, as shown by the fact that the clusters are impossible in enclisis (see (41b,e,g) and (48b); as expected, s-sonorization does not apply: *le *[z]i*, see section 5.3). Suppose that like 3rd person accusative clitics, *le* is bi-morphemic (*l*+*e*). Differently from word-final *–i* in *gli* and other clitics, *–e* in *le* cannot be deleted in front of vowel-initial verbs and auxiliaries: cf. *Le / *L'aprì la porta* '[he] to-her opened the door', *Le / *L'ha aperto la porta* '[he] to-her has opened the door' vs. *Gli / Gl'aprì la porta*, *Gli / Gl'ha aperto la porta* (an observation due to Franca Ferrari, p.c.). Thus, differently from *–i*, *–e* is not an epenthetic vowel, but, I suggest, a class marker. If this is correct, *le* is morphologically too complex to be the first element in single word clusters, which contain mono-morphemic consonantal clitics (see section 5.3). *Le* is replaced by the other Italian clitic pronoun that is marked as dative, namely *gli*.[23]

In enclisis, *le* is replaced by gli in one more case, namely when the combination *le ci* is ungrammatical (38b): *A Maria vorrei metterglici un po' di latte* (see (32b)). The constraint on *le* is thus more general. Morphologically complex clitics cannot be the first constituent in clusters that are dominated by one and the same head (whether they are single words or not). These must contain mono-morphemic consonantal clitics.[24]

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[23]. In Italian, *–e* appears in the nominal declension that does not display gender distinctions (e.g. *felice* 'happy.SG' vs. *felici* 'happy.PL') (see Harris 1995 for class marker *–e* in Spanish pronouns). This morpheme is probably also found on strong pronouns *me* and *te* (whose final *–e* according to Kayne 2000:131, 145 has the property 'singular').

[24]. Spanish 3rd person IO clitics *le*/*les* 'to-him/her/them' are also morphologically complex. The ungrammaticality of **le(s) lo* in (11) can be attributed to the same constraint that prevents Italian **le lo*,

Interestingly, the replacement of *le* by *gli* does not occur when *le* is not adjacent to the clitic with which it usually forms a unit, as in *A Maria, di zucchero, nel caffè, le ce ne metto / le se ne mette sempre troppo* 'to Mary, of sugar, in-the coffee, [I] to-her there of-it put / to-her IMP of-it puts too much', and *A Maria, di questo, le se ne è parlato spesso* 'to Mary, of this, to-her IMP of-it has spoken often'. In these cases, *le* and *ce ne / se ne* occur in independent heads in structure (52), and no morphological restriction applies.

Notice that final *–e* in *ne* has properties similar to *–e* in dative *le*: *Ne / *N'ammazzò molti* '[he] of-them killed many'. In both ungrammatical clusters **lo ne / *ne lo* 'it of-it/them', the linearly first clitic is morphologically too complex to enter the cluster.[25]

5.5. An aside on orthographic conventions

Since the analyses that differentiate *me lo* from *glielo* (see section 3 above) utilize the observation that *glielo* is written as one word, while all other combinations of clitics are not (*me lo, te lo*, etc.), it is worth spending a few words about orthography.

I take the implications concerning orthography to go one way only. If two elements are written as one word, they must be considered as a single constituent. If two elements are not written together, they may be one constituent or different constituents. For sequences of Italian clitic pronouns, this means that enclitic clusters, which are written one word with the verb, necessarily arise by structure (51), as shown in (53), while proclitic sequences may be one constituent in structure (51) (e.g. *me lo*) or distinct constituents in structure (52) (e.g. *mi si*).

The different orthography of (proclitic) *me lo* and *glielo* (two orthographic words vs one, respectively) does not point to a different syntactic and morphophonological behaviour. As I have shown in section 4.1, the two sequences behave in the same way as far as syntax and morphophonology are concerned. It is also interesting to note that

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le ne* in (14) and enclitic *le ci* in (38b). Spurious *se* is not complex: final *–e* is presumably an epenthetic vowel like Italian *–i*, and does not combine with plural *–s* (ses lo*, Harris and Halle 2005:204).

[25]. A phonological clue allows Italian speakers to individuate consonantal clitics and morphologically complex clitics: the former consist of sounds different from the coronal sonorant sound that characterizes the latter (Cardinaletti 2004a).

Italo Calvino used to write *glielo* as two orthographic words: *Il fucile glie l'avevo procurato io* 'the gun to-him it had got I' (Il barone rampante, Mondadori, 1993). The question is not why *glielo* is written one word, but rather why the other sequences that behave like *glielo* are not written in the same way: i.e., *melo, telo*, etc.

Finally a note on the spelling of *glielo* is in order. Differently from e.g. the *mi* vs. *me lo* case, it seems that in *glielo*, final [i] is not replaced by [e], but [e] seems to be added to [i]. This is illusory, however. Vowel change occurs as in the other Type 1 clusters. The <i> is needed to graphically represent the palatal sound [λ]: [λe:lo]. If <i> were not present, the sequence would represent the consonantal cluster [gl] as in [gle:ba] 'glebe'.[26]

5.6. On person and number feature checking

In section 3, we have seen that a proposal based on the case properties of clitics, which seems adequate for French, runs into problems in a comparative perspective. If case were the only property that regulates the order inside clitic clusters, some Italian clusters should be impossible, contrary to fact. The discussion of the different types of clusters confirms this conclusion. In Type 1 and Type 2 clusters, either a DO or an IO person clitic can appear first when the linearly second clitic in the cluster is a genitive or locative pronoun, respectively, (29a-c, f) and (34a-e). In Type 3 clusters, either a DO or an IO clitic can appear first when the linearly second clitic in the cluster is a reflexive pronoun, (41a,c). It thus seems that other properties matter for the construction of clusters.

Kayne (2000) suggests that clitic pronouns can be distinguished into the two classes of person and non-person clitics: the former contains 1st and 2nd person clitics and *si,* while the latter contains 3rd person clitics. There is a long debate as to whether 3rd person pronouns are also marked for person or not. For instance, Bianchi (2006a) and Nevins (2007) have recently argued that they do. Adger and Harbour (2007) and Anagnostopoulou (2005:211) instead take 3rd person IO clitics to be marked with a person feature albeit negative [-person], while 3rd person DOs lack a person feature altogether. I share this view and suggest the following classification for Italian:

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[26]. It is thus not true that "*ie* is spelled as *e*", as Desouvrey (2005:78, n.30) claims.

(62) a. Person clitics: mi, ti, si, ci, vi, gli, le_{DAT}
b. Non-person / Number clitics: lo, la, li, le_{ACC}, ne

3rd person accusative clitics and partitive/genitive *ne* are not taken to contain any person feature. They are marked for the φ-features number and gender only (and share the property of triggering past participle number agreement obligatorily, see note 28; Belletti 2006, Cardinaletti and Giusti 2006:77).

As pointed out by Kayne (2000:140), lack of number (and gender) distinctions is typical of person clitics. I hypothesize that person and number are mutually exclusive features (Harley and Ritter 2002, McGinnis 2005). Since Benveniste (1966), it is common to observe that 1pl is not semantically the plural of 1sg, nor is 2pl the plural of 2sg. Reflexive *si* never displays number distinctions (Kayne 2000:145f), and the same is true of impersonal *si* and locative *ci*. Since Italian *gli* and *le* do not have a plural clitic counterpart (3pl dative *loro* is not a clitic pronoun, note 5), they are not marked [singular] and can be analysed as person clitics. Furthermore, in (colloquial) Italian and many Italian dialects *gli* does not express any number (and gender) distinctions: a sentence like *Gianni gli dà un libro* can mean 'Gianni to-him/her/them gives a book'. The same is true of *le* in other varieties.[27]

The above classification holds for both the pronominal and reflexive usage of 1st and 2nd person clitics, which always behave the same and must be considered as one and the same lexical item (see note 9). Since according to the classification in (8a), 3rd person IO clitis (e.g. Italian *gli* and *le*) are case-marked clitics (dative), person and case features do not exclude each other. Nor do number and case in non-person clitics.

As suggested by Bianchi (2006a:2049), person features are encoded in clausal head positions, and clitic pronouns move to check their person features against these heads. She formulates a Person licensing requirement: "A personal argument of the verb must license its person feature in the functional structure of the clause" (see also Rezac 2005).

In Bianchi's (2006a:2059) analysis, the objects licensing area is located between VP and TP (while the subjects licensing area is between FINP and TP). I suggest instead that both areas result from splitting the INFL projection, which is traditionally taken to

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[27]. By contrasting with 3pl clitic *leur*, French *lui* is marked [singular] and cannot be a person clitic. The same can be said of Spanish singular IO *le* vs. plural IO *les*. As expected, feature specification can be different in different languages. This is also true of French locative *y*, which differently from Italian *ci*, is not a Person clitic.

host clitic pronouns. As shown by Northern Italian dialects which have both subject and object clitics, subject clitic heads are higher than object clitic heads.

Since non-person clitics do not contain person features, but still appear in the high clitic field together with person clitics, they must adjoin to head position(s) different from the person heads. Since non-person clitics express number distinctions, I take the head to which they cliticize to be a Number head. See Shlonsky (1989), Taraldsen (1995), Sigurðsson (2004), Bianchi (2006b) among others for the proposal that person and number features are encoded in separate functional heads.

A reasonable hypothesis is that the heads against which clitic pronouns check person and number features are criterial in the sense of Rizzi (2006). If criterial heads have freezing effects (ibid.), we also understand why clitic movement is not long distance.

In section 6 we will see how person and number heads are hierarchically organised and how this hierarchy accounts for some aspects of the word order inside clusters.[28]

5.7. Clitic climbing and two clitic positions inside the clause

In restructuring contexts, the high clitic position discussed so far is targeted in clitic climbing. Following Cinque (2004), restructuring implies a monoclausal structure where the higher verb (a modal, aspectual, causative, perception, or motion verb) is

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[28]. Non-person / Number clitics also express gender distinctions. Number features are encoded differently from gender features: While the former are part of the syntactic (functional) structure associated with the (lexical) noun, the latter are part of the lexical entry of the noun (Ritter 1991, 1993, 1995; De Vincenzi and Di Domenico 1999). This proposal has consequences for other categories: only number features are part of the syntactic (functional) structure associated with past participles and pronouns, while gender is parasitic on number (Di Domenico 1997:131f). Cardinaletti and Chinellato (2005) suggest the following restrictive theory of number, with the consequence that past participle agreement is number agreement only: Masculine singular: no number features (default *-o* as morphological epenthesis – Ferrari 2005, Cardinaletti and Repetti 2007; or as a word marker – Kayne 2000:140); Feminine singular: [–number] / *parasitic gender features* (*-a*) (Chinellato 2004); Masculine plural: [+number] (*-i*); Feminine plural: [+number] / *parasitic gender features* (*-e*).

Since person clitics are not specified for number, past participle agreement must be so-called *semantic* agreement. It differs from number agreement in that it is optional (see note 11 and 12); notice that lack of agreement is the preferred option for many speakers.

merged in a functional head associated with the infinitival lexical verb. Clitic climbing is thus only apparently long distance: it takes place inside one and the same clause. The question naturally arises as to where clitics occur when clitic climbing does not apply. Sentences like (63a) show that it is necessary to posit a low clitic position, different from the high clitic position usually identified with INFL and discussed in the previous section (Cardinaletti and Shlonsky 2004). Auxiliary switch, an hallmark of restructuring, applies not only when clitic climbing has applied, as in (63b), but also when the clitic appears on the infinitive, (63a) (Rizzi 1976:48, n.18, Cinque 2004):[29]

(63) a. Sarei voluto andarci.
[I] would-be wanted [to] go-there
b. Ci sarei voluto andare.

The low clitic position is located in the lexical domain (see also Manzini and Savoia 2005). Since person and number heads, like the other criterial heads discussed by Rizzi (2006), only occur in the high portion of the clause, clitics must move to the low clitic position to check other features. Following many previous works (Laenzlinger 1993, Belletti 1993, 1999, Cardinaletti and Starke 1999, among others), I suggest that the first step of clitic movement is motivated by case checking.

This proposal finds some support from Bantu data. Differently from Romance proclitics, which appear higher than tense-inflected verbs, Bantu object clitics follow tense markers. As in Romance, Bantu tense markers can be taken to occur in INFL (Barrett-Keach 1986, Krifka 1995:1412-4).[30] It is tempting to hypothesize that Bantu object clitics occur structurally lower than their Italian proclitic counterparts. Whether their position is the same as the Italian low clitic position or not needs further research that I am not able to address here. As in Italian, however, this position must be located somewhere above the VP, above some of the aspectual heads associated with the lexical verb (Cinque 2004:178, n.47) and iterated for some of these heads (quasi-functional restructuring verbs, Cardinaletti and Shlonsky 2004). As shown by the following

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[29]. In non-restructuring cases like *Avrei voluto [esserci già andato]* '[I] would-have liked be-there already gone', *ci* occurs in the high clitic position of the embedded clause.

[30]. See Cocchi (2000a:101) and (2003:11) for the different view that in Bantu, tense and aspect markers lexicalize C.

Kinyarwanda example from Dryer (1983:130), the verb that follows the two object clitics is inflected for aspect and has presumably raised to some functional head above VP:[31]

(64) Yohaâni y-a-yi-mw-oher-er-eje.
John he-PAST-it-her-send-BEN-ASP
'John sent it to her.'

Differently from Italian, where clitics can appear both in the high and the low clitic position, Bantu clitic pronouns occupy the low clitic position where person features are not checked and clusters are generally not sensitive to person features (see (5) and (6) above).[32]

In Italian, the low clitic position only hosts enclitics. The clusters that can appear in the low clitic position are the same that appear in enclisis in the high clitic position (what we have called Type 1 and Type 2 in section 4).

5.8. On the clitic (cluster) derivation

Restructuring contexts make a relationship between the high and the low clitic positions visible. In other words, clitics undergo a two step derivation: they move from their

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[31]. An anonymous reviewer suggests that two clitic positions should be hypothesized for Bantu as well. Object clitics can also be postverbal, as shown by the following Tshiluba example for the DO clitic *tshio*: *n-aka-mu-pa-tshio* '1.SU-T-1.IO-give-13.DO' (= I have given it to him) (from Willems 1949, pointed out by the reviewer). An account of Bantu in terms of more than one clitic field (in the framework of Manzini and Savoia 2001, 2005) is indeed proposed by Cocchi (2000a,b), (2003). Notice that the postverbal DO clitic (*tshio*) differs from the preverbal one: *tshi* (see (5c)). This difference could be used to argue for a different status of the pronoun in the two positions: preverbal *tshi* is a true clitic, while postverbal *tshio* is a weak or strong pronoun (for weak pronouns in Swahili and the contrast between clitic *wa*, weak *o* and tonic *wao* 'they', see Cocchi 2003:3-4). If this is correct, the analysis proposed in the text can be kept as it is.

[32]. Some cases where they are are discussed in Cocchi (2000a:114, n.29) and Hyman and Duranti (1982:231ff).

argument positions to the low clitic position to check case and in so doing reverse the order of the full arguments they pronominalize (Laenzlinger 1993:264f). As we will see, this effect is very clear in Bantu and masked in Italian Type 1 clusters. From the low position, pronouns move to the clausal clitic position to check person or number features.

In Italian, the low clitic position only hosts enclitics. In order to get enclisis, clitic clusters must form a constituent so that the infinitive verb can adjoin to it, as in structure (53). As we have seen for the high clitic position, there are two types of clusters that do so: those with vowel change (Type 1), which are inserted as single words in the lexicon (section 5.3), and those without vowel change (Type 2), which arises by adjunction of one clitic to the other inside one and the same head. If clitics have formed a constituent in the low clitic position, they move as a unit to the clausal clitic position, where they can appear both in proclisis and in enclisis (depending on whether the verb is finite, imperative, or infinitival, see (23) and note 8). If the clitics have not formed a constituent, they move independently to the high clitic position and end up in distinct (person and number) heads in configuration (52). In this case, only proclisis is possible, and enclisis is disallowed.

Notice that if in restructuring contexts, no overt climbing takes place and clitic pronouns are spelled out in the low clitic position, they can be taken to covertly raise to check their person and number features in the high person field. In what follows we see how the proposed system derives the different types of clitic clusters individuated above.

6. On the derivation of the different types of clusters

6.1. Type 1 clusters with IO – DO clitics

As we have proposed in section 5.3, Type 1 clusters in (29a-c), which display the IO – DO order, are merged as lexical units. I suggest that this order is not due to the order of merging, but is lexically determined. Evidence from French (2b) and Bantu (5), where no such lexical units as in Italian exist, suggest that DO > IO is the merging order of object clitics. The French cluster *le lui*, in which neither pronoun has a person specification, reflects the merging order in a pure way (see note 27).[33] The order inside

[33]. For a similar proposal framed in his theory of silent clitics, see Kayne (2006:7).

the clitic cluster is the opposite of the argument order, which is IO > DO (see Anagnostopoulou 2005:211, Bianchi 2006a:2037, among many others). The argument that is closer to the functional head (IO) is attracted first, while the DO is moved second and adjoined to IO in structure (51). This is also very clear in Bantu, where clitic pronouns occupy the low clitic position where person features are not checked and clusters are generally not sensitive to person features (see (5) and (6) above). In Bantu, the order of arguments is IO > DO, as in (65) (Xhosa, Bearth 2003:127), and is reversed in clusters, which display DO > IO (Dryer 1983:132, Bresnan and Moshi 1990, Krifka 1995:1407, Bearth 2003:126f, among others):

(65) Ndì-n íkà úmfâzì úmntwáná. IO – DO
I-am-giving woman child
'I am giving a child to the woman.'

The difference between Italian and Haya in (4) and (5a), repeated here as (66), is particularly telling. Since the two languages manifest both word orders in the case of full XPs, as shown in (67), the difference in (66) is surprising:

(66) a. Gliele darà. IO – DO
b. *Le gli darà.
c. A-ka-bi-mú-h-a. DO – IO
he-P_3-them-him-give

(67) a. Darà banane al bambino. DO – IO
he.will.give bananas to-the child
b. Darà al bambino banane. IO – DO
c. A-ka-h' èbitook' ómwáana. DO – IO (Hyman & Duranti 1982:220)
he-P_3-give bananas child
He gave bananas to the child.'
d. A-ka-h' ómwáán' èbitooke. IO – DO (Hyman & Duranti 1982:218)
'He gave the child bananas.'

Notice that the order manifested by Bantu clitic pronouns (DO – IO) is more frequent in OV languages (like Latin or German), but Bantu languages are VO (Bearth 2003, Kinyalolo 2003:345, and the references quoted there).

I conclude that as clearly shown in Bantu, DO > IO corresponds to the merging order of clitic pronouns. No further requirement is operative in Bantu since object clitics do not reach the high clitic position.[34]

The particular order seen in Italian Type 1 clusters (IO – DO) complies with the person field in the high portion of the clause, where the cluster checks person and number features in the order in (68). A clitic cluster like *me lo* first checks the number feature of *lo* against the Number head, and then further moves to check the person feature of *mi* against the 1st person head; a similar derivation holds of clusters containing 2nd (*te lo, ve lo*) and 3rd person clitics (*glielo*) against the relevant person heads, (68a). Since *ci* is possible both as a 1pl and a locative clitic (see n. 9), it is probably not positively marked with a person feature. Suppose that it targets a –Person head, as in (68b) (for the observation that 1pl and locative *ci* target the same position, see also Bianchi 2006a:2039, n.34):[35]

(68) a. +Person

1st / 2nd / 3rd	+Number
me lo / *te lo* / *glielo*	~~*me lo*~~ / ~~*te lo*~~ / ~~*glielo*~~
ve lo	~~*ve lo*~~

b. –Person

ce lo	+Number
	~~*ce lo*~~

In the high clitic position, these clusters are also possibile in enclisis. Since they involve one and the same functional head, the verb can adjoin to them providing enclisis**.**

The data concerning *mi ti* combinations seen in section 3.2 confirm this approach to the order inside clitic clusters. *Mi ti* sequences are possible in enclisis when they display

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[34]. In Bantu, subject clitics precede the tense marker, (5), and must occupy the high clitic position(s). Subject clitics are not found in the low clitic position (Cardinaletti and Shlonsky 2004). For verb movement across a subject clitic, as in *ba-ntu b-aka-tuma-ye* 'cl.2-men 2.rel-T/A-send-1.SU' (= The men that he has sent), see Cocchi (2003:10).

[35]. 1pl c*i* and 2pl *vi* are taken to derive from locative pronouns (Rohlfs 1968:158f, 161, Calabrese 1995). Since only locative *ci* is productive today (see note 10), it is reasonable to differentiate them synchronically as in (68a) vs. (68b) (see also Kayne 2000:154, n.21).

the order DO – IO, i.e. the order of adjunction of the two clitics to the low clitic position. The two clitics occur in one and the same head, and enclisis is possible. The order inside the constituent complies with the person hierarchy in the high clitic position where the 1st person head is higher than the 2nd person head (see (68)). The IO – DO *mi – ti* sequences only found in proclisis instead require a change in the order of clitics that is not motivated in the low clitic position, but can arise in the high clitic position via the need of person feature checking: the IO *mi* ends up before the DO *ti* because in Italian, the 1st person head is higher than the 2nd person head (see (68)). The two clitics occur in different, adjacent heads, and are not possible in enclisis in the high clitic position either.

6.2. Type 1 and Type 2 clusters with locative *ci*

Type 1 and Type 2 clusters containing locative *ci* are both possible in the low enclitic position, but the order is different: LOC > DO in *ce lo*, DO > LOC in *mi/ti/vi ci* (see (1), (29e), (34a,b)). I take the two clusters to be minimally different: one must be the order in which the two clitics are merged to check their case features, the other must be derived in some minimally different way.

Evidence from French *les y* in (9a) indicates that the order of adjunction is DO > LOC, which reverses the argument order LOC > DO. I take the cluster *mi/ti/vi ci* to be the one formed in the syntax: the argument that is closer to the functional head (LOC) is attracted first, while the DO is moved second and adjoined to LOC. The infinitival verb adjoins to the cluster in configuration (53), and an enclitic cluster is obtained. A similar analysis holds for Type 2 clusters *mi/ti/vi/gli ci* in (34c-e), where the order of adjunction is IO > LOC, which reverses the argument order LOC > IO. Since they target one single head, these clusters are possible in enclisis, (30b)-(32b).

In the high clitic field, these clusters first target the –Person head to check the feature of *ci* (see (68b)), and then move to the +Person head to check the person feature of *mi*, etc.:

(69)

+Person	
1st / 2nd / 3rd	–Person
mi / ti/vi/ gli ci	~~*mi / ti/vi / gli ci*~~

As we have seen for the clusters in (29a-c), Type 1 cluster *ce lo* is merged as a lexical unit. Being merged in one single head, the cluster is possible in enclisis. If this analysis is correct, the word order inside the cluster is not telling on the order of merging of the two clitic pronouns. But why is it *ce lo* instead of *lo ci*? The cluster-internal order reflects the order of person and number heads in the high portion of the clause. The cluster first checks the number feature of *lo* and then targets the –Person head to check the feature of *ci*, as in (70) (see (68b)):[36]

(70) –Person
ce lo +Number
~~*ce lo*~~

The fact that in Thsiluba, a locative clitic precedes a DO clitic (*muana u-mu-tshi-di-a* 'boy 1.SU-18.LOC-7.DO-eat-I' = The boy eats it there), apparently reversing the argument order DO > LOC (*muana u-di-a tshimuma mu nzubu* 'boy 1.SU-eat-I fruit in house' = The boy eats fruit at home) (Cocchi 2000b:50) seems to be problematic for my proposal. Bantu locatives however behave similarly to objects with respect to many phenomena (Bresnan and Moshi 1990, Cocchi 2000b:44, and references cited there), and in some Bantu languages, locative arguments come in the order LOC > (IO >) DO (*Umwáana y-a-taa-yé-mo amáazi igitabo* 'child he-PAST-throw-ASP-in water book' = The child has thrown the book into the water, Kinyarwanda, Kimenyi 1976, quoted in Dryer 1983:134). This could be an intermediate step in Tshiluba cliticization, and the order displayed by Tshiluba clitic clusters is indeed compatible with my proposal above.

6.3. Another Type 2 cluster with locative *ci*

As for the Type 2 cluster ci_{LOC} $si_{REFL/DO}$ cluster in (34f), the two clitics adjoin to the low clitic position starting from the following order of arguments: reflexive *si* – locative argument *ci*. That reflexive *si* is higher than the locative argument is compatible with Manzini and Savoia's (2001:237) proposal according to which reflexive *si* is linked to the external argument position (and makes the clause become unaccusative, Kayne 2000:144). The cluster moves to the clausal position to check the features of reflexive *si*

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[36]. Like *lui*, French *y* is not a person clitic (see note 27) and needs not to occur as high in the clitic cluster as its Italian counterpart (see (9a) above).

against an unspecified person head (Grimshaw 1997) or 0-person head (Kayne 1993:16) and then targets the –Person head seen in (68)-(70) above:

(71)

–Person	
ci_{LOC} si_{REFL}	0Person
	~~ci_{LOC}~~ ~~si_{REFL}~~

6.4. Clusters with impersonal *si*

Consider now those clusters that cannot occur in enclitic position. One type contains [-argumental] impersonal *si*, which gives rise to what we have called Type 4 and Type 5 clitic clusters. In Cinque's (1988) proposal, [-argumental] *si* is merged in INFL and provides INFL with the relevant features to get an impersonal reading. Translating this into our proposal, [-argumental] *si* is merged in one of the positions of the high clitic field. If this is true, it follows that [-argumental] *si* never gives rise to enclitic clusters in the low clitic position (see also Cinque 2004:176, n.42). This is the simplest case to explain away.

Impersonal si gives rise to proclitic clusters like *lo si*, discussed in (13) and (45) above (see (48b)). It must target a position that is lower than the Number projection which hosts 3rd person accusative clitics, presumably the same position as reflexive si in (71):

(72)

+Number	0Person
lo	si_{IMP}

If impersonal *si* targets such a low position in the string of clitic heads, it is expected that it follows all person clitics (both +Person and –Person): see *mi / ti / vi* si_{IMP} in (48a) and ci_{REFL} si_{IMP} in (48c,d). I suggest that the same position is targeted by [+argumental] impersonal *si*. We expect that it also follows person clitics: see *mi / ti / ci / vi / gli /* le_{IO} si_{IMP} in (41f,g) and ci_{LOC} si_{IMP} in (41h):

(73)

+Person	–Person	+Number	0Person
1st / 2nd / 3rd			
mi / ti/vi / gli/le	ci	lo	si_{IMP}

Differently from [-argumental] *si*, [+argumental] impersonal *si* can occur in the low clitic position by itself but in this position, it does not give rise to clusters like the proclitic ones in (41f-h). It can be suggested that *si* is merged in a position higher than the low clitic position, which, following Cinque (2004: 178, n.47), can be identified with an impersonal Voice higher than personal Voice. It follows that *si* cannot give rise to clusters, unless they are merged as single words, such as *se ne* in (29h). What is the location of partitive/genitive/source *ne*, which follows all clitics (for reflexive and impersonal *si* see (29g,h) and (43))?

French (9) provides evidence that en occupies the lowest position in the clitic string. The same can be said of Italian *ne*. Since *ne* does not express any number and gender distinction, we might suppose that it checks a –Number head, which must be taken to be the lowest in the string of clitic heads.[37] Cluster *se ne* in (29h) moves to the high clitic position to check the number feature of *ne* and the person feature of *si*, in this order (a similar derivation holds for the other clusters containing *ne* in (29)):

(74) 0Person
se ne –Number
~~*se ne*~~

6.5. Type 3 clusters with reflexive si

Another set of clusters that cannot occur in enclitic position are Type 3 clusters containing reflexive *si*. What prevents the clusters in (41a-d) to occur in the low clitic position? What is wrong in the clusters (41a, b, d) is the fact that a IO and a LOC precede a DO (reflexive si being also linked to the internal argument position, Manzini and Savoia 2001:238). These orders cannot be obtained in the low clitic position. I must admit that (41c) is unexpectedly wrong. The observation is however of some relevance that these clusters are rare and for many speakers they are marginal also in proclisis, as pointed out by the two reviewers. An independent restriction must account for their properties.

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[37]. Partitive *ne* inherits number (and gender) features from Q and obligatorily triggers past participle number agreement (Cardinaletti and Giusti 2006:68, and note 28).

According to our proposal in 5.2 above, clitics that are not possible in enclitic clusters occur in proclisis in distinct functional heads in configuration (52). Type 3 clusters involve combinations of the person heads seen above, in the order in (75):[38]

(75)	+Person	–Person	0Person
	1st / 2nd / 3rd		
	mi / ti/vi / gli/le	ci	si

The orders in (41a,c) are obtained if the heads containing 1st and 2nd person pronouns are higher than the one containing reflexive *si*, which targets the same position as impersonal *si*. 3rd person IO clitics are also higher than reflexive *si* (see (41b)). The cases in (41e) and (41d) confirm that 3rd person IO clitis are higher than locative *ci* (see (69)) and locative *ci* is higher than reflexive *si* (see (71)).

A final remark concerns Type 1 cluster *se lo* in (29d), where IO reflexive *si* must target a position higher than the Number head where accusative clitics check their number feature. I take it to move to the –Person head which hosts 1pl and locative *ci*, (68b) and (69)-(71). IO *si* is similar to IO *gli* in that it has a Person feature albeit negative (see section 5.6). This might also explain why *ci* is the form that replaces reflexive *si* when it combines with impersonal *si* (see n. 13).

We end up with the following field of functional heads in the high portion of the IP layer, located between the subject position and the position reached by the inflected verb:

(76)	+Person	–Person	+Number	0Person	–Number
	1st / 2nd / 3rd				
	mi / ti/vi / gli/le	ci/si_{IO}	lo	si	ne

In conclusion, the way in which clitic pronouns adjoin to the functional heads in the high portion of the clause depends on their feature specification, namely person and number features. Whether they end up as a constituent on a single head, as in (51), or adjoin to adjacent heads (two or more, see (52)) depends on their derivational history: the former case arises if they cluster in the low clitic position, the latter when this does not happen and the clitics move independently to the clausal clitic field.

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[38]. In Spanish varieties, clusters *me se* also enter structure (52) (Ordóñez 2002:215).

7. On the *mi gli* constraint

In Italian and other Romance languages, a 1st or 2nd person DO clitic cannot cooccur with a 3rd person IO clitic (the *mi gli* constraint or Person Case Constraint, PCC, Bonet 1991), as shown in (77a) for Italian. Data are however different in other languages, such as Old Italian and Bantu, as shown in (77b) and (78), respectively:

(77) a. *Ti gli / *Gli ti sei data.
b. e dì come gli ti se' tutta data ... (Dante, Fiore; 173,2)
and say how [you] to-him yourself are all given
'and say how you gave yourself all to him'

(78) A-ka-mu-ku-léét-el-a. (Haya; Hyman & Duranti 1982:231)
he-P_3-him-you-bring-app
'He brought you to him'

Several syntactic analyses have recently been given for the ungrammaticality of (77a) in languages like Italian (Anagnostopoulou 2005, Rezac 2005, Bianchi 2006a, Nevins 2007).

On the basis of the assumption that the verb itself contains the φ-features person and number to check and IOs are always specified for person, Anagnostopoulou (2005) suggests that the person feature on the verbal head is checked by the IO; the DO clitic could only check the number feature on the verbal head, but it does not match it since it contains a person feature. Hence the ungrammaticality of the sequence.

We cannot adopt this analysis. No violation surprisingly arises in Italian with reflexive *si*, a pronoun specified for [+person] under Anagnostopoulou's (2005:211) assumptions: see *Mi / Gli si è rivolto in inglese* in (35a) above. These sequences should be ungrammatical as they are in French *(*Elle se lui est donnée entièrement* 'she REFL to-him is given entirely', quoted in Anagnostopoulou 2005:204), but they are not. A different approach should therefore be assumed that takes into account the order of DO and IO inside the cluster. Notice that in Old Italian and Bantu, the 3rd person IO clitic precedes the 1st or 2nd person DO clitic. Also in the possible Italian cluster *gli si*, the 3rd person IO clitic comes first (differently from French).[39]

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[39]. As for (78), remember that Haya allows IO > DO alongside DO > IO (see (5a), (6a) and (10)). A reviewer finds a contrast between **ti gli* and ??*gli ti*, which recalls the order in (77b). That the clitic order

The data cannot be understood adopting Bianchi's (2006a) account of the *mi gli* constraint either. Under the hypothesis that IOs are merged higher than DOs, Bianchi takes a 1st or 2nd person DO clitic moved higher than a 3rd person IO one, as in *mi gli*, to give rise to a nested paths configuration. According to her assumptions, nested paths are banned. If however the order of merging is DO – IO, as I have proposed in section 6.1, this analysis cannot be adopted either.

This issue will not be pursued further here. Here it suffices to conclude that the picture is complicated by those languages (e.g. Old Italian and Bantu), in which 1st and 2nd person clitics do not need to appear first, i.e., they do not need to check their person feature in the high clitic position.

8. Conclusion

We conclude with a new view of the serialization of clitic pronouns in clitic clusters. Differently from descriptive grammars and templatic approaches (Calabrese 2001, Perlmutter 1971), which usually report the surface serialization of clitic pronouns, I have shown that the superficial orders of clitic pronouns can be partially different from the order of merging (which is LOC > IO > DO in Italian and Bantu), as is shown by some of the clusters possible in the low clitic position. Other requirements sensitive to the feature make-up of clitic pronouns may vary this word order since clitic movement must continue to the high clitic position(s) to check person and number features.

In the high portion of the clause, there can be more than one head adjacent to the other to host clitic pronouns. The high clitic position must be thought of as an articulated clitic field. In proclitic clusters, clitics can appear in these adjacent heads or inside one and the same head. In enclitic clusters, clitics can only be dominated by one and the same head. This is also true of the low clitic position, where only enclisis is found in Italian. More cluster possibilities are thus possible in proclisis than enclisis in this language.

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matters for the *mi gli* constraint is confirmed by the milder effect found in Czech, according to Rezac's (2005: 125) judgment: *Ukážu mu ho/??tě zítra* '[I] show to-him him/you tomorrow'. In Czech, the two clitics occur in the order seen in (77b) and (78). See however Spanish *Ella se le entregó cuerpo y alma* 'she herself to-him gave in body and soul' (Rivero 2004:498) and Haya ***A-ka-ku-mu-léét-el-a*** 'he P_3-you-him-bring-app' (Hyman and Duranti 1982:231).

In conclusion, the properties of clitic clusters can illuminate on the order in which arguments are merged in the lower portion of the clause and on the order of functional projections in the higher portion of clause structure.

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The fundamental left-right asymmetry of natural languages*

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The article discusses a pervasive left-right asymmetry found in the order of modifiers and functional heads associated with distinct lexical heads. In each case, it is shown that one and the same pattern is involved. The account proposed for such an asymmetry is based on a unique underlying structure for each head and the modifiers and functional heads associated with it, in interaction with independent conditions on phrasal movement.

Key words: word order; left right asymmetry; phrasal movement.

In both the typological and generative literature various left-right asymmetries of natural languages have been discussed; among these, the rightward skewing shown by the location of sentential complements with respect to the verb (Dryer 1980, Hawkins 1988,§2.2); the similar rightward skewing of relative clauses with respect to their Head (Hawkins 1988,§2.1; Cinque 2005b); the cross-linguistic preference of suffixing over prefixing (Cutler, Hawkins, and Gilligan 1988, Hawkins 1988,§2.3, Hawkins and Gilligan 1988); the existence of "unbounded leftward movement" vs. the (virtual) inexistence of "unbounded rightward movement" (Bach 1971,160f; Bresnan 1972,42ff; Kayne 1994,54; Cinque 1996; Hawkins 1998); and the left-right asymmetries in quantifier scope interactions mentioned in Lu (1998, 10fn3).

*. I wish to thank two anonymous reviewers, and Matthew Dryer, for their comments.

Here I would like to discuss yet another pervasive left-right asymmetry of natural languages: that found in the ordering of functional modifiers and heads to the left and to the right of a lexical head.

The first glimpse of such an asymmetry is to be found in one of Greenberg's universals, his Universal 20:

"When any or all of the items (demonstrative, numeral, and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite." (Greenberg 1963,87)

The left-right asymmetry implicit in Greenberg's formulation appears more clearly when all the modifiers are on the same side of the noun, as is the case in (1). What we find is that to the left of the noun only one order is possible, while to its right two orders are possible (either the same one or its mirror image).[1]

Order of Demonstratives, numerals, and adjectives

(Greenberg 1963, Cinque 1996, 2005a)

(1) a. Dem > Num > A > **N** (English, Malayalam,…)
b. *A > Num > Dem > **N** 0
c. **N**> Dem > Num >A (Abu', Kikuyu,...)
d. **N** > A > Num > Dem (Gungbe, Thai,…)

This is not an isolated property of such modifiers. The same pattern is found with the order of attributive adjectives ((2)), with the order of adverbs ((3)), with the order of circumstantial PPs ((4)), with the order of locative and directional prepositions ((5)), with the order of Mood, Tense, and Aspect morphemes ((6)), with the order of auxiliaries (and restructuring verbs) ((7)), etc.

Consider first the order of attributive adjectives. Restricting ourselves, for convenience, just to adjectives of size, color and nationality among the substantial number of existing classes (see Scott 2002, and references cited there), we find that their order is fixed (if we control for the independent relative clause source of attributive adjectives – see Cinque forthcoming for discussion).

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[1]. This is in fact a simplification, which however does not affect the thrust of the argument. While the prenominal order is Dem > Num > Adj without exceptions (or virtually so), more possibilities than the two Dem > Num > Adj and Adj > Num > Dem are actually attested postnominally (see (17) below, and Cinque 2005a for an illustration of how they can be derived by different leftward movements).

Order of attributive adjectives (not derived from RCs):

(Hetzron 1978; Sproat and Shih 1991; Cinque 1994, forthcoming; Plank 2006)

(2) a. $A_{size} > A_{color} > A_{nationality} > \mathbf{N}$ (English, Serbo-Croatian…)
b. $*A_{nationality} > A_{color} > A_{size} > \mathbf{N}$ 0
c. $\mathbf{N} > A_{size} > A_{color} > A_{nationality}$ (Welsh, Irish, Maltese…)[2]
d. $\mathbf{N} > A_{nationality} > A_{color} > A_{size}$ (Indonesian,Yoruba,…)

Similarly, if we take some selection of the many different classes of adverbs that are found within the clause (say, the terminative aspect adverb *no longer*, the completive aspect adverb *completely*, and *always*), we find the same thing:

Order of adverbs: (Cinque 1999,42f, Rakowski and Travis 2000, Pearson 2000)

(3) a. $Adv_{no\ longer} > Adv_{always} > Adv_{completely} > \mathbf{V}$ (English, Chinese,…)
b. $*Adv_{completely} > Adv_{always} > Adv_{no\ longer} > \mathbf{V}$ 0
c. $\mathbf{V} > Adv_{no\ longer} > Adv_{always} > Adv_{completely}$ ((main clause) German, Italian…)
d. $\mathbf{V} > Adv_{completely} > Adv_{always} > Adv_{no\ longer}$ (Malagasy, Niuean,…)

This is also what we find with the relative order of circumstantial PPs. If we limit ourselves to Time, Place and Manner PPs, whose order has been investigated from a cross-linguistic perspective by Boisson (1981), and Lu (n.d.) (also see Cinque 2002, Hinterhölzl 2002, Schweikert 2005), we find the same pattern:[3]

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[2]. While the relative order of postnominal adjectives of Size, Color, and Nationality in Welsh is the same as the order of the same adjectives in prenominal position in English (cf. Sproat and Shih 1991, Rouveret 1994, Plank 2006), other adjectives (among which quality, age, the functional adjective *other* and demonstratives) show a (postnominal) order which is the mirror image of the English order (see Willis 2006): N A_{size} A_{color} $A_{nationality}$ A_{age} $A_{quality}$ "other" Dem.
If movement of the NP (or phrases containing the NP) rather than head movement is responsible for DP internal orders (Cinque 2005a and forthcoming), this mixture of direct and mirror-image orders of nominal modifiers can be reconciled (pace Willis 2006) with a unique, universal, base structure.

[3]. On the interference of focus on the canonical order of circumstantial PPs and possible diagnostics for the canonical order, see Cinque (2002), Schweikert (2005).

Order of circumstantial PPs

(4)	a.	Time > Place > Manner **V**	(Basque, Nambikuara,.. – Lu n.d., Kroeker 2001,3)
	b.	*Manner > Place > Time > **V**	0
	c.	**V** > Time > Place > Manner	(V/2 clause German)
	d.	***V*** > Manner > Place > Time	(Vietnamese, Yoruba – Lu n.d.)

A similar pattern is apparently found (in those languages in which they overtly combine) with the order of locative ('at') and directional ('to', 'from') prepositions:[4]

Order of directional and locative prepositions

(5)	a.	P_{Dir} P_{Loc} NP	(Romanian: *Ion vine de la şcoală* '(lit.) Ion comes from at school (from school)' – Zegrean 2007,79)
	b.	*P_{Loc} P_{Dir} NP	0
	c.	NP P_{Dir} P_{Loc}	(Iatmul (Papuan): *gay-at-ba* '(lit.) house-to-at (to the house)' – Staalsen 1965,21)
	d.	NP P_{Loc} P_{Dir}	(Jero (Tibeto-Burman): *thalu=na=k* 'where=LOC = SOURCE (from where)' – Opgenort 2005,92)

This is also what we find with the order of (speech act) Mood, Tense, and Aspect with respect to the V (see Bybee 1985, Foley and Van Valin 1984, Cinque 1999, 2007, and the text below):

Order of (speech act) Mood, Tense, and Aspect morphemes

(6)	a.	Mood Tense Aspect **V**	(Nama, Yoruba,…)
	b.	*Aspect Tense Mood **V**	0
	c.	**V** Mood Tense Aspect	(Comox,..)
	d.	**V** Aspect Tense Mood	(Korean, Malayalam,…)

If one considers the relative order of auxiliary and restructuring (or clause union) verbs (Cinque 2006) with respect to each other and to the lexical verb, one finds a similar

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[4]. The other two possible orders of the three elements P_{Dir} P_{Loc} NP are also attested: P_{Dir} NP P_{Loc} in Taba (Austronesian - Bowden n.d. *ap-po bbuk li* '(lit.) to-down book at' (onto the book)), and P_{Loc} NP P_{Dir} in Zina Kotoko (Chadic - Tourneux 2003:294 *'à jì kàskú kí* 'LOC inside market toward' (toward the market)).

pattern. See Koopman and Szabolcsi (2000), Nilsen and Vinokurova (2000), Wurmbrand (2004), Barbiers (2005), and Svenonius (2006):

Order of auxiliary (restructuring) verbs

(7) a. Aux_1 Aux_2 Aux_3 **V** (Italian, English,…)
b. *Aux_3 Aux_2 Aux_1 **V** 0
c. **V** Aux_1 Aux_2 Aux_3 (Hungarian, West Flemish,…)
d. **V** Aux_3 Aux_2 Aux_1 (Hungarian, German,…)

The same pattern is also found within a single language, with respect to the ordering of certain elements. To take one example, Terzi (1999) notes that in front of the verb in Modern Greek only the order in which the dative clitic precedes the accusative clitic is admitted, while after the V either order of the two clitics is possible (see (8)):

Order of (dative and accusative) clitics in Modern Greek (Terzi 1999,86)

(8) a. mou to edoses
me_{dat} it_{Acc} gave.2sg
'you gave it to me'
b. *to mou edoses
it_{Acc} me_{dat} gave.2sg
c. Dos' mou to
give me_{dat} it_{Acc}
'give it to me!'
d. Dos' to mou
give it_{Acc} me_{dat}
'give it to me!'

All of the cases seen above instantiate exactly the same pattern:

(9) a. AB(C)X°
b. *(C)BA X°
c. X° AB(C)
d. X° (C)BA

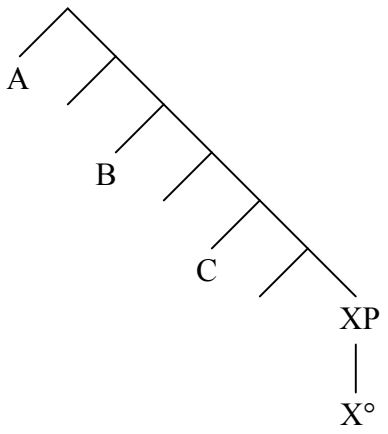
Clearly, this cannot be an accident. It is equally clear that these orders are not independent of one another. One feels in fact that they are the *same* order at a more abstract level, for they are either literally the same, modulo their pre- or post-head

location ((9)a and c), or the mirror image of each other on the two sides of the head ((9)a and d). It would thus seem desirable to express this more abstract identity by deriving them from a unique structure.

Sometimes it is assumed that this more abstract identity is expressed by a principle which determines the relative distance of each class of elements from the head, thus accounting for what are possibly the two most common orders of each of the above cases, (9)a (ABC X°) and (9)d (X° CBA), and for the non existence of the order (9)b (CBA X°). But, if one takes this line, one can only state the principle as a tendency given that the fourth order, (9)c (X° ABC), even if it is generally rarer, plainly violates it.

The principle (whatever it ultimately follows from) can however be stated as an absolute principle, rather than just a tendency, if we are willing to abandon the symmetrical view underlying the above account (as in fact Kayne's 1994 antisymmetry principle would have us do), and to adopt a more abstract, asymmetrical, view, whereby there is only one order/structure available for all languages ((10)), and whatever word order difference there is among them is a function of independently motivated types of movement of the lexical core XP.

(10)



We know that certain phrases in certain languages can, or must, appear displaced; for example (single) interrogative *wh*-phrases in English must be displaced to sentence initial position (as in (11), below). And we know that languages vary with respect to whether they displace them or not. In some languages (e.g., Indonesian - see (12)) *wh*-phrases remain *in situ*. We also know that depending on certain conditions movement can affect just the phrase bearing the feature triggering the movement - here the *wh*-feature – (as in (11)), or a larger phrase containing the phrase bearing the relevant feature (as in (13)); what Ross (1967) called Pied Piping:

(11) [*Wh*o] did you see ?

(12) Siti mau apa? (Cole, Hermon and Tjung 2005,553)
Siti want what
'What does Siti want?'

(13) [[*Wh*ose] pictures] did you see ?

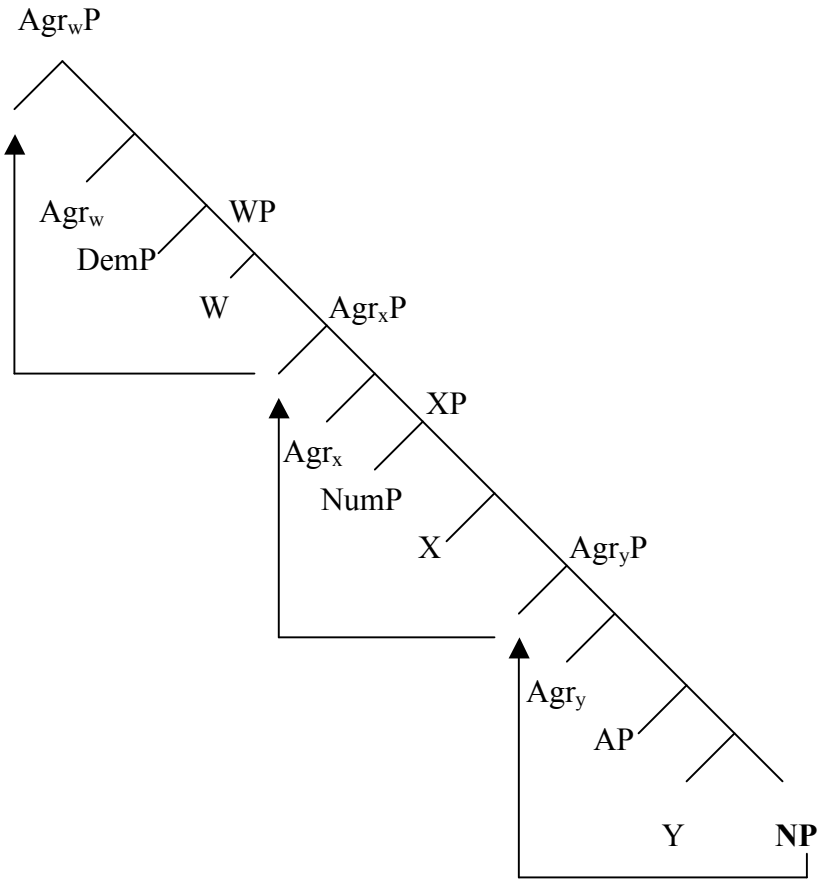
In Cinque (1996, 2003, 2005a) I suggested that precisely these two independent parameters (whether the relevant phrase remains in situ or moves; and, if it moves, whether it moves by itself, or by pied piping each time the immediately dominating phrase) can account for the three attested orders of Dem Num A N ((1)a,c,d) and for the principled absence of the fourth ((1)b).

The phrase bearing the relevant feature triggering the movement (a nominal feature) is in this case NP.

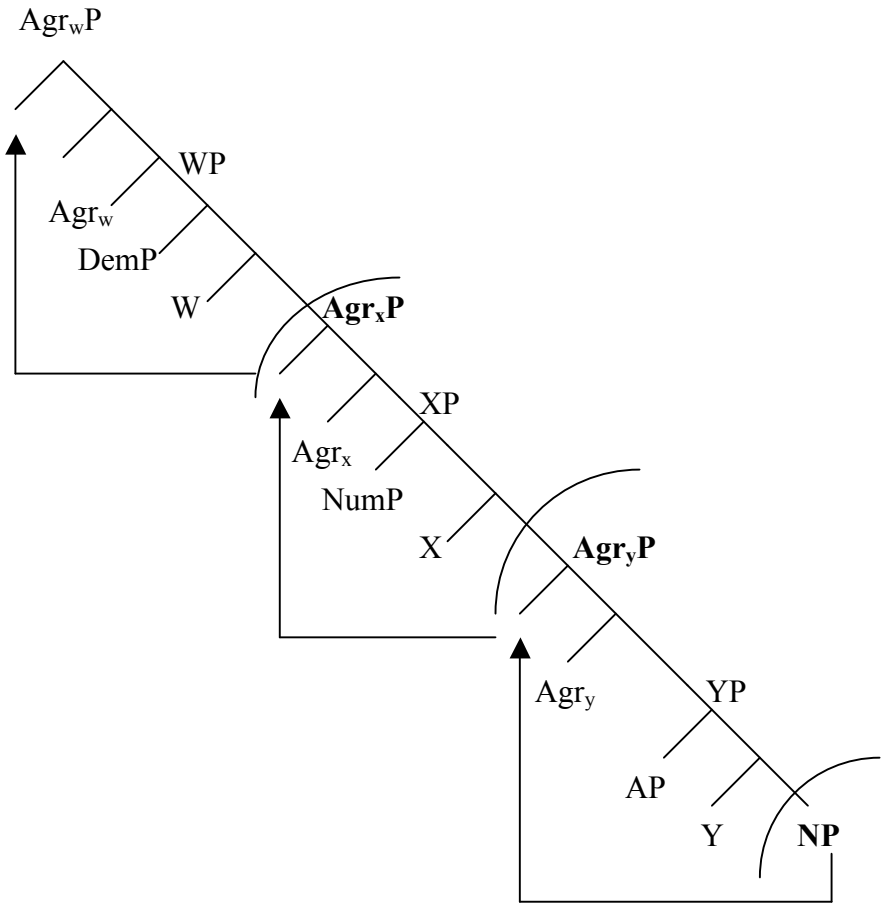
If NP does not move, we get (1)a. If NP moves by itself (all the way up), as shown in (14a), we get (1)c. If it moves (all the way up) each time pied piping the immediately dominating phrase, as in (14b), we get (1)d. (1)b cannot be derived because the NP has not moved and the base structure has the modifiers in the wrong order. Crucially AP, NumP, or DemP cannot move by themselves just as phrases not bearing the *wh*-feature cannot move by themselves to the sentence initial +*wh*- position.[5]

[5]. In certain languages, (at most) one of these elements, if it bears a focus feature, can apparently move to an initial focus position– see fn.21 below for relevant references.

(14) a.



(14) b.



Note that if the principle governing the degree of proximity of each modifier to the head is stated on the "base level" (10), before movement takes place which disrupts the original order of elements, it can be stated as an absolute principle forcing AP to be merged closer to the head than NumP, and NumP closer to the head than DemP.
This logic extends to the other instances of the same pattern seen above.
This is however a simplification. The orders that it accounts for are the orders in (1)a,c,d, repeated here as (15)a-c, and, taking partial movement into account (i.e., when the NP does not move all the way up), the orders in (16)a-c:

(15) a. Dem Num A N
b. N Dem Num A
c. N A Num Dem

(16) a. Dem Num N A
b. Dem N Num A
c. Dem N A Num

But, of the 24 mathematically possible orders of the four elements Dem, Num, A and N, more than the six indicated in (15) and (16) are attested, as is apparent from the table in (17), from Cinque (2005a), which documents 14 orders as attested (although in the same article I suggested that one ((17)r) may be spurious, with the position of A really being the position of reduced relative clauses).[6]

(17)

a.	√ Dem Num A **N**	(very many languages) [7]
b.	√ Dem Num N A	(many languages) [8]
c.	√ Dem **N** Num A	(very few languages) [9]
d.	√ **N** Dem Num A	(few languages)[10]

[6]. The references in the footnotes that follow are those given in Cinque (2005a), with some additions.

[7]. Rijkhoff (1998,357) states that the "order [Dem Num A N] is by far the most common both inside and (to a lesser extent) outside Europe", listing on p. 342f many languages of the Afro-Asiatic, Altaic, Caucasian, Indo-European, and Uralic families. More languages with this order are listed in Hawkins (1983,119), Rijkhoff (1990,32; 2002,112,270, fn.10, 310, 328, 330f), and Croft and Deligianni (2001,7). It is also found in Amerindian (e.g., Comox – Harris 1977,129) and Australian (e.g. Tiwi – Osborne 1974,73) languages.

[8]. According to Rijkhoff (1998,357) "[t]he order [Dem Num N A] is [..] rather frequent in Europe". Outside Europe it is documented, among other languages, in Yao (Jones 1970), Khasi (Nagaraja 1985,14ff), Madak (Lee 1994,§1.1), Burushaski, Guaraní (Rijkhoff 2002,328), Abkhaz, Farsi, Kiowa, Mam (Croft and Deligianni 2001), Kristang, Kriyol, Tok Pisin and Cape Verdian, Mauritian, and Seychelles Creoles (Haddican 2002).

[9]. This order is documented in Sampur and Camus (Heine 1981) (but see Rijkhoff 2002,274f), in Maasai (Koopman 2003), and in Wappo (Thompson, Park, Li 2006,8). According to Croft and Deligianni (2001,7), it is also a possible alternative order (of the Dem N A Num order) in Hualapai and Lahu.

[10]. Greenberg (1963,87) states that the N Dem Num A is "[a] less popular alternative" to N A Num Dem, citing Kikuyu as one example. Other languages displaying this order are: Elmolo (Heine 1980), Turkana, Rendille (Heine 1981) Noni (or Noòni - Hyman 1981,31; Lux and Lux 1996,10), Nkore-Kiga (Lu 1998,162fn59,165), Nomaándɛ́ (Wilkendorf n.d.,11), Abuʼ (Lynch 1998,171), Arbore (Hayward

e. *	Num Dem A **N**	(Ø – Greenberg 1963; Hawkins 1983)
f. *	Num Dem **N** A	(Ø – Greenberg 1963; Hawkins 1983)
g. *	Num **N** Dem A	(Ø – cf. Lu 1998,183)
h. *	**N** Num Dem A	(Ø – cf. Greenberg 1963; Lu 1998,162)

i. *	A Dem Num **N**	(Ø – Greenberg 1963; Hawkins 1983)
l. *	A Dem **N** Num	(Ø – Greenberg 1963; Hawkins 1983)
m. √	A **N** Dem Num	(very few languages)[11]
n. √	**N** A Dem Num	(few languages)[12]

1984,212), Bai and Moro (Dryer 2003,20 and 43), and the Kuliak (Nilo-Saharan) languages Ik and So (Serzisko 1989,391). This is also the order given by Lawton (1993,150) for Kiriwina (Kiliwila).

[11]. It is found in Koiari (which also has the order N A Dem Num with most adjectives - Dutton 1996,60ff), and in Bai (Wiersma 2003,669). According to Dryer (2000,20), Bai also has N Dem Num A as an alternative order. [A N]-def Num is also an alternative order of the unmarked Dem Num A N order of Icelandic (Sigurðsson 1993,194; Vangsnes 2004). The possibility of this order in Koiari, and Bai (and of the order A N Num Dem in Gude and Sango - see below) indicates that the last sentence of Hawkins' (1983,119-120) revision of Greenberg's Universal 20 ("In no case does the adjective precede the head when the demonstrative or numeral follow.") may be too strong. Greenberg's (1963) Universal 18 was less categorical ("When the descriptive adjective precedes the noun, the demonstrative, and the numeral, with overwhelmingly more than chance frequency, do likewise"). This was because of the existence, noted by Greenberg, of "a small number of instances (e.g., Efik) in which the demonstrative follows while the adjective precedes" (p.86). Cf. also Dryer (2000,34).

[12]. This order is found in Lalo (Björverud 1998,116ff), Lisu (Bradley 2003,228f), Akha (Hansson 2003, 241), Aghem (Hyman 1979,27), Maranunggu (Tryon 1974,154), Kenyang (Ramirez 1998,28), Port Sandwich (Crowley 2002,653), Koiari (Dutton 1996,60ff), which also has the order A N Dem Num with certain adjectives, Lingala (Haddican 2002), Hocank, which also has the alternative order N A Num Dem (Helmbrecht 2004,13). Croft and Deligianni (2001) also assign to this order Babungo and , more tentatively, Woleaian.

o.	* Dem A Num **N**	(Ø – Greenberg 1963; Hawkins 1983)[13]
p.	√ Dem A **N** Num	(very few languages)[14]
q.	√ Dem **N** A Num	(many languages) [15]
r.	√ **N** Dem A Num	(possibly spurious)
s.	* Num A Dem **N**	(Ø – Greenberg 1963; Hawkins 1983)
t.	√ Num A **N** Dem	(very few languages)[16]

[13]. A potential counterexample, pointed out to me by Matthew Dryer (p.c.), is provided by Dhivehi (Maldivian), for which Cain (2000,78), and Cain and Gair (2000,33) give Dem A Num N as the canonical order. Whether this exception is a real counterexample or can be explained away by assuming that Dhivehi lacks direct modification (i.e., non relative clause derived) adjectives entirely, and exploits the possibility of introducing them as the predicate of a (prenominal) reduced relative clause (like possibly in (17)r, as noted) will be left open here.

[14]. According to Hawkins (1983,119), Lu (1998,165), and Rijkhoff (1998,358; 2002,331), this order is not attested. However, Kölver (1978,285) documents it in Newari (also see Dryer's (2000,39) example (79)), LaPolla (2003,676) in Dulong, Mazaudon (2003,297) in Tamang, Gair and Paolillo (1997,29f) in Sinhala, and Valenzuela (2002,28f) in Shipibo-Konibo. Bhattacharya (1998) and Croft and Deligianni (2001) give it as an alternative order for the Dem Num A N order in, respectively, Bangla (where it leads to a specific interpretation of the DP) and Syrian Arabic.

[15]. Among the languages that instantiate this order are Kabardian and Warao (Hawkins 1983,119; Colarusso 1992,63), Burmese, Lolo, Maru, Răwang (Jones 1970), Manange (Genetti and Hildebrandt 2004,75), Ladakhi (Koshal 1979,108), Epena Pedee (Harms 1994, chapter 4), Miya (Schuh 1998,277), Gambian Mandinka (Rijkhoff 1998,356), Cuna (Quesada 1999,232), Kaki Ae (Clifton 1995,46), Pech (Holt 1999,62ff), Tunen (Mous 1997,124). It is an alternative order of N A Num Dem in Kunama (Bender 1996,41), and of Dem N Num A in Hualapai and Lahu (Croft and Deligianni 2001,7).

[16]. According to Hawkins (1983,119) and Lu (1998,165) this order is not attested. However, Rijkhoff (2002,328) reports Berbice Dutch Creole as instantiating it. Haddican (2002) documents the same order for the Creole language Bislama. Lynch (2002,769f,781,809) gives it as the order of Xârâcùù, Iaai, and Puluwatese. To judge from Siewierska and Uhlířová (1997,132f), Polish and Russian also have this order as an alternative order to Dem Num A N.

u. √ Num **N** A Dem (few languages)[17]
v √ **N** Num A Dem (few languages)[18]

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w. * A Num Dem **N** (Ø – Greenberg 1963; Hawkins 1983)
x. * A Num **N** Dem (Ø – Greenberg 1963; Hawkins 1983)
y. √ A **N** Num Dem (very few languages) [19]
z. √ **N** A Num Dem (very many languages)[20]

All of the attested orders, and none of the unattested ones, can be derived, it seems, by slightly refining our earlier assumptions.

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[17]. This order appears documented in a number of Mon-Khmer languages (Dryer 2001), in Basque (Rijkhoff 2002,328), Celtic, Easter Island, Hebrew, Indonesian, Hmong, Jacaltec, Miao (cf. Hawkins 1983,119, Lu 1998,162; Harriehausen 1990,144), in Nung (Saul and Freiberger Wilson 1980,14), in Vietnamese (Nguyen 2004) in Wolof (Sy 2003), in Sisiqa (Ross 2002a,459f); and in a number of Creoles (Haddican 2002). It is also displayed by the Australian language Watjarri (Douglas 1981,241).

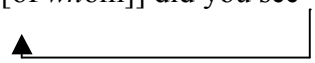
[18]. According to Lu (1998,162) this order is not attested. However, Heine (1981), as noted, documents it in three languages: Gabra, Logoli and Luo (on Luo, also see Chiao 1998). Noonan (1992,154) documents it in Lango. Ross (2002a,132) and Tryon (2002,576) give it as the order of Kele, and Buma, respectively. Croft and Deligianni (2001) give it as an alternative order in Manam.

[19]. According to Hawkins (1983,119) and Lu (1998,165), this order is not attested. However, Thornell (1997,71) and Haddican (2002) give it as the order of Sango, and Rijkhoff (1998,356,358; 2002,332,fn.19) mentions (dubitatively) the possible existence of two other languages with this order: Gude and Zande.

[20]. Cambodian, Javanese, Karen, Khmu, Palaung, Shan, Thai (Rijkhoff 1990,32), Enga (Lynch 1998,171), Dagaare (Bodomo 1993), Ewe (Essegbey 1993), Gungbe (Aboh 2004), Labu and Ponapean (Lynch 1998,121), Mao Naga (Giridhar 1994,452) Selepet, Yoruba (Hawkins 1983,119), West Greenlandic (which also has N A Dem Num as an alternative order) (Rijkhoff 2002,326); Amele, Igbo, Kusaeian, Manam (Croft and Deligianni 2001), Fa d'Ambu, Nubi (Haddican 2002), Kugu Nganhcara (Smith and Johnson 2000,388), Cabécar (Quesada 1999,232), Kunama (Bender 1996,41), Māori (Pearce 2002).

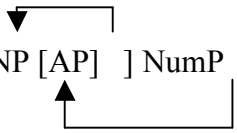
Note that in addition to the Pied Piping of the [[wh*ose*] *pictures*] type, which drags along constituents to the right of the phrase triggering movement, there is also a Pied piping of the [*pictures* [*of* wh*om*]] type, which drags along constituents to the left of the phrase triggering movement:

(18) [pictures [of *wh*om]] did you see ?

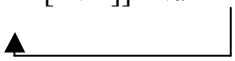


This means that in addition to movements like the one in (19)a, giving the order N A Num, one can also expect to find movements like the one in (19)b, giving the order A N Num:

(19) a. ..[NP [AP]] NumP



b. [AP [NP]] NumP



As I suggested in (2005a), all of the attested orders (and none of the unattested ones) can be derived if we revise our earlier assumptions in the way indicated in (20):

(20) a. Base order: […[$_{WP}$DemP …[$_{XP}$NumP …[$_{YP}$AP [$_{NP}$N]]]]]
b. Parameters of movement:
i) No movement (unmarked), or
ii) NP movement plus Pied-piping of the *whose pictures*-type (unmarked), or
iii) NP movement without Pied-piping (marked), or
iv) NP movement plus Pied-piping of the *pictures of whom*-type (more marked still)
v) *total* (unmarked) vs. *partial* (marked) movement of the NP with or without Pied-piping (in other words, the NP raises all the way up, or just partially, around its modifiers).

vi) Neither head movement nor movement of a phrase not containing the NP are possible (except perhaps for a single focus-related movement to a DP initial position).[21]

The "marked", "unmarked", "more marked", etc., values attached to each parameter of movement (some of which appear to be independently motivated – see Cinque 2005a) were meant to account, at least in part, for the different numbers of languages that appear to instantiate the different orders (although no precise statistics were carried out). I review here the derivation of some of the orders in (17) (for a systematic review of all of the orders see Cinque 2005a).

a. (Dem Num A **N**) is derived if nothing moves (no marked option: very many languages).

d. (**N** Dem Num A) is derived if NP moves three notches, around A, Num, and Dem (i.e. all the way up) without Pied-piping (one marked option: few languages).

e. (Num Dem A **N**) cannot be derived. NP has not moved, and the modifiers to its left are in the wrong order of Merge.

m. (A **N** Dem Num) has a well-formed, though marked, derivation with raising of NP plus Pied-piping of the *pictures of whom*-type of the lowest modifier (A) around Num, followed by raising (of [A N]) without Pied-piping around Dem (two marked options: very few languages)

n. (**N** A Dem Num) has a derivation with NP raising past A, followed by Pied-piping of the *whose pictures*-type past Num, followed by raising (of [N A]) without Pied-piping (marked) past Dem (one marked option: few languages).

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[21]. On the possible, marked, preposing of APs to DP initial position (often for focusing purposes), see Corbett (1979), Giusti (1996), and Rijkhoff (1998,352f; 2002,267,272).

One additional parameter is the *obligatory* vs. *optional* application of movement. For example, the alternative orders Q Dem Num **N** A, Q Dem **N** A Num, Q **N** A Num Dem, **N** A Num Dem Q of Standard Arabic (cf. Fassi Fehri 1999) point to the obligatory character of movement of the NP around the adjectives followed by optional movements (plus Pied-piping of the *whose picture*-type) around numerals, demonstratives and universal quantifiers.

p. (Dem A **N** Num) has a derivation with partial (marked) raising of NP plus Pied-piping of the *pictures of whom*-type of [A N] (marked) around Num (two marked options: very few languages)

t. (Num A **N** Dem) has a derivation with partial (marked) raising of NP plus Pied-piping of the *pictures of whom*-type of A and Num ([Num A N]) (marked) around Dem (two marked options: very few languages).

The question that arises is whether exactly the same fine-grained variation that we find with the order of Dem Num A and N is also found with the order of the other elements reviewed in (3)-(7). I think it is.

In Cinque (2007), I documented it for the relative orders of (speech act) Mood, Tense, Aspect and V. The order of these elements is often taken to be governed by a principle that determines the degree of proximity to the V of Mood, Tense, and Aspect morphemes (Aspect being closer to V than Tense, which in turn is closer to V than speech act Mood - see Gerdts's 1982,193fn4 "Satellite Principle", Bybee's 1985 "Principle of Relevance", Foley and van Valin's 1984 "Principle of Scope Assignment", and Baker's 1985 "Mirror Principle").

These principles account for the two prevailing orders of such elements ((21)a-b), but, as shown in table (22), the actual orders attested are thirteen, five of which (c.,d.,m.,n.,v.) do not conform to the proposed principles.[22]

(21) a. Mood Tense Aspect V
b. V Aspect Tense Mood

[22]. Sources documenting the attested orders are given in the footnotes that follow. See Cinque (2007) for examples illustrating the various orders, and discussion on some apparent exceptions.

(22)

a. √ Mood Tns Asp **V** [23]
b. √ Mood Tns **V** Asp[24]
c. √ Mood **V** Tns Asp[25]
d. √ **V** Mood Tns Asp[26]

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e. * Tns Mood Asp **V** (Ø)
f. * Tns Mood **V** Asp (Ø)
g. * Tns **V** Mood Asp (Ø)
h. * **V** Tns Mood Asp (Ø)

---

[23].This order is attested in Khoisan (e.g., Nama: http://instruct1.cit.cornell.edu/courses/ling700/nama.htm, and /Xam http://instruct1.cit.cornell.edu/courses/ling700/xam.htm); in a number of Oceanic (Austronesian) languages (‘Ala‘ala - Ross 2002c,353 and 359; Nabukelevu – Pawley and Sayaba 1982,68 and 85; Samoan - Cinque 1999,160); in Yoruba (Niger-Congo – Ọládiípò Ajíbóyè, p.c.); and in some South American Indian languages (Apinajé (Macro-Jê) – Cunha de Oliveira 2003, 255f,265), and Canela–Crahô (Cariban – cf. Cinque 1999,162 and references cited there).

[24]. In addition to Nama (which also instantiates the order in (22)a), and N|uu (Khoisan - Collins 2004,188), other languages instantiating this order are Easter Island (Austronesian - Chapin 1978,153,168), Hmong Njua (Sino-Tibetan - Harriehausen 1990,57,226); and Nabukelevu (with postverbal progressive aspect markers – Pawley and Sayaba 1982,53ff).

[25]. This order is found in, among other languages, Kharia (Munda - Biligiri 1965,59,98), Ngarinjin (Kimberley, North Western Australia – Coate and Coate 1970,43,75), and Tümpisa Shoshone (Uto-Aztecan - Dayley 1989,325,348).

[26] This order appears instantiated in Comox (Central Coast Salish - Harris 1977,139), and, to judge from Aikhenvald (2006,179,190) (at least for some combinations of Mood, Tense and Aspect) in Tariana (North Arawak).

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i. * Asp Mood Tns **V** (Ø)[27]
l. * Asp Mood **V** Tns (Ø)
m. √ Asp **V** Mood Tns[28]
n. √ **V** Asp Mood Tns[29]

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o. * Mood Asp Tns **V** (Ø)
p. √ Mood Asp **V** Tns[30]
q. √ Mood **V** Asp Tns[31]
r. * **V** Mood Asp Tns (Ø)

---

[27] St'át'imcets (Matthewson 2003,69) apparently shows the order imperfect > interrogative > past > V, but the interrogative particle is a second position particle, with the imperfect particle possibly moved to first position from a lower one (see the discussion in Cinque 2007).

[28], This order appears to be instantiated in Xârâcùù (Moyse-Faurie 1995,117,157), and Tinrin (Osumi 1995,188,204), two Melanesian (Austronesian) languages of New Caledonia, and in Sooke (Coast Salish - Efrat 1969,43,189).

[29]. This order is instantiated in Kanoê (a language isolate of Brasil) with Past tense (Bacelar 2004,222,226), in Lummi (Coast Salish - Steele 1981,60; and Jelinek and Demers 1997,310f), and in Lotha (Tibeto-Burman – Acharya 1983,158).

[30]. This order is documented in Gunwinggu, a North Australian language of Arnhem Land (Oates 1964,49,53,82), and in Nevome (Uto-Aztecan – Shaul 1986,25,85). It also appears to be instantiated in Slave (Athapaskan – Rice 1989,420, 588, 1003).

[31]. This order is documented in, among other languages, Santali (Munda - Gosh 1994,106,152), Northern Pomo (Hokan - O'Connor 1992,47,269), Iatmul (Papuan – Staalsen 1972,49,50,57), and in the Australian languages Gidabal (Geytenbeek and Geytenbeek 1971,45) and Pitjantjatjara (Glass and Hackett 1970, 32 and 74).

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s. * Tns Asp Mood **V** (Ø)
t. √ Tns Asp **V** Mood[32]
u. √ Tns **V** Asp Mood[33]
v √ **V** Tns Asp Mood[34]

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w. * Asp Tns Mood **V** (Ø)
x. * Asp Tns **V** Mood (Ø)
y. √ Asp **V** Tns Mood[35]
z. √ **V** Asp Tns Mood [36]

---

[32]. This order appears to be instantiated in a number of Austronesian languages, among which Loniu (Hamel 1994,149) and Tigak (Beaumont 1979, 35 and 78ff). It is also displayed by Kom (Benue-Congo – Chia 1976), Blackfoot (Algonquian - Frantz 1991), Sm'algyax (Penutian – Mulder 1994,80,178),and Cogtse Gyarong (Tibeto-Burman – Nagano 2003,476f).

[33]. This order appears to be instantiated in a number of Oceanic (Austronesian) languages, among which Kairiru (Ross 2002b,211,214), Kaulong (Ross 2002d,400,409), and Urak Lawoi' (Hogan 1999,38,40).

[34]. Fernandez (1967,30 and 44) explicitly claims that this is the order of tense, aspect, and interrogative mood suffixes in Remo (Munda-Khmer)). The same order is apparently attested in the Niger-Congo languages Mundang (Adamawa - Elders 2000,387,389) and Noon (West Atlantic – Soukka 2000,181,200), and in Creek (Muskogean – Martin 2000,388). It is also documented in a number of Tibeto-Burman languages (e.g., Limbu -van Driem (1987,90); and Apatani - Abraham 1985,95,103).

[35]. This order is instantiated in a number of (non-Austronesian) Papuan languages of New Guinea: Amanab (Minch 1991,10,17ff,60), Namia (Feldpausch and Feldpausch 1992,55), Nend (Harris 1990,139 and 154), Yagaria (Renck 1975,101); in the Austronesian languages Urak Lawoi' (Hogan 1999,7f and 19), in Diegueño (Hokan - Langdon 1970, 147 and 186), in Slave (Athapaskan - Rice 1989,1114,1131). This order is also found with free morphemes in Tondi Songway Kiini (Nilo-Saharan - Heath 2005,175,182), and Mina (Chadic - Frajzyngier and Johnston 2005,183,200).

[36]. This is by far the most frequent order. It is typical of Altaic, Caucasian, Dravidian, Eskimo-Aleut, Manchu-Tungusic, Tibeto-Burman, and Papuan languages, and it is also found in many Amerindian, and Indo-European, languages.

The same parameters (with VP in place of NP) that we saw in (20) appear to provide an account of the attested and unattested orders of Mood, Tense and Aspect with respect to the verb.

Barbiers (2005) shows that much the same holds for the orders of two auxiliary/modal verbs and the lexical verb attested in the dialects of Dutch.

What remains to be seen is whether the rest of the patterns of (3)-(7) also show the same variation displayed by Dem Num A N and Mood Tense Aspect V. If they do, there will not only be evidence for the existence of the left-right asymmetry discussed here, but also some plausibility to the idea that such asymmetry should be accounted for in terms of a unique hierarchical structure shared by all languages, with extant differences stemming from the limited (and independently motivated) ways phrases can move. This is because such an account can discriminate precisely between the actually attested orders and the unattested ones.

A more general implication of this analysis, if correct, is that the lexical head is the lowest head of the projection (the one starting the syntactic computation), and that constituents found to the right of the lexical head are not base-generated there, but come to be there as a consequence of the head moving leftward past them, merged in pre-head position. Only if we assume that can we provide a unique structure underlying all attested word order variations in terms of independently motivated types of movement.

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German Modal Particles in Root and Embedded Clauses*

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1. Introduction

German Modal Particles (henceforth, MPs) constitute a small class of words (e.g. *ja*, *doch*, *eben*, *schon*, *wohl* ecc.), very similar to adverbs, which generally "[…] express the speaker's mental attitude toward or belief about what he or she is saying, i.e. they usually add the speaker's subjective point of view to the basic meaning conveyed by the utterance" (Coniglio 2006:57).[1]
They are a thorny problem in many respects, mainly as regards their meaning and the pragmatical contexts in which they are used. In recent studies (see Abraham 1995, Ormelius-Sandblom 1997a,b, Thurmair 1989, etc.), their syntactical behaviour has gained an increasing interest as well.

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*. I would like to thank Roland Hinterhölzl and Manfred Krifka for helping me in this study, presented here at its initial stage, and Anna Cardinaletti for her helpful comments. I would also like to thank Megan Rae for reviewing my English and Claudia Katharina Mertens for her judgements on some German sentences. Needless to say, the responsibility for any errors is entirely mine.

[1] Given their abstract meaning, they are often difficult to translate. Consequently, since I cannot always give the exact English equivalent of the MPs used in the paper, I will provide the translations of their semantic features as indicated by Thurmair (1989:200) (stressed particles are indicated in capital letters): *bloß* (<REINFORCEMENT>), *denn* (<CONNECTION>, (<UNEXPECTED>$_S$)), *doch* (<KNOWN>$_H$, <CORRECTION>), *eben* (<EVIDENT>$_H$, <CONNECTION>), *halt* (<PLAUSIBLE>$_H$, <CONNECTION>), *ja* (<KNOWN>$_H$), *JA* (<REINFORCEMENT>), *nur* (<REINFORCEMENT>, <ENCOURAGEMENT>), *schon* (<VALIDITY RESTRICTION>), *wohl*/*WOHL* (<RESTRICTION>).

A noteworthy aspect is their distribution both in root clauses, which have been rather well investigated, and in embedded ones, a point that has not been fully looked into yet. Even though we do observe some restrictions in the use of single particles in certain types of clauses (for example, *denn* can only appear in interrogative clauses), they are – as a class – generally admitted in all types of root contexts. In contrast, their syntactical behaviour in terms of their distribution in embedded clauses is rather puzzling. On the whole, MPs are compatible with most types of subordinate clauses. However, there are a few exceptions and restrictions worth noting, which enable us to draw some important conclusions about their syntactical behaviour in general. Thurmair (1989:73) observes:

> Da Modalpartikeln die Illokution eines Satzes verstärken oder modifizieren können, müßte ihr Auftreten in Nebensätzen beschränkt sein.[2]

It has been argued that since MPs display their effects on the illocutionary field[3], they can only appear in embedded clauses endowed with independent illocutionary force. In what follows, I will endorse this hypothesis by taking into account Haegeman's (2002, 2004, 2006) recent theories about the structure of the left periphery of the clause. She (2002:159) claims that illocutionary force must be 'anchored' to a speaker (or a potential speaker) and would be encoded in a functional projection, namely Rizzi's (1997) ForceP, which contains information about the type of clause (interrogative, declarative, etc.) and also about its illocutionary force. This projection would be present in root clauses as well as in embedded clauses with root properties (complements of non-factive predicates and 'peripheral' adverbials), given that they have an illocutionary force of their own, but not in complements of factive predicates and in what she calls 'central' adverbials, where Force is instead 'unanchored'.[4]

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2. 'Since MPs can strengthen or modify the illocution of a clause, their occurrence in embedded clauses should be restricted'.

3. See Thurmair (1989:2), who claims that each MP modifies illocutionary types in a specific way.

4. In this case, it is the 'associated' root clause that would be anchored to the speaker. It is worth pointing out that Haegeman (2002:118) prefers to use the term 'associated clauses' because 'matrix clauses' would be inappropriate in the case of 'premise-conditionals' (see next section) and peripheral adverbials in general, since they constitute propositions on their own and do not depend syntactically on the matrix sentence.

I will then provide some evidence for a link between the presence of MPs and that of Force in subordinate clauses with root properties. I will claim that embedded clauses lacking ForceP (complements of factive verbs, central adverbials and restrictive relative clauses) cannot license MPs. In the fourth section, I will analyse the data by postulating a covert movement of MPs to ForceP.

2. Force affecting the internal and external syntax of the clause

Haegeman (2002, 2004, 2006) starts her analysis by claiming that there are two kinds of conditionals. Let us consider the following sentences, taken from Haegeman (2002:117):

(1) a. If it rains we will all get terribly wet and miserable.
b. If [as you say] it is going to rain this afternoon, why don't we just stay at home and watch a video?

The proposition in (1a) contains a sequential relation between the event expressed in the embedded conditional clause and the consequence in the main clause. In this case, we speak of 'event-conditionals'. On the other hand, the conditional in (1b) is discourse-related, a 'premise-conditional', because it expresses a premise that leads to a question in the 'associated clause'.[5]

On the basis of several syntactic and semantic properties, firstly she proposes that the two types of clause present a different structure with regard to their external syntax. In particular, they would differ in their relation to the 'associated clause', i.e. event-conditionals would be more embedded than premise-conditionals. The first would belong to the class of central adverbials, thus being merged in the IP of the matrix clause (probably adjoined to vP or to an AspP, see Haegemann 2000:131), while the latter would be adjoined to the CP of the associated clause and they are, therefore, peripheral adverbials. Cf. Haegeman (2002:132):

> In derivational terms, the conditional clauses differ in the timing of the merger with the associated clause. Central adverbial clauses such as event-conditionals are inserted in (or merged with) the associated clause early on

[5]. See fn. 4 for the use of the expression 'associated clause'.

> in the derivation of the sentence. Specifically, they are merged before IP is completed. Peripheral adverbial clauses such as premise-conditionals are merged after the associated CP has been projected.

The different timing of the merger would correlate with many semantic, pragmatic and syntactic properties. Principally, event-conditionals are part of the speech act of the matrix clause, while premise-conditionals have their own illocutionary force. That is, in the latter case we have two different speech acts.
Haegeman then extends her hypothesis of a differentiated external syntax of conditionals to all adverbial clauses, by providing some tests (mainly of syntactical nature), which permit to distinguish between central and peripheral adverbials.
At a second stage, she suggests that the internal syntax of the CP-domain of the two types of clauses is different as well, which is of greater interest to our discussion. In particular, her assumptions are based on the theories by Rizzi (1997, 2001, 2004), who proposed the following structure of the left periphery of the clause:

(2) Force Top* Focus Mod* Fin[6]

Starting with the observation of the behaviour of fronted arguments and adjuncts in English and other languages, she takes on and develops the structure proposed by Rizzi (1997, 2001) by arguing that the CP-domain is extended more in peripheral adverbials (and root clauses) than in central adverbials. The latter would contain less functional structure, being truncated above ModP, as illustrated here:

(3)

a. Central adverbials:	Sub	Mod	Fin			
b. Peripheral adverbials:	Sub	Force	Top*	Focus	Mod*	Fin
c. Root clauses:		Force	Top*	Focus	Mod*	Fin

Haegeman (2002:159)[7]

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[6]. Here, I leave aside the lower TopP postulated by Rizzi (1997) for Italian.

[7]. In the current paper, I will not address the issue of the correct position of the projection Force or, as Haegeman (2006:1662f) calls it in later works, SD ('speaker deixis'), which is not entirely agreed upon in the literature, as evident by the difference between examples (3) and (4). See Haegeman (2002:162ff) for alternative analyses. Notice further that she postulates the existence of two very high projections, namely

The fact that complement clauses can involve more or less functional structure, too, was already known. Thus, following Haegeman (2004, 2006), factive complements would have an impoverished structure with respect to non-factive complements:[8]

(4) a. Non-factive complements: *that* (Top)(Focus) Force Mod* Fin
b. Factive complements: *that* Mod* Fin

Haegeman (2004:171)

According to Haegeman, the left periphery of central adverbials (and of other reduced embedded structures, such as factive complements) is truncated because no Force projection is present in these contexts. It would therefore lack the speaker-related projections. There would be neither FocusP nor TopP available, whose presence would directly depend on the activation of ForceP (Haegeman 2002:160ff).
In contrast to these reduced structures, full embedded clauses and root contexts have a projection ForceP, which encodes their illocutionary force and clause type. This means that not only root contexts but also full embedded clauses constitute independent illocutionary speech acts.
More precisely, the presence of ForceP correlates with the possibility of anchoring Force to the speaker. See Haegeman (2002:159):

> I propose that the presence of the functional head Force […] directly correlates with what is referred to as 'illocutionary force', the fact that the speaker takes on the proposition as part of a speech act (assertion, prediction, question, etc).

Therefore, not all clause types permit the anchoring of Force to the speaker. The author continues:

ForceP, encoding illocutionary force, and SubP, which only serves to subordinate the clause, independently of its force. See Haegeman (2006:1661).

8. A similar proposal could also be put forward for relative clauses, since restrictive contexts seem to involve less structure than non-restrictive clauses (Haegeman 2002:166).

> To be licensed, Force, being about speaker commitment, must be anchored to a speaker or a potential speaker. This means that clauses with Force are unembedded (i.e. they don't merge with a head) or they merge with a verb which can encode a speaker, i.e. a source of Force. Root clauses are anchored to the speaker by default. Complement clauses of verbs of speech are also anchored to a speaker, the subject of the selecting verb, and by extension clauses under other bridge verbs where the subject of the selecting verb is a 'potential speaker'. Central adverbials, which are not selected by the relevant predicate, do not provide a link between Force and a speaker. I assume that in such adverbial clauses, the abstract head Force is not licensed because there is no connecting path to a speaker, and Force is unanchored.
>
> Haegeman (2002:159f)

According to Haegeman, root clauses and certain types of embedded clauses, namely those displaying root properties, have independent illocutionary force, which must be anchored to a speaker. In the next section, I will provide some evidence that MPs can only occur in these contexts, since not only do they have connections to the illocutionary force of the clause, but they also require its anchoring to the speaker.

3. Modal particles in embedded clauses

In the following, I will survey some occurrences of MPs in the main types of embedded clauses (complements, adverbials and relative clauses) with no claim to exhaustiveness. Needless to say, a more refined classification of embedded clauses would be necessary in some cases.

Notice that, although MPs in root contexts are included in the final analysis of the data, I will not take them directly into consideration in what follows, since they are well attested in all illocutionary types (declaratives, interrogatives, imperatives, etc.).

Before starting my analysis, I would like to draw attention to the fact that in the following examples (mainly taken from the literature on the topic), I will not systematically investigate the occurrences of each MP in every clause type. The issue I want to address here is the compatibility restrictions of MPs as a class. For example, I will argue that MPs can occur in indirect questions, since this is true, say, for the

particle *denn*, although this is not the case for *ja*, which is only compatible with assertive illocutionary force.

3.1. Complement clauses

Thurmair (1989:74ff) makes a distinction between complement clauses depending on *verba dicendi* and the other types of complement clauses. She suggests that MPs can only occur in the first group. The fact that all particles are admitted in reported (indirect) speech can be easily proved. However, one should probably draw finer distinctions within the residual class, because MPs are not only attested in complement clauses selected by *verba dicendi*, but also in clauses embedded by verbs of a different type, as evidenced by the following examples:

(5) Mir fällt gerade ein, daß Hans *ja* längst hier sein müßte. (Borst 1985:105)
'I just remembered that Hans should actually have been here a while ago.'

(6) Er glaubte, daß sie es *schon* schaffen würde. (Ormelius-Sandblom 1997a:82)
'He thought that she would certainly make it.'

(7) Und das bedeutet, daß sie dir *wohl* kaum nach Rom folgen wird […]
(Métrich et al. 2002:345)
'And that means that she will hardly follow you to Rome.'

Rather, as we will see, MPs seem to be banned from the class of complements of factive predicates. Since these clauses contain a fact, whose truth is presupposed, there is no place for the expression of the speaker's point of view. Therefore, they clearly do not display an illocutionary force of their own[9], in contrast to non-factive complements and indirect questions, which generally admit the presence of MPs.
Parenthetically, it is worth noting what Haegeman (2002:159f) points out in this respect:

> Complement clauses of verbs of speech are […] anchored to a speaker, the subject of the selecting verb, and by extension clauses under other bridge verbs where the subject of the selecting verb is a 'potential speaker'.

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[9]. See the discussion in 3.1.2. and Haegeman (2004:170f, 2006:1663ff).

This means that, these clause types are not necessarily anchored to the speaker of the (whole) sentence, but may also be anchored to a 'potential speaker' (the speaker in the imagined or reported context), that is to the subject of the selecting verb in the matrix clause (for example, *er* ('he') in (6)).
In the following sections, I will distinguish factive and non-factive clauses and indirect questions. I will demonstrate that MPs can occur in all types of complement clauses except for factive ones, since they lack Force.

3.1.1. Non-factive complement clauses

Complements of non-factive predicates have illocutionary force and represent a speech act on their own (Haegeman 2004:170f). Thus, they admit the presence of MPs, as illustrated by the following examples:

(8) Mir ist eingefallen, daß Natassja *ja* verheiratet ist. (Meibauer 1994:135)
'I remembered that Natassja is actually married.'

(9) Ich denke, daß wir das Problem *schon* lösen werden. (Borst 1985:114)
'I think that we will somehow solve the problem.'

(10) Schröder hat gesagt, dass die SPD *wohl* Unterstützung verdient.
(Zimmermann 2004a:13)
'Schröder said that the SPD actually deserves support.'

3.1.2. Factive complement clauses

Factive complements depend on a predicate that presupposes the truth of their propositional contents. Since they consist of undisputable facts, they cannot have independent illocutionary force. Adopting a syntactical analysis *à la* Haegeman (2002, 2004, 2006), we could argue that they lack the projection ForceP. Therefore, we would expect MPs to be banned from this type of clauses. This prediction is borne out, as illustrated by the following examples:

(11) Es stimmt, daß Udo (**ja*) verheiratet ist. (Jacobs 1986:156)
'It is true that Udo is actually married.'

(12) * Er leugnete, daß er die Zeugin *ja* unter Druck gesetzt habe.
(Thurmair 1989:109)
'He denied having exerted pressure on the witness.'

Nevertheless, we find problematic cases, which only apparently contradict the hypothesis. For example, let us consider the following sentence:

(13) Es ist bedauerlich, daß die Situation an den Hochschulen sich *wohl* weiter verschärfen wird. (Asbach-Schnitker 1977:47)
'It is regrettable that the situation at universities will most likely get even worse.'

Actually, the presence of the MP[10] is due to the fact that the embedded clause is probably not a real factive clause, contrary to some assumptions in the literature. The embedded clause contains a questionable fact, i.e. it is impossible to determine its truth at the time when the sentence is uttered, since it refers to a still uncertain future event.[11] Furthermore, the subordinate clause conveys a new piece of information, which is by no means presupposed, as is generally the case in factive clauses. The matrix clause *es ist bedauerlich* ('it is regrettable') is almost a synonym for *leider* ('unfortunately'), which does not entail that the fact is in any way presupposed, but simply expresses the speaker's attitude toward what he or she is saying. Therefore, we can claim that the sentence constitutes no counterexample at all. I would then suggest that, despite some problematic cases, MPs are in general excluded from complements of factive verbs, since the latter lack independent illocutionary force.

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[10]. That is, if we are dealing with a MP at all. Notice that *wohl* in the example is similar to an epistemic adverb, such as *vermutlich* 'probably'. See the discussion in 3.3.1.

[11]. Cf. Asbach-Schnitker (1977:47).

3.1.3. Indirect questions

Since indirect questions are reported questions, they clearly display root properties. In fact, they admit the presence of MPs that are compatible with interrogative illocutionary force, such as *denn*, *wohl*, etc. See the following examples:

(14) Ob er *wohl* noch kommen würde, war ihre letzte Frage.
'If he would probably still come was her last question.'

(15) Er fragte sich, ob er *wohl* die Prüfung bestehe.
'He asked himself whether he had a chance to pass the exam.'

3.2. Adverbial clauses

In the following sections, I will consider the main types of adverbial clauses. MPs are well attested in most but not all of them, namely they are present in peripheral adverbials, which have the type of illocutionary force typical of root clauses. I will suggest that since locative, temporal and a subset of conditional clauses generally admit no MPs, they probably belong to the class of central adverbials, their Force being 'unanchored'. However, despite being introduced by the same subordinating conjunctions, since many adverbial clauses sometimes display root phenomena, sometimes do not, it would be necessary to draw a more fine-grained classification of each class of adverbial clauses.

3.2.1. Adversative clauses

Adversative (or 'contrastive') clauses admit the presence of MPs, thus displaying root properties. They are often introduced by the grammaticalized subordinating conjunction *während* ('while'), which still preserves its original temporal meaning in many cases. Notice that in its temporal reading it structures the event, while in its adversative use it structures the discourse, as illustrated in the following examples:[12]

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[12]. Haegeman (2002:137ff) provides some useful tests to distinguish temporal and adversative reading of the subordinating conjunction.

(16) (Man nahm immer Holzkeulen), während die Boulette *ja* […] wirklich selbst als Sportgerät […] verwendet worden ist. (Ormelius-Sandblom 1997b:27)
'(They always used wooden clubs), while the "Boulette" itself was actually used as sports equipment.'

(17) Gestern ist sie den ganzen Tag zu Hause geblieben, während sie *doch* sonst bei schönem Wetter meistens einen Ausflug macht. (Thurmair 1989:78)
'She stayed at home all day yesterday, while she usually makes excursions when the weather is fine.'

3.2.2. Causal clauses

MPs can often occur in embedded clauses expressing a causal relation. As pointed out by Thurmair (1989:77f), this indicates that causal clauses possess independent illocutionary force[13]. See the following examples:

(18) Da ihr *ja* von diesem Schuljahr an zwei Fremdsprachen habt, könnt ihr diese Sprachen auch miteinander vergleichen. (Weinrich 1993:844)
'As you will in fact learn two foreign languages this school year, you will also be able to compare those languages with each other.'

(19) Er hat ein schlechtes Gewissen, weil er *wohl* gelogen hat.
(Asbach-Schnitker 1977:48)
'He has a guilty conscience because he probably lied.'

Interestingly, Asbach-Schnitker (1977:48) observes that, besides typical causal subordinating conjunctions, such as *weil*, *da* and so on, we find the same subordinators as in temporal clauses. This would be the result of a grammaticalization process from a

[13]. This is also proved by the fact the subordinator *weil* ('because') is often used as a coordinating conjunction in the spoken language (Thurmair 1989:78). However, one should probably draw finer distinctions also within this class. See Haegeman (2002:143f), who distinguishes two readings of English *because*.

temporal to a causal meaning, which affects many temporal subordinators, such as *nachdem* ('after'), *als* ('when') and so on:[14]

(20) Nachdem er *ja* immer gesagt hatte, ich könne ihn jederzeit anrufen, habe ich das gestern auch gemacht. (Hentschel 1986:203)
'As he had repeatedly said that I could call him anytime, I did so yesterday.'

3.2.3. Concessive clauses

Concessive clauses seem to possess an illocutionary force of their own and admit MPs without particular restrictions. See the following examples:[15]

(21) Obwohl es *doch* regnete, packte er alles für das Picknick zusammen.
(Hentschel 1986:202)
'Even though it was raining, he still got everything ready for the picnic.'

(22) Er hat die Prüfung nicht bestanden, trotzdem er *ja* recht intelligent ist.
(Thurmair 1989:78)
'He did not pass the exam, even though he is actually quite clever.'

(23) Hans hat sich mit Depressionen in seinem Zimmer eingeschlossen, obgleich er das Examen *schon* bestehen wird. (Borst 1985:120)
'Hans locked himself up in his room feeling depressed, even though he will certainly pass the exam.'

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[14]. Cf. also the discussion in 3.2.9. about temporal clauses and Haegeman (2002:142ff) about other ambiguous subordinators.

[15]. However, we should maybe distinguish between central and peripheral concessive clauses. Cf. Haegeman (2002:144f) about the different distribution of the English subordinators *though* and *although*: the first is limited to central adverbials, the latter to peripheral ones.

3.2.4. Conditional clauses

Conditional clauses raise some problems. By the observation of the following simple examples, we could claim that MPs cannot occur in this type of subordinate clauses:

(24) *Wenn der Angeklagte *wohl* der Täter ist, wird er inhaftiert. (Molnár 2002:69)
'If the accused is the perpetrator, he will be taken into custody.'

(25) ?*Wenn der Smutje *wohl* betrunken ist, gibt es heute keinen Labskaus. (Zimmermann 2004a:13)
'If the ship's cook is drunk, there will be no Labskaus today.'

(26) Wenn es (**schon*) regnet, wird die Wäsche wieder naß. (Braße 1994:112)
'If it rains, the laundry will get wet again.'

However, as suggested by Haegeman (2002, 2004, 2006), we should distinguish two types of conditional clauses, namely 'event-conditionals' (see examples (24)-(26)) and 'premise-conditionals'.[16]
As expected, premise-conditionals and other peripheral conditional clauses[17] display independent illocutionary force, in contrast to event-conditionals, where Force would be 'unanchored'. Consider the following contrast:

(27) Wenn es (**schon*) Frost gibt, erfrieren die Rosen. (Braße 1994:112)
'If it freezes, the roses will be killed by frost.'

(28) Wenn es *schon* Frost gibt, könnte es wenigstens auch schneien. (Braße 1994:112)
'If it really has to freeze, it should at least snow as well.'

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[16]. See the discussion in section 2.

[17]. Here, I will speak more generally of peripheral conditionals because, as hinted by Haegeman (2002:120 fn. 4), there seems to be other types of peripheral conditionals beside premise-conditionals. See the examples below.

The event-conditional exemplified in (27) admits no MPs, which are on the other hand possible in peripheral conditionals, such as (28). The particle *schon* is well attested in this second pattern. Brauße (1994:112) argues that, in these contexts, the MP entails that the fact expressed in the conditional clause is rather unexpected and, in most cases, unwanted. Thus, the meaning of such propositions would be roughly the following:

(29) If *p* comes true, which is very unlikely, then *q* should come true as well.

This stereotypical form of embedded clause usually correlates with other particles or adverbs in the associated clause, such as *dann… wenigstens* ('then… at least'), *dann… auch* ('then… as well') and so on. See also the following examples:

(30) Wenn ihr *schon* nicht länger bleiben könnt, dann kommt wenigstens mal kurz vorbei. (Brauße 1994:116)
'If you really cannot stay for long, then at least come over for a little bit.'

(31) Wenn ich *schon* hinfahre, dann mußt du wenigstens die Fahrkarten besorgen. (Ormelius-Sandblom 1997a:76)
'If I do go there, then you'll at least have to buy the tickets.'

(32) Wenn wir *schon* ein Haus kaufen […], dann soll es mit Garten sein. (Métrich et al. 2002:74)
'If we really must buy a house, then it should at least have a garden.'

In these cases too, we are not dealing with conditionals of the central type, but rather with peripheral adverbials. On a closer inspection, we could even question whether they express a condition at all. Here, the relation between condition and main sentence is, so to say, inverted (Roland Hinterhölzl, p.c.), since the condition is expressed by the associated clause. Thus, we could paraphrase the whole proposition as follows:

(33) It is a fact that *p*, but this only holds on condition that *q*.

Hence, conditionals with *schon* express a fact leading to the utterance in the main clause. They are sometimes similar to causal clauses, as becomes clear if we replace the conditional subordinator *wenn* ('if') in the examples with a causal one, such as *da* ('since', 'because').

Denn too can occur in certain conditional contexts of peripheral kind[18]. Let us consider the following examples:

(34) An der Peripherie der Großstädte sind Ladengeschäfte um ein vielfaches billiger zu bekommen, wenn sie *denn* zu bekommen sind. (Métrich et al. 1995:77)
'In the outskirts of the big cities, business premises are available for a much lower price, if they are at all available'.

(35) Das Universum käme auch ohne uns zurecht, und es wird eines Tages mit Gewißheit ohne uns auskommen müssen, ohne daß seine Geschichte deshalb ihren Sinn verlöre, wenn sie *denn* einen hat. (Métrich et al. 1995:78)
'The universe could do without us, and one day it will certainly have to do without us, without its history losing its sense, if there is such a thing as a sense to it.'

In these cases, *denn* is nearly a synonym for *überhaupt* ('at all'). Actually, as in the preceding case, the condition is no real one, since the speaker considers it to be very difficult to meet.
What matters here is the fact that MPs also bear out Haegeman's (2002, 2004, 2006) hypothesis that there are at least two types of conditional clauses, namely central and peripheral ones. This is a basic hypothesis, which she then extends to all adverbial clauses, thus arguing for the existence of central and peripheral adverbials in general.

3.2.5. Consecutive clauses

This type of clause tolerates the presence of MPs rather freely, thus displaying root properties:

(36) Er hat sich bei diesem Tanzwettbewerb so verausgabt, dass er dann *ja* auch drei Tage nicht zur Arbeit gehen konnte. (Thurmair 1989:79)
'He overtaxed himself at the dance competition, so that, consequently, he could not go to work for three days.'

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[18]. Cf. also Brauße (1994:162ff).

(37) […] Die Opposition kann in dieser Frage mit Stimmen von den Regierungsparteien rechnen, so daß sie die betreffenden Gesetzesvorlagen *schon* zu Fall bringen wird. (Borst 1985:171)
'The opposition can rely on the government's support on this matter, so that they will most likely make sure that the bills in question will not become law.'

(38) Inzwischen war es so stockfinster geworden, daß uns *halt* nichts anderes übrigblieb, als die Suche aufzug[e]ben. (Hentschel 1986:203)
'In the meantime it had become pitch-black, so that in the end we had no choice but to give up the search.'

3.2.6. Final clauses

Although they are not completely banned from these contexts, we can hardly ever find MPs in final clauses. Only particles that are typical for imperatives can occur here, namely *nur*, *JA* and *bloß*. As observed by Thurmair (1989:79), this correlation should be explored more deeply. Nevertheless, precisely this fact could be regarded as further evidence that we are dealing with propositions endowed with independent illocutionary force.

(39) Ich muß also meinen Vorrat verstecken, damit ihn *JA* keiner sieht. (Thurmair 1989:79)
'I therefore need to hide my stocks to make sure nobody sees them.'

(40) Er versteckte ihre Briefe, damit *JA* keiner sie finden sollte. (Hentschel 1986:203)
'He hid her letters, to make sure nobody would find them.'

(41) Fritz zog einen Schlips an, um *nur JA* nicht aufzufallen. (Meibauer 1994:134)
'Fritz put on a tie to make sure he would go unnoticed.'

3.2.7. Locative clauses

This type of embedded clauses generally admits no MPs, probably because they belong to the class of central adverbials:

(42) Wo ich (**eben*/**doch*/**ja*) aufgewachsen bin, gibt es einen interessanten Brauch: das Kirtarennen. (Thurmair 1989:76)
'Where I grew up, we have an interesting tradition: the "Kirtarennen".'

However, there are potential counterexamples, such as the following:

(43) Wir fahren dahin, wo *wohl* die Sonne scheint. (Roland Hinterhölzl, p.c.)
'We will go where the sun will most likely shine.'

Apparentely, MPs are not completely banned from these contexts. However, we should observe that locative clauses are at the boundary with relative clauses and are often indistinguishable from them. Relative clauses, at least in non-restrictive contexts, admit the presence of MPs, as we will see below. To this point, Thurmair (1989:77) observes:

> Die lokalen Adverbialsätze stehen […] oft an der Grenze zu den lokalen Relativsätzen; in letzteren sind Modalpartikeln nun wieder möglich.[19]

Therefore, as in the case of relative clauses, we must probably distinguish between restrictive and non-restrictive locative clauses. We expect to find MPs only in non-restrictive contexts. The example above is no genuine restrictive relative clause, but rather a 'type-restrictive' one, since it leaves its reference open, thus operating no real restriction. In this regard, we could maybe speak of 'appositive' locative clauses[20]. But I do not want to pursue this point any further and would claim that, in general, MPs are not admitted in (restrictive) locative clauses.

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[19]. 'Locative adverbials are […] often at the boundary with locative relative clauses; in the latter, MPs are again possible.'

[20]. See also 3.2.9., where I assume the existence of 'appositive' temporal clauses as well. Maybe it would be necessary to distinguish central and peripheral adverbials in both classes of temporal and locative clauses. Notice, however, that the particle used in the examples given for the temporal and locative clauses is *wohl*, which, in assertive clauses, is probably not an MP, but rather has an adverbial function. See the discussion in 3.3.1.

3.2.8. Modal clauses

Modal clauses form a very rich and heterogeneous group of embedded sentences. This is the reason why we do not find unambiguous distinctions within this class in the literature. Some authors separate instrumentals, comparatives, and so on (cf. for example Thurmair 1989:77). Here, I will consider all types as a unique class, although finer distinctions are probably needed.
In general, MPs occur rather freely in this group of clauses as well:

(44) […] Die Zigarette schmeckte ihm nicht. Wie einem zum Tode Verurteilten *wohl* die letzte Zigarette nicht schmeckte; […] (Métrich et al. 2002:346)
'[…] He did not like the cigarette. Just as a condemned man most likely does not enjoy his last cigarette; […]'

(45) Schließlich befreite sie sich von seiner Tyrannei, indem sie ihn *eben* vergiftete. (Hentschel 1986:203)
'She finally freed herself from his tyranny by just poisoning him.'

However, Thurmair (1989:77) claims that MPs do not occur in all the types of modal clauses she lists. In particular, they would be marginally possible in instrumental clauses (see example (45)) and possible in comparatives, since the latter are very similar to relative clauses of the *weiterführend*-type (see example (44)). Concerning comparative correlatives, Thurmair claims that MPs would be completely excluded from these contexts. Unfortunately, she gives only the following example:

(46) Je mehr ich (**ja*/**doch*/**eben*/**wohl*) darüber nachdenke, desto mehr beunruhigt mich die ganze Sache. (Thurmair 1989:77)
'The more I think about it, the more I am upset by whole situation.'

Although we probably have to classify some types of modal clauses as central adverbials, I claim that they generally possess independent illocutionary force, thus admitting the presence of MPs.

3.2.9. Temporal clauses

It has been observed that no MPs are admitted in this clause type:[21]

(47) Als ich (**ja*) in Syracuse gewohnt habe, war ich oft in Ithaca. (Kratzer 1999:5)
'When I lived in Syracuse, I often went to Ithaca.'

(48) * Während er *wohl* den Brief schrieb, ist er gestört worden.
(Asbach-Schnitker 1977:47)
'While he was writing the letter, he was disturbed.'

We sometimes find apparent counterexamples, which needs an explanation. First of all, we can find MPs in sentences introduced by (originally) temporal subordinators, which, having undergone a grammaticalization process, can be found in other clause types as well (cf. Haegeman 2002:137 ff., 142ff). *Während*, for example, primarily expresses a temporal relation, but can also introduce adversative clauses, which belong to the class of peripheral adverbials. Thus, the presence of MPs in these contexts is not surprising (see 3.2.1.).
Consider further the case of *nachdem* ('after'), which, despite its originally temporal meaning, can often introduce a causal proposition, as exemplified by the following examples taken from Hentschel (1986:203):

(49) Nachdem ich *doch* alles schon dreimal erklärt hatte, wurde es mir zu dumm.
'As I had already explained everything three times, I was fed up.'

(50) Nachdem er *ja* immer gesagt hatte, ich könne ihn jederzeit anrufen, habe ich das gestern auch gemacht.
'As he had actually repeatedly said that I could call him anytime, I did so yesterday.'

Here, *nachdem* could be replaced by the causal subordinator *da* ('since'). Therefore, I classify both sentences as causal clauses and not as temporal ones as suggested by the author. This would explain the presence of MPs, which cannot otherwise appear in temporal clauses.

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[21]. See also Thurmair (1989:76).

Leaving aside the problem of the grammaticalization of some subordinators, other cases occur, which are more problematic. Let us consider the following sentence:

(51) Sie sprengten die Brücke, während der Feind *wohl* näher rückte.
(Asbach-Schnitker 1977:48)
'They blew up the bridge while the enemy was probably coming closer.'

The presence of the MP[22] is quite surprising, given that the embedded clause is a temporal one, thus probably a central adverbial. However, notice that although the embedded sentence has a clear temporal meaning, it seems to form a predication of its own (Manfred Krifka, p.c.), "juxtaposed" to the proposition in the associated clause. Observe that the example becomes ungrammatical if the temporal adverbial precedes the main proposition:

(52) * Während der Feind *wohl* näher rückte, sprengten sie die Brücke.
'While the enemy was probably coming closer, they blew up the bridge.'

We could claim that the structure in (51) is not 'embedded' in the proper meaning of the word. It would rather be a kind of 'weakly embedded' structure, which we can rewrite as follows, by splitting up the whole proposition into two parts:

(53) Sie sprengten die Brücke. Währenddessen rückte der Feind *wohl* näher.
'They blew up the bridge. In the meantime, the enemy was probably coming closer.'

Further, I wish to draw attention to another important fact. Haegeman (2002:139) provides a useful test to distinguish cases where the subordinator *während* 'while' has a temporal meaning, thus introducing a central adverbial, from other cases where, on the contrary, it has to be interpreted as adversative, as in peripheral sentences. In contrast to an analogous adversative clause, a temporal clause introduced by *während* can be "the focus of a question operator in the associated clause". Let us consider the following example:

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[22]. If we are dealing with a MP at all. Many authors suggest it is actually an adverb, meaning 'probably'. See 3.3.1.

(54) a. Wann sprengten sie die Brücke?
'When did they blow up the bridge?'
b. Während der Feind (**wohl*) näher rückte.
'While the enemy was probably coming closer.'

In this case, *während* can only have a temporal meaning. But here, in contrast to example (51), the insertion of the particle *wohl* leads to ungrammaticality, as expected, since temporal clauses should probably be classified as central clauses. Therefore, sentence (51) is not an ordinary temporal clause. Interestingly, the behaviour of the embedded sentence in this case is analogous to that of an adversative clause (or, more generally, of a peripheral adverbial), since it admits the presence of the particle.
In this case, we are probably dealing with an 'appositive' temporal clause (Roland Hinterhölzl, p.c.), as further demonstrated by the fact that, here, the temporal relation is weak, only conjectured and not established with certainty[23]. But I do not want to further pursue this point and will claim that since temporal clauses generally have a reduced structure, they do not admit the presence of MPs.

3.3. Relative clauses

In the following sections, I will consider restrictive, non-restrictive, headless relative clauses and those of the *weiterführend*-type. Although they generally depend on a nominal head, thus being different in nature, I will take them into account together with other embedded clauses, since they present strong analogies. In particular, I will argue that only restrictive relative clauses do not admit MPs, thus suggesting that, in contrast to the other types, they exhibit no independent illocutionary force.[24]

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[23]. Cf. Asbach-Schnitker (1977:48).

[24]. Cf. Haegeman (2002:166), claiming that "[…] the syntactic distinctions introduced for adverbial clauses can be extended to relative clauses".

3.3.1. Restrictive relative clauses

Restrictive relative clauses seem to exclude MPs, as already observed by many authors (see, for example, Thurmair 1989:79f). Therefore, we could consider them as propositions lacking illocutionary force of their own, as illustrated by the following examples:

(55) Eine Kollegin, die (**ja*) in Syracuse wohnt, wird kommen. (Kratzer 1999:5)
'A colleague who lives in Syracuse will come.'

(56) * Die Firma sucht einen Angestellten, der *ja* immer pünktlich ist.
(Zimmermann 2004a:32)
'The company is looking for an employee who will always be on time.'

(57) * Diejenigen Tauben, die *wohl* weiblich sind, sollen vergiftet werden.
(Asbach-Schnitker 1977:46)
'Those pigeons who are probably female shall be poisoned.'

The MPs *ja* and *wohl* are banned from the preceding examples because, in contrast to non-restrictive relative clauses, this type does not admit the expression of the speaker's attitude to the proposition.
Nonetheless, in several cases, some particles are attested in this clause type too. Let us consider the following example containing the stressed particle *JA*:

(58) Die Kinder, die *JA* nichts verpassen wollten, grinsten durchs Schlüsselloch.
(Meibauer 1994:134)
'The kids(,) who wanted to make sure they wouldn't miss a thing(,) peeked grinningly through the keyhole.'

Here, a non-restrictive reading of the relative clause is permitted, although the restrictive interpretation is also possible. On the contrary, if we consider an analogous relative clause with the unstressed MP *ja*, only the restrictive reading is available:

(59) Die Kinder, die *ja* nichts verpassen wollten, grinsten durchs Schlüsselloch.
(Meibauer 1994:135)
'The kids who wanted to make sure they wouldn't miss a thing peeked grinningly through the keyhole.'

We could explain this remarkable contrast by saying that *JA* in (58) is no genuine MP, since it does not express the speaker's attitude to the proposition, but rather the children's one. The MP *JA*, in connection with *nichts* ('nothing'), is only a synonym for *auf keinen Fall* ('by no means').
A second apparent counterexample concerns the particle *wohl*. The stressed variant *WOHL*[25] poses no particular problem, because it cannot occur in restrictive relative clauses, as observed by Asbach-Schnitker (1977:58), who gives the following example:

(60) *Der Mann, der *WOHL* bei dem Unfall verletzt wurde, wurde in die Klinik eingeliefert.
'The man who got injured in the accident was taken to the hospital.'

On the other hand, the unstressed variant is rather problematic, since it occurs in restrictive relative clauses:

(61) Der Schlüssel, den du dort *wohl* finden wirst, wird dir Einlaß gewähren.
(Asbach-Schnitker 1977:46)
'You will get in with the key that you will most likely find there.'

In this case, we can paraphrase the relative clause with *derjenige Schlüssel, den…* ('that key that…'). The paraphrasability of a clause by means of such expressions usually constitutes a useful test to detect a restrictive relative clause. However, the presence of the particle *wohl* would not be accounted for. I suggest two possible explanations for this apparent counterexample.
First of all, we could argue that we are not dealing with a genuine restrictive relative clause. As a matter of fact, some of my informants consider the sentence as non-restrictive, since the relative clause in the preceding example does not single out a key,

[25]. The status of the stressed variant *WOHL* as a MP is controversial. However, I do not want to pursue this problem in the present paper.

it rather restricts the set of the possible keys.[26] Roland Hinterhölzl (p.c.) pointed out to me that it is impossible to answer a question like (62a) with (62b):

(62) a. Welchen Schlüssel soll ich nehmen?
'Which key shall I take?'
b. #Nimm den Schlüssel, der *wohl* auf dem Tisch liegt.
'Take the key that is probably on the table.'

Furthermore, the relative clause can even refer to a type, instead of restricting the set of possible objects, as we can see from the following example (Manfred Krifka, p.c.):

(63) Sie sucht jenen Mann, den es *wohl* gar nicht gibt.
'She is looking for the man that probably doesn't even exist.'

Thus, we could speak of a 'type-restrictive' relative clause.
Secondly, we could explain the presence of *wohl* in such sentences by arguing that we are dealing with an adverbial variant of the particle. I would like to argue that there are two variants, namely an epistemic and a real modal one. The epistemic variant can be found in assertive clauses and is probably an adverb, since it can be paraphrased with *vermutlich* ('probably'). It generally does not express the speaker's personal attitude to the proposition, but rather his or her evaluation of its truth-value on the basis of a personal assumption. In this case, the meaning of the particle lies on the propositional level (Thurmair 1989:139). Regarding its modal variant, it cannot be paraphrased by *vermutlich* ('probably') any longer. It operates on the illocutionary level or sometimes has a function similar to that of a sentence adverb (Thurmair 1989:140).[27]
As already anticipated, from a syntactic perspective, we can assume that at LF MPs are licensed in a functional projection encoding information about clausal type and illocution, namely Rizzi's (1997) ForceP or a similar projection. No such projection would be available in central adverbials, i.e. in embedded clauses that do not allow for the encoding of illocutionary force. Thus, they cannot license MPs. On the contrary,

[26]. Cf. Asbach-Schnitker (1977:46).

[27]. See the discussion about the use of the adverbial variant of *wohl* in 3.2.7. and 3.2.9.

adverbs are admitted in central adverbials more freely than MPs[28]. If we find occurrences of particles in these contexts, we can suspect that they are actually adverbial variants. These would be licensed in the IP, not in the CP-domain.
Therefore, we can assume that MPs are generally excluded from restrictive relatives, since this type of clause has no independent illocutionary force and consequently no Force projection where MPs can be licensed.

3.3.2. Non-restrictive (or 'appositive') relative clauses

Non-restrictive relatives do not pose any particular problem for my analysis. They are propositions endowed with their own illocutionary force and, consequently, they can host MPs, as demonstrated by the following examples:

(64) In meiner Kinderzeit, deren Beginn sich *ja* während des Ersten Weltkriegs abspielte, kamen nicht viele Gäste nach Friedrichstein […].
(Métrich et al. 1998:130)
'In my childhood, which did, as you know, take place during World War I, not many guests came to Friedrichstein.'

(65) Es war nichts zu entdecken außer einem Lager aus Heu, auf dem *wohl* ein Jäger geschlafen hatte. (Métrich et al. 2002:346)
'There was nothing there to see except for a bed made of hay, which a hunter had probably slept on.'

Thurmair (1989:80) correctly predicts that the insertion of a MP generally turns a relative clause that is ambiguous between a restrictive and a non-restrictive reading into a non-restrictive clause. See her example (slightly modified):

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[28]. However, there are many restrictions as to the use of expressions of epistemic modality and speech act in reduced embedded clauses (Haegeman 2002:126, 2004:163f, 166, 2006:1652f, 1655, 1664). Therefore, *wohl*, in its adverbial use, meaning *vermutlich* ('probably'), should not be licensed either. Unfortunately, I have no explanation for this.

(66) Autos, die (*ja*) laut sind, sollten mit einer geschlossenen Motorkapsel versehen werden.
'Cars(,) which(, as you know,) make a lot of noise(,) should have an engine encloser.'

In the absence of the MP, the sentence is ambiguous between a restrictive (*only the cars that are loud…*) and a non-restrictive reading (*all cars, which by the way are loud…*). Interestingly, by inserting the particle *ja*, the sentence receives only a non-restrictive reading.

3.3.3. Other relative clauses

Headless relative clauses and relative clauses of the *weiterführend*-type admit the presence of MPs since they are illocutionarily independent. See the following examples:

(67) Was *ja* so erstaunlich ist, ist die Schönheit seiner Gedichte.
'What is amazing is the beauty of his poems.'

(68) Er wollte unbedingt diesen Keks haben, was dann *ja auch* letztendlich zum zweiten Weltkrieg geführt hat. (Thurmair 1989:81)
'He absolutely wanted to have that cookie, which did in the end cause WWII.'

4. Observations on the syntactic dependency between MPs and ForceP

MPs are attested in all of the types of embedded clauses considered here, with the important exceptions of factive complements, restrictive relatives, peripheral conditionals, locative and temporal clauses, as illustrated by the following table:

(69) *MPs in embedded clauses*[29]

Complement clauses	non-factive complement clauses		+
	factive complement clauses		-
	indirect questions		+
Adverbial clauses	adversative clauses		+
	causal clauses		+
	concessive clauses		+
	conditional clauses	central	-
		peripheral	+
	consecutive clauses		+
	final clauses		+
	locative clauses		-
	modal clauses		(+)
	temporal clauses		-
Relative clauses	restrictive relative clauses		-
	non-restrictive relative clauses		+
	other relative clauses		+

At this point, we could ask ourselves which property the embedded clauses admitting MPs have in common. As already pointed out, we could claim that MPs can only occur in embedded clauses with root properties, which are 'independent' from their associated clause.[30]

Therefore, we should distinguish between root and root-like embedded clauses on one side, which display their own illocutionary force, and the remaining embedded clauses (factive complements, central adverbials and restrictive relative clauses) on the other, which depend on the root clause as far as the anchoring of Force is concerned. Interestingly, MPs can only occur in the first group, but not in the second one. With regard to this aspect, see Thurmair (1989:82):

[29]. Cf. Thurmair (1989:81) and Hentschel (1986:201).

[30]. See fn. 4 about the use of the expression 'associated clause'.

> […] in bestimmten Nebensätzen [können] durchaus Modalpartikeln auftreten […], was wiederum Erkenntnisse über die Nebensätze liefert: Es handelt sich dann um illokutiv eigenständige Nebensätze.[31]

Thus, from the discussion above, we can draw an interesting parallelism between Haegeman's proposals and the results of the investigation into the presence of MPs in root and embedded clauses.

(70) *Distribution of MPs in root and embedded clauses*:

Clause types	**MPs**
Reduced embedded clauses	-
Full embedded clauses	+
Root clauses	+

Obviously, root contexts admit the presence of MPs, as shown by the wide literature on this topic (see, for example, the fundamental work by Thurmair 1989). On the other hand, regarding embedded contexts, it seems that MPs can only occur in clauses displaying root properties, while they are banned from reduced ones, which lack the functional projection ForceP and, hence, the possibility of anchoring Force to the speaker.
Consider (71), resuming Haegeman's (2002, 2004, 2006) proposals on the left clausal periphery: [32]

(71) a. Reduced embedded clauses: Sub Mod Fin
b. Full embedded clauses: Sub Force Mod* Fin
c. Root clauses: Force Mod* Fin

The only[33] difference in the syntax of root and full embedded clauses, on one side, and reduced embedded clauses, on the other side, consists in the presence vs. absence of

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[31]. '[…] in certain embedded clauses, MPs can definitely occur, which in turn provides insights about the embedded clauses, i.e. that we are dealing with illocutionarily independent embedded clauses'.

[32]. Here, I omit Top and Focus projections, which are ancillary to the presence ForceP.

[33] Abstracting from the problem posed by the Sub projection.

Force. Notice that this difference exclusively affects the left periphery of the clause. We could then try to explain the correlation between clause type and presence of MPs by assuming that MPs have to move to the CP-domain at LF, specifically to SpecForceP. If this projection is not present, no MPs can be licensed. This would explain their absence in reduced embedded clauses.

As I suggested in previous works (Coniglio 2005, 2006, 2007), MPs superficially occupy a high position within the IP-domain, namely a variable position among the higher functional clausal projections detected by Cinque (1999). More precisely, the lowest position MPs can occupy is the one between habitual and higher repetitive adverbs. However, on the basis of several independent reasons, we must postulate a movement of the MPs to an even higher position at LF. The natural candidate as landing site for this covert operation is the specifier of ForceP (see (72))[34], the projection in the CP-domain that encodes information about clausal type (interrogative, declarative and so on) and the illocutionary force of the proposition and permits to anchor Force to the speaker. As we know, MPs must have access to this information.

(72) *Covert movement of MPs:*[35]
[$_{\text{ForceP}}$ MP [Force° [… [$_{\text{IP}}$ … ~~MP~~ …]]]]

Hence, although superficially they occupy an IP-internal position, I claim that they have to move to this higher projection[36]. Abraham (1995) and Zimmermann (2004a,b) have

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[34]. Notice that Zimmermann (2004a,b) claims that SpecForceP is the landing site of *wohl*. According to him, *ja* and *denn* would probably occupy a still higher position. Here, I assume that ForceP is the landing position of all MPs and that the lexeme *wohl* is licensed in a lower position, maybe an IP-internal one (Cinque's (1999) $\text{Mod}_{\text{epistemic}}$), only when used as an adverb. See 3.3.1.

[35]. Here, I will not consider MPs as heads, but as maximal projections (in a specifier position). More precisely, I proposed (Coniglio 2005:107ff, 2006:83ff) that they are deficient non-branching structures, but nonetheless maximal projections. See also Cardinaletti (2007).

[36]. Particles used in their adverbial function probably need not move to this position, since they would be licensed in an IP-internal projection (see the case of adverbial *wohl* in assertive clauses in 3.3.1. and in fn. 34). This would explain their presence in reduced embedded clauses as well, where no ForceP is available.

already proposed this covert movement[37] and the data presented here provides further evidence in favour of this hypothesis.

Strong arguments lead us to assume an LF-movement to the CP-domain. We saw that they are sensitive to the opposition root vs. embedded clauses. As pointed out, MPs can occur in all types of root clauses, but only in certain types of embedded clauses, namely those with root properties. Such information about the presence of independent illocutionary force is clearly encoded in the left periphery of the clause.

Consider further that when occurring in root clauses, MPs are sensitive to Force (declarative, interrogative, imperative, etc.), i.e. not all MPs can occur in all illocutionary types (see Thurmair 1989:49). Thus, for example, *denn* is only possible in interrogatives, while *ja* can only occur in declaratives. Furthermore, in embedded contexts, not all MPs are compatible with all types of adverbial and relative clauses[38]. Only particles typical for declarative and imperative clauses are attested in these contexts (see Thurmair 1989:81). Since, according to Rizzi (1997), ForceP encodes information about the type of illocutionary act, its specifier seems to be the natural landing site of the covert movement of MPs. The compatibility between the semantic features of a specific particle and the illocutionary force of the (root or embedded) clause it occurs in would then be checked in this projection.

Other evidence for necessarily postulating this covert movement is the fact that MPs clearly do not belong to the proposition, but have a wider scope. Thus, it is reasonable to assume that, in order to be licensed, they have to move to a higher position, from where they can modify illocutionary type and speech act operators.

5. Conclusion

In this paper, I demonstrated the close relation existing between the presence of MPs in a clause and its illocutionary force. I based my analysis on Haegeman's (2002, 2004, 2006) seminal work on the different structure of root and embedded clauses. One important difference regards their internal syntactical structure, namely the presence vs. absence of a Force projection, which encodes information about the illocutionary force of the clause. When this projection is present, the clause displays root properties. I

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[37]. See also Coniglio (2005:141, 2007:110).

[38]. Complement clauses generally admit all MPs. Cf. Thurmair (1989:81).

suggested that the presence of MPs directly correlates with the presence of independent illocutionary force and, thus, of ForceP. That is, MPs are admitted in a specific context, provided that the clause in which they occur is endowed with Force, as we see from the analysis of the occurrences of MPs both in root and, most notably, in embedded clauses. Further, I argued that there are semantic and syntactic reasons which enable us to postulate a covert movement of the particles to a higher CP-internal projection, probably SpecForceP. This idea would predict that MPs are banned form the types of clauses that lack this position and are thus devoid of independent illocutionary force.

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Subjunctive and SOT

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1. Introduction

Subjunctive tenses have often been considered 'anaphoric tenses'[1] and Sequence of Tenses (henceforth, SOT) has often been considered the morphological expression of their anaphoric nature. Recent discussions on this topic have shown that in some cases subjunctive tenses appear to be referentially independent and apparently SOT rules can be violated in some contexts, namely when an imperfect subjunctive, locating an eventuality prior to the speech time, is embedded under a present attitude predicate. The question is not devoid of interest, since the claim that SOT is the morphological expression of a tense anaphor has been maintained since at least the last thirty years.

In explaining the apparent violation of this claim, it has been observed that an implicit or explicit past time location is always present in these cases and it has been proposed that a past location is necessary to trigger imperfect subjunctive morphology. However, a future location is not able to trigger the appropriate morphology – present subjunctive – if the matrix verb is past. Moreover, according to current hypotheses on the imperfect, an explicit or implicit past time location is required by the semantics of the imperfect itself.

Some alternative hypotheses will be explored to understand whether the subjunctive can be considered anaphoric or whether it may sometimes take an autonomous time reference. The second alternative will be shown to be preferable given the available evidence. Two more hypotheses will be then compared, concerning the question whether anaphoricity and SOT are strictly connected as generally assumed. It will be

[1]. The term 'anaphoric' is here employed as in Picallo (1985) and Rizzi (1991), and not as in Landau (2004). It corresponds to Landau's 'dependent' tense.

University of Venice
Working Papers in Linguistics
Vol. 17, 2007

shown that current theories on the morpho-syntax of agreement, such as the minimalist notion of Agree (which may not require the 'probe' to c-command the 'goal' – a theoretical question which will be briefly explored) do not prevent from keeping the long-standing view according to which SOT is the morphological expression of a tense anaphor. As it will turn out, this claim implies that from a lexical and semantic viewpoint, imperfect subjunctive morphology is ambiguous between a pure occurrence of morphological features triggered through Agree and a morphological mark of anteriority and imperfectivity (or non-terminativity).

2. Subjunctive tenses are tense anaphors

Subjunctive tenses in some Romance languages are often claimed to be anaphoric. Bresnan (1972) and Bouchard (1982) claim that the subjunctive morphology indicates an 'unrealized tense'. The main evidence in favor of this claim is that subjunctive clauses do not seem to have a time reference of their own. This claim has been re-proposed several times. Following previous analyses and comparing the indicative and the subjunctive mood in Catalan, Picallo (1985) claims that indicative clauses are autonomous in their tense marking, whereas subjunctive are not. The main argument to show this comes from the tense of an embedded verb. She observes that the tense specification of the matrix does not affect the tense specification of the embedded verb if the embedded verb is in the indicative, but it does if the embedded verb is in the subjunctive – the tense specification of a subjunctive clause depends on the tense specification of the matrix verb. She finally claims that the relation between the tense morphology of a subjunctive verb and the matrix verb may be compared to the relation between an antecedent and an anaphor[2]. As an 'anaphor', a subjunctive verb is supposed to take a reference from its 'antecedent', the matrix verb. In support of this view, a subjunctive verb cannot appear in a matrix clause having affirmative illocutionary force, since in this case there is no antecedent that can 'bind' the embedded subjunctive verb. In this view, SOT, a morphological agreement relation between two tenses, is the morphological expression of tense anaphoricity. Present morphology on the matrix verb

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[2]. The term 'anaphor' referred to subjunctive tenses will be currently employed here. The nature of subjunctive forms as tense anaphors may be reformulated in the sense of Giorgi and Pianesi (2001): in subjunctive clauses the speech temporal coordinate is not represented; only the attitude episode coordinate is represented.

is claimed to trigger present morphology on the embedded subjunctive verb; past morphology on the matrix verb is claimed to trigger past morphology on the embedded subjunctive verb, which may be an auxiliary, depending on the aspectual values – perfective or imperfective – expressed by the embedded predicate, and the time relations between the matrix and the embedded event – anteriority, simultaneity, posteriority. In a series of article this view has been extended to other Romance languages. Raposo (1985) puts forward the same proposal analyzing data from Portuguese, Rizzi (1991) and Manzini (2000) analyzing data from Italian: subjunctive tenses are tense anaphors and they are accordingly ruled by SOT mechanisms.
Giorgi has recently (2006) discussed some data that apparently contradict the standard view according to which a subjunctive tense morphology is a function of the superordinate tense morphology (Giorgi 2006, ex. (46)):

(1) Il testimone crede che ieri alle 5 l'imputato fosse a casa.
The witness believes that yesterday at 5 the defendant was.SUBJ at home
'The witness thinks that yesterday at 5 the defendant was at home'

In the example above the matrix verb is present indicative, the embedded verb is imperfect subjunctive, a tense denoting a past time. This shows – she argues – that sometimes a subjunctive verb seems to have an autonomous time reference, that is, a non-strict dependence on the matrix predicate. She observes that in such sentences a past time adverbial must provide a temporal anchor to the embedded predicate. Without an appropriate adverbial or a conversational background providing the appropriate temporal coordinates of the embedded event, sentence (1) is ungrammatical:

(2) *Il testimone crede che l'imputato fosse a casa.
The witness believes that the defendant was.SUBJ at home

If no time adverbial occurs, or if the conversational background does not provide a time framework for the embedded event, the only available morphological form on the embedded verb is the present:

(3) Il testimone crede che l'imputato sia a casa.
The witness believes that the defendant is.SUBJ at home
'The witness thinks that the defendant is at home'.

Giorgi proposes that in (3) the tense of the matrix is an adequate 'antecedent' for the embedded tense. Both matrix and embedded predicates carry present morphology. In (2) an appropriate antecedent for the embedded verb is missing. The matrix and the embedded predicate do not share the same morphological features. This gives rise to ungrammaticality. In sentence (1) the past time adverbial is claimed to be able to license the imperfect morphology, which has a past time reference as well, independently from the temporal value of the main predicate. According to this view, some feature must trigger the embedded subjunctive morphology – Picallo's (1985) and others' proposal shares this view. Furthermore, Giorgi shows that the matrix verb morphology *may* trigger the embedded subjunctive morphology. Taking SOT as the morphological expression of 'anaphoric' anchoring, the event denoted by a subjunctive predicate may be anchored to the attitude event or to the temporal reference denoted by the adverbial.
Interestingly, this hypothesis cannot be extended straightforwardly to other cases of mismatch between matrix and embedded verb morphology. A present subjunctive verb cannot occur within the clausal argument of an imperfect – hence, past – verb[3], even if a future temporal adverbial occurs within the argument clause (it must be noticed that present subjunctive morphology may denote a future event, since it is compatible with future-oriented time adverbials, as shown in example (5)):

(4) *****Il testimone credeva che entro un mese l'imputato venga processato.
The witness thought that in a month the defendant is.SUBJ tried

In this case the future time adverbial is not able to trigger present morphology. A strict SOT rescues the sentence. Hence, either the matrix verb os present, or the embedded verb is imperfect subjunctive[4]:

(5) Il testimone crede che entro un mese l'imputato venga processato.
The witness thinks that in a month the defendant is.SUBJ tried
'The witness thinks that the defendant will be on trial in a month'.

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[3]. On this resctriction, see Giorgi and Pianesi (1998) and Higginbotham (2001).

[4]. Notice that the adverbial *entro un mese* 'in a month' is anaphoric and may denote either a past time interval or a future time interval.

(6) Il testimone credeva che entro un mese l'imputato venisse processato.
The witness thought that in a month the defendant was.SUBJ tried
'The witness thought that the defendant would be on trial in a month'.

Example (4) suggests that the time feature on a temporal adverbial may not instantiate the morphology on the embedded verb. Only past time adverbials may instantiate subjunctive morphology – typically, the imperfect subjunctive morphology.
The co-occurrence of a past time adverbial and the imperfect tense in the examples at issue recalls a property of the imperfect tense that has been recently investigated in a series of studies on the imperfect indicative – that is, the so-called 'familiar' interpretation of the time to which reference is made by means of an imperfect tense (Bertinetto and Delfitto 1995). This interpretation of the imperfect requires the occurrence of a time adverbial, denoting the so-called 'focalization time'. If this property can be extended to the imperfect subjunctive, as it will be claimed to be the case in the next section, the proposal according to which a past time adverbial is able to trigger imperfect morphology would turn out to be 'circular' someway, since it states that the time adverbial triggers the imperfect morphology, which in its turn requires a time adverbial.
This would give rise to the following question. Data like (1) have been claimed to show that the subjunctive morphology is triggered either by the matrix tense morphology or by a time adverbial. The trigger is due to the fact that the subjunctive morphology is an expression of anaphoricity. But if the time adverbial cannot instantiate the subjunctive morphology, only the matrix tense morphology can. Hence, there would be cases, like (1), in which there is no trigger to the subjunctive morphology. In these cases here is no SOT despite the presence of a subjunctive verb. This is in contrast with the idea that SOT is the morphological expression of tense anaphor, provided that subjunctive tenses are tense anaphors. A solution to this puzzle will be explored in what follows.

3. Imperfect indicative and imperfect subjunctive

3.1. Imperfect indicative

A series of articles have recently paid attention to the properties of the imperfect (more precisely, the imperfect indicative): its temporal and the aspectual interpretations and their syntactic implications.

The imperfect has often be claimed to be an 'anaphoric' or dependent tense, in that it is unable to supply an event with a indexical anchoring (Bertinetto and Delfitto 1995, Giorgi and Pianesi 1995, 2004). This property has been supposed to explain the contrast of status between sentences in which the predicate is in the imperfective and sentences in which the predicate is in the present perfect ('passato prossimo') or in the simple past ('passato remoto'), both indexical tenses. The sentence with the predicate in the imperfect is generally uninterpretable if a different temporal location from the speech time – a 'focalization time' (see Bertinetto and Delfitto 1995) – is not provided from the conversational background; the sentence with an indexical tense (present, present perfect and future) is instead perfectly interpretable even without a specified time framework, being indexical tenses able in themselves to locate an event prior, after, or in simultaneity with the speech time. The same contrast holds in English between the indexical tenses and the simple past progressive:

(7) a. Mangio/ho mangiato/mangerò una mela.
b. I am eating/have eaten/will eat an apple.

(8) a. #Mangiavo una mela.
b. #I was eating an apple

(9) a. Ieri alle 5 mangiavo una mela.
b. Yesterday at 5 I was eating an apple.

The above examples involve an imperfect with a progressive interpretation. This is not the only aspectual value the imperfect may have. Depending on the interval that the time adverbial denotes, it may also have a habitual reading, or an 'intention-in-the-past' reading (Cipria and Roberts 2000), also known as 'modal' reading (Giorgi and Pianesi 2004), which conveys a past expectation towards an event to come. These different interpretations may be achieved in different ways: through the illocutionary context, through time adverbials, or through anchoring to another event. The time adverbial conveys a progressive reading in (9)a, a habitual reading in the following example, taken from Bertinetto and Delfitto (1995):

(10) L'anno scorso alle 6 Gianni beveva il tè.
Last year at 6 Gianni drank.IMPF the tea
'Last year Gianni used to drink a cup of tea at 6'

The context conveys an intention-in-the-past reading in the following example, taken from Giorgi and Pianesi (2004):

(11) A: Domani Domingo canterà alla Scala.
Tomorrow Domingo is going to sing at Scala
'Tomorrow Domingo is going to sing at Scala'
B: Veramente, domani cantava Pavarotti.
Actually, tomorrow Pavarotti is going to sing
'Tomorrow Pavarotti is going to sing, actually'

Finally, the embedded event is anchored to the time framework of the matrix event in the following example (Giorgi and Pianesi 1995):

(12) Mario mi ha detto che Gianni mangiava una mela.
Mario told me that Gianni ate.IMPF an apple
'Mario told me Gianni was eating an apple'

In sentences like (12) the embedded event is interpreted as progressive, simultaneous with respect to the matrix event ('present-in-the-past' or 'simultaneous' interpretation). A habitual time adverbial may turn the progressive interpretation into a habitual interpretation, simultaneous with respect to the matrix event:

(13) Mario mi ha detto che Gianni mangiava una mela ogni giorno.
Mario told me that Gianni ate.IMPF an apple every day
'Mario told me Gianni used to eat an apple every day'

Given the appropriate context the 'modal' reading is available as well:

(14) A: Mario mi ha detto che domani Domingo canterà alla Scala
Mario has said that tomorrow Domingo is going to sing at Scala
'Mario has said that tomorrow Domingo is going to sing at Scala'
B: Veramente, Mario ha detto che domani cantava Pavarotti.
Actually, Mario has said that tomorrow sang.IMPF Pavarotti
'Mario has said that Pavarotti was going to sing tomorrow, actually'

In embedded contexts adverbial modification may 'shift' the embedded event in a time prior the matrix event time. The aspectual interpretation of the embedded imperfect may be progressive ((15)a), habitual ((15)b) or modal ((15)c):

(15) a. Mario mi ha detto che ieri alle 5 Gianni beveva il tè.
Mario me has told that yestersay at 5 Gianni drank.IMPF the tea
'Mario told me that yesterday at 5 Gianni was having a cup of tea'
b. Mario mi ha detto che l'anno scorso alle 5 Gianni beveva il tè.
Mario me has told that last year at 5 Gianni drank.IMPF the tea
'Mario told me that last year at 5 Gianni used to have a cup of tea'
c. A: Mario ha detto che il giorno dopo Domingo avrebbe cantato alla Scala.
Mario has said that the next day Domingo was going to sing at Scala
'Mario has said that the next day Domingo was going to sing at Scala'
B: Veramente, Mario ha detto che il giorno dopo cantava Pavarotti.
Actually, Mario has said that the next day sang.IMPF Pavarotti
'Mario has said that Pavarotti was going to sing the next day, actually'

The above examples show that an imperfect predicate of an embedded clause shows up the same syntactic and semantic properties of an imperfect predicate of a matrix clause. It is a dependent tense, in the sense that it needs a past temporal anchoring in order to be elicited.
In example (12) the matrix tense provides the temporal anchoring to the embedded imperfect. The matrix tense is past and provides and appropriate temporal anchoring. If it were present, the anchoring would not take place, and the sentence would turn out to be uninterpretable:

(16) a. #Il testimone afferma che l'imputato era a casa.
b. #The witness claims that the defendant was at home.

A time adverbial denoting a 'focalization time' would rescue the sentence:

(17) a. Il testimone afferma che ieri alle 5 l'imputato era a casa.
b. The witness claims that yesterday at 5 the defendant was at home.

The status of these sentences parallels the status of sentences (1) and (2). This suggest that whatever properties the imperfect indicative might have, the imperfect subjunctive might have the same properties.
In order to account for the syntactic and semantic paradigm of the imperfect illustrated above, Bertinetto and Delfitto claim that the imperfect morphology corresponds to the introduction of a 'strong' quantifier over times and events. They argue that the imperfect morphology contributes the following semantics:

(18) (∀t: contextually relevant (t)) (One e: P(e) at(e, t))

In their view, the time adverbial (but the matrix tense, in examples involving embedding, may be add as well) denoting the 'focalization time' is needed in order to provide the set of contextually relevant times that represents the domain of quantification of the strong quantifier. Hence, in their view, the imperfect morphology requires a time adverbial or, more generally, a contextually available focalization time, in order to be interpretable, and not vice versa. They also claim that by implicature the semantics given in (18) presupposes the existence of at least another event of P'ing distinct form the one taking place at the focalization time, giving rise to the peculiar progressive and habitual reading, which share the property of having atelic aktionsart and of being non-terminative.[5]

3.2. Imperfect subjunctive

In this section evidence will be reported to claim that the imperfect subjunctive has analogous temporal and aspectual properties as the imperfect indicative.
The imperfect indicative can occur both in matrix and in embedded clauses. The imperfect subjunctive, as well as the other subjunctive tenses, has both dependent and independent employments. The independent uses are constrained to sentences having imperative and interrogative illocutionary force, or in exclamations. A subjunctive verb cannot be the predicate of a sentence having affirmative illocutionary force (see Picallo 1985, Giorgi and Pianesi 1997, Portner 1997, Schlenker 2005, among the others). The

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[5]. I refer to Bertinetto and Delfitto (1995) for a detailed analysis of the semantic properties of the imperfect tense. See Cipria and Roberts (2000) and Giorgi ad Pianesi (2004) on the atelicity and Giorgi and Pianesi (2004) on the non-terminativity of the imperfect.

dependent uses of the imperfect subjunctive parallel the dependent uses of the imperfect indicative. The imperfect subjunctive may have a 'simultaneous' reading, which may be progressive or habitual, depending on the presence of adverbial modification:

(19) a. Gianni pensava che Maria leggesse il giornale.
Gianni thought that Maria read.IMPF.SUBJ the newspaper
'Gianni thought Maria was reading the newspaper'.

b. Gianni pensava che Maria leggesse il giornale ogni giorno.
Gianni thought that Maria read.IMPF.SUBJ the newspaper every day
'Gianni thought Maria used to read the newspaper every day'

It may have a 'shifted' interpretation, which in its turn may be progressive or habitual:

(20) a. Gianni pensava che il giorno prima alle 5 Maria leggesse il giornale.
Gianni thought that the day before at 5 Maria read.IMPF.SUBJ. the newspaper
'Gianni thought that the day before at 5 Maria was reading the newspaper'
b. Gianni pensava che l'anno prima Maria leggesse il giornale ogni giorno.
Gianni thought that the year before Maria read.IMPF.SUBJ. the newspaper every day.
'Gianni thought that the year before Maria used to read the newspaper every day'

It may have a 'future-in-the-past' reading, which recalls the 'intention-in-the-past' reading:

(21) Gianni pensava che Maria partisse il giorno dopo.
Gianni thought Maria left.IMPF.SUBJ the next day
'Gianni thought that Maria was going to leave the day after'

The hypothesis that the indicative and the subjunctive imperfect have the same temporal and aspectual properties (not of course the same mood ones) seems to follow quite naturally from these data. This hypothesis does not require that the indicative and the subjunctive imperfect have all and only the same features. They do not indeed, since – quite trivially – they differ at least with respect to mood. However, they might share the properties that are needed to account for their syntactic and semantic properties.

4. The asymmetry in the SOT pattern

The fact that the imperfect indicative and the imperfect subjunctive behave alike suggest that the idea that the temporal topic triggers the imperfect morphology in an embedded predicate in spite of the fact that the main predicate has present morphology, may be revised. According to this theory, the morphology of the embedded predicate may be triggered either by the morphology of the matrix predicate or by the features of the time adverbial. However, the latter possibility must be excluded, since the presence of a time adverbial is needed by the presence of imperfect morphology itself. Hence, while strict SOT rules seem to constrain the embedded morphology when the matrix verb is imperfect (see examples (4)and (6)), no such rules seem to hold when the matrix verb is present (see example (1))[6]. The following table sums up this generalization[7]:

(22) *SOT*

	Subjunctive tenses	
Indicative tenses	Present *'Presente'*	Imperfect *'Imperfetto'*
Present	√	√
Imperfect	*	√

[6]. It did not escape our notice that the same generalization hold for Catalan – see Bonet 2002), examples (154)a and b).

[7]. The table is in fact simplified, since it does not include some matrix indicative tenses – the present perfect ('passato prossimo'), the simple past ('passato remoto'), and the future, the matrix conditional tenses, and the embedded composite subjunctive tenses, which will be introduced in a second step. The SOT of present perfect and of the future patterns like the one of the present, whereas the SOT of the simple past and of the conditional patterns like the imperfect. In the Northern variety of spoken Italian, the present perfect ('passato prossimo') is the only form of indexical past tense, corresponding both to the English present perfect and to the simple past. Attitude predicates in the present perfect and in the simple past have a punctual/aoristic and incohative interpretation, which is someway a marked interpretation for an attitude predicate.

Moreover, the table does not take into account all the verb classes selecting for subjunctive argument clauses. For instance, present volitional verbs do not allow a past subjunctive predicate (excluding fictional contexts). Volitional predicates are sometimes claimed to require a 'future-oriented' interpretation of the embedded proposition.

This empirical framework may challenge the traditional idea that SOT and tense anaphors (such have the subjunctive tenses been considered) go hand in hand.
Three hypotheses may be explored to explain this asymmetry. The first two hypotheses (H1, and H2) state that we can get rid of SOT mechanisms, *at least in some contexts of embedding*. H1 and H2 claim that the contexts in which SOT does not occur are the clausal arguments of present predicates. Moreover, since SOT and anaphoricity have been claimed to be strictly linked, two possible consequences follow from H1, H2: the first, expressed by H1, is that in the contexts in which SOT does not occur, subjunctive is not anaphoric; the second, stated by H2, keeps the idea that subjunctive is anaphoric even though SOT may not occur. Evidence will be shown that H2 is preferable to H1, keeping the claim that subjunctive is anaphoric. The focus turns then to the mechanisms of SOT – when are they required, when are they not? The third hypothesis (H3) keeps the traditional idea that subjunctive is anaphoric and that SOT is the morphological expression of anaphoricity; the asymmetry in the paradigm in table 1 is independent from SOT and anaphoricity[8].

4.1. H1 and H2

According to H1 and H2, since the embedded predicate can be whatever subjunctive tense under a present main predicate, if the matrix predicate is present then SOT does not take place. If it is past – that is, morphologically marked by an imperfect – SOT does take place, since it is not possible to embed a present predicate under an imperfect matrix predicate. We have seen that according to a traditional view SOT is the morphological expression of tense 'anaphoricity'. This may lead to two alternative implications, carried respectively by H1 and H2.

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[8]. Another hypothesis may be conceived, stating that the instantiation of the imperfect and the pluperfect is not constrained by the matrix predicate. More in detail, it states that the instantiation of present morphology in the embedded predicate is ruled by the matrix predicate, imperfect morphology in the embedded predicate is not. Hence, SOT holds only if the embedded morphology is present. However, there is a logical reason to immediately exclude this hypothesis. SOT may be restated as a function mapping the domain of matrix tenses to the co-domain of the embedded tenses. In a way, this hypothesis reverts the mapping relation, since it states that the embedded morphology shows up SOT effects only under some circumstances – but by SOT the embedded morphology is constrained by the matrix morphology.

4.1.1. H1

H1 states that since SOT does not take place when the matrix predicate is present, a subjunctive predicate is not anaphoric when it is embedded under a present predicate. H1 may then be formulated as follows:

(23) ***Hypothesis 1***
   a. SOT takes place iff the attitude predicate is past;
   b. SOT obtains iff a tense is anaphoric.

H1 implies that when embedded under a present attitude, subjunctive tenses may not be anaphoric. They may not be anchored to the attitude event time, but rather to the speech time – that is, they may be indexical, contrary to what has been generally assumed. Hence, subjunctive tenses may not be anaphoric in themselves – it is the context that determines whether a subjunctive is anaphoric or not. They are anaphoric when they are embedded under past predicates, they are indexical when they are embedded under present predicates. In other terms, they are anaphoric when the temporal anchoring does not coincide with the speech act, they are indexical when it does.
A series of independent facts seems to cast doubts on this hypothesis. In a series of articles, building on data concerning complementizer deletion (CD), double access reading (DAR), and long-distance anaphors (LDA) binding, Giorgi and Pianesi (2001, 2004) and Giorgi (2006b, 2007) have shown that a subjunctive clause – be it in the present subjunctive or in the other subjunctive tenses – lacks the temporal coordinates of the speech, the fundamental property of an 'indexical' tense. They show that embedded indicative predicates differ from embedded subjunctive predicates with respect to a series of syntactic and interpretative properties. Indicative predicates show up DAR (as it is generally the case in English for finite verbs in an embedded clause – see (24)a) (24)a is appropriate in a scenario in which Maria was ill when Gianni spoke and is still so now; they do not allow for CD[9] ((24)b, b') and for LDA binding ((24)c):

(24) a. Gianni ha detto che Maria è ammalata.
        Gianni has said that Maria is ill
        'Gianni said Maria is ill'

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[9]. See Giorgi and Pianesi (2004) on the distribution of CD.

b. Ho detto che è ammalata.
   Have said that is ill
   'I said that she is ill'
b'. *Ho detto è ammalata.
c. *Gianni ha detto che i telegiornali hanno parlato della propria impresa.
   Gianni has said that the TV news have talked about his.SELF deed
   'Gianni said that the TV news talked about his deed'

Conversely, subjunctive predicates do not show up DAR ((25)a), since there is no presuppostition that Maria is still ill now – it may be, it may be not; they do allow for CD ((25)b, b') and LDA binding ((25)c):

(25) a. Gianni pensava che Maria fosse ammalata.
   Gianni thought that Maria was ill
   'Gianni thought Maria was ill'
b. Pensava che fosse ammalata.
   Thought that was ill
   'I thought that she was ill'
b'. Pensavo fosse ammalata.
c. Gianni pensava che i telegiornali avessero parlato della propria impresa.
   Gianni thought that the TV news had talked about his.SELF deed
   'Gianni thought that the TV news had talked about hi deed'

Building on these data Giorgi and Pianesi argues that the indicative morphology introduce the temporal coordinate of the speech, thus anchoring an event to the speech time. In an embedded clause, however, the temporal coordinate of the attitude must be present as well. They hypothesize that the presence of both coordinates gives rise to DAR. Furthermore, they claim that the unavailability of CD and of LDA binding follows from this property[10].
On the other hand, subjunctive predicates are devoid of the temporal coordinate of the speech, which is claimed to explain the unavailability of DAR and the availability of CD and LDA binding. Since CD and LDA binding are available in subjunctive clauses embedded under present predicates, the hypothesis that such subjunctive predicates are indexical can be excluded.

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[10]. I refer to the mentioned articles for a detailed argumentation in favor of this hypothesis.

(26) a. Penso sia ammalata.
Think is ill
'I think she is ill'
b. Gianni pensa che i telegiornali parlino della propria impresa.
Gianni thinks that the TV news talk about his deed
'Gianni thinks that the TV news have been talking about his deed'

Hence, H1 seems to be unlikely to be adequate.

4.1.2. H2

H2 states that anaphoricity always obtains and there is not such a strict connection between SOT and tense anaphoricity as it has been claimed in the literature – there may be anaphoricity even without SOT. Let us consider this question more in detail. It has been assumed that the traditional claim that SOT is the morphological expression of tense anaphoricity may be reformulated through the biconditional form 'SOT occurs if and only if there is an anaphoric time relation' (see (23)). However, the conditional form may be more adequate: 'SOT occurs if the embedded tense is anaphoric'. This form states that there may be tense anaphors that are not morphologically marked through SOT. H2 may then be formulated as follows:

(27) ***Hypothesis 2***
a. SOT takes place iff the attitude predicate is past;
b. SOT obtains if a tense is anaphoric.

According to this hypothesis, subjunctive tenses may be anaphoric even if no SOT holds. Hence, subjunctive tenses embedded under a present predicate may be tense anaphors in spite of the absence of SOT – and despite the anaphoric interpretation is 'hidden' since the temporal anchoring is provided by the speech time. Cases in which anaphoricity and SOT do not occur together may support this hypothesis. For instance, subjunctive tenses in spoken French are anaphoric despite there is no SOT[11]:

[11]. The examples are taken from Grevisse (1993): 1268-1269.

(28) a. Je veux qu'il vienne.
I want that he comes.SUBJ.
'I want him to come'
b. Je voulais qu'il vienne.
I wanted that he comes.SUBJ
'I wanted him to come'

(29) a. Je doute qu'il ait écrit hier.
I doubt thtat he has.SUBJ written yesterday
'I doubt he has written yesterday'
b. Je doutais qu'il ait écrit la veille.
I doubted that he has.SUBJ written the day before
'I doubted that he had written the day before'

The anaphoric nature of the subjunctive tenses in French may be shown through the standard diagnostic methods such as indexical adverbial modification. Giorgi and Pianesi (2003) show that if a tense is indexical it is compatible only with time adverbials denoting the same time as the tense itself. For instance, a present perfect indicative, denoting a past time interval, is incompatible with future adverbials:

(30) *Gianni ha detto che Maria è partita domani.
Gianni has said that Maria has left tomorrow

If a tense is anaphoric, however, it is compatible with any indexical adverbials. Thus, for instance, the imperfect subjunctive is compatible with past, present or future adverbials:

(31) Pensavo che Maria partisse ieri/oggi/domani.
I-thought that Maria left.SUBJ yesterday/today/tomorrow
'I thought Maria would leave yesterday/today/tomorrow'

This test can be employed to show the anaphoric nature of French present subjunctive, which is compatible even with past indexical adverbials[12].

[12]. I am thankful to Vincent Homer for this example.

(32) Marie regrettait que Jean arrive tard hier.
Marie regretted that Jean arrives.SUBJ late yesterday
'Marie regretted that Jean would arrive late yesterday'

Although the embedded subjunctive carries present morphology, it is compatible with a past indexical adverb such as 'yesterday'. Such compatibility shows that the embedded predicate is not anchored to the speech time in spite of its present tense morphology.
Some facts in Italian may support this hypothesis as well. It is indeed possible to construct some examples hinting to this solution. What is needed is a main predicate tense that does not provide a temporal anchoring to the speech time and that does not show up SOT. Such a tense may be the future indicative. A predicate in the present perfect subjunctive, or in the imperfect subjunctive, or in the pluperfect subjunctive, may be interpreted as prior, simultaneous or posterior to the speech time – and, of course, prior to the attitude time[13]:

(33) Il testimone penserà che l'imputato abbia confessato il crimine.
The witness thinks.FUT that the defendant has.SUBJ confessed the crime
'The witness will think that the defendant has confessed the crime'

The event of confessing the crime by the defendant may have already taken place at the speech time, or it may not – it may take place in a moment posterior to the speech time. The same holds when the embedded predicate is imperfect or pluperfect subjunctive:

(34) a. Il testimone penserà che alcuni giorni prima l'imputato fosse nel luogo del delitto.
The witness thinks.FUT that some days before the defendant was.SUBJ in the place of the crime
'The witness will think that some days before the defendant was in the place of the crime'

[13]. The diagnostics exploiting indexical adverbials does not work when the matrix predicate has future morphology – this is due to independent reasons (Alessandra Giorgi, p.c.). However, the intuitions of the native speakers are quite clear.

b, Il testimone penserà che cinque giorni prima l'imputato avesse già commesso il delitto.
The witness thinks.FUT that five days before the defendant had.SUBJ already committed the crime
'The witness will think that five days before the defendant had already committed the crime'

The time adverbial in the embedded clause does not specify the time location with respect to the speech time. It may denote the day in which the speech act takes place ((35)a), a day prior to it ((35)b), or posterior to it ((35)c), as shown by the following diagrams:

(35) a. ———|———|———>
'now' s
e

b. ———|———|———|———>
e 'now' s

c. ———|———|———|———>
'now' e s

's' = think 'e' = commit the crime

Hence, in the latter examples the embedded tense is anaphoric despite the absence of SOT.

4.2. H3

H3 states that SOT mechanisms should operate when a tense is anaphoric despite the existence of apparent counterexamples, which should be accounted for invoking independent reasons. This hypothesis is in line with the 'traditional' view according to which whenever a tense anaphor occurs, SOT occurs as well, and vice versa:

(36) ***Hypothesis 3***
SOT takes place iff a tense is anaphoric.

Since the subjunctive mood is anaphoric, SOT always occurs when an embedded predicate is subjunctive. Given H3, a matrix present tense instantiates present subjunctive morphology, a matrix past tense instantiates imperfect tense morphology. In both cases the temporal location of the matrix event provides the temporal anchor for the embedded event. Hence, no time adverbial is required to license the imperfect.

(37) *'Strict' SOT*

	Subjunctive tenses	
Indicative tenses	Present *'Presente'*	Imperfect *'Imperfetto'*
Present	√	*
Imperfect	*	√

Given (36), no other possibilities are contemplated.[14] The fact that apparently SOT does not hold when the matrix is present and the embedded predicate is imperfect remains unexplained. However, a possible solution of this puzzle comes from the analysis of the definition of SOT given in section 2. SOT has been defined as a morphological agreement between two tenses. This definition implies the existence of a series of

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[14]. A possibile evidence in favor of this 'division of labor' is that the apparent cases of violation of SOT concern stative predicates within the embedded clause. Eventive predicates in the subjunctive under a present tense attitude are ungrammatical:

(i) *Gianni pensa che Mario partisse.
Gianni thinks that Mario left.SUBJ

However, if one forces a habitual reading of the predicate by adjoining a habitual adverbial – say, *ogni giorno alle cinque* 'every day at seven' – and an adverbial denoting a 'focalization time', the sentence turns out to be graqmmatical:

(ii) Gianni pensa che nel 1985 Mario partisse ogni giorno alle sette.
Gianni thinks that in 1985 Mario left.SUBJ every day at seven
'Gianni thinks that in 1985 Mario left every day at seven'

morphological endings matching with some morphological endings but not with some others. For instance, an imperfect indicative ending agrees with an imperfect subjunctive ending, but it cannot agree with a present subjunctive ending. In other words, given a matrix, the morphology provides two competing possible endings for the embedded verb, one and only one of which agrees with the matrix. If the morphology provides only one possible ending, no choice has to be made about which ending agrees with a given matrix. Hence, no agreement relation is needed – no SOT. This is what happens in spoken French, where the subjunctive mood has only two tenses, each expressing a different time relation – the present locates an event simultaneously or after the attitude event, the present perfect locates an event prior to the attitude event (see examples (28) and (29)).

Noticing that the apparent violations of SOT illustrated in (1) tipically involves predicates having a stative aktionsart – be it lexical or be it due to the imperfect morphology[15] – in the embedded clause, let us suppose that in Italian the set of competing morphological alternatives is supplied only if the embedded verb has to locate an *event* with respect to the attitude eventuality, and that if the time relation to express is anteriority of a *state* with respect to the attitude eventuality, no such a set of alternatives is available. Hence, no SOT would be needed: both a present and a past attitude predicate would allow for one and the same ending:

(38) *'Shifted' reading*

	Subjunctive tenses
Indicative tenses	Imperfect *'Imperfetto'*
Present	√
Imperfect	√

In a way, then, table (22) is the result of overlapping two different morphological patterns: the one given in table (37), which instantiates SOT, and the one given in table (38). In the former case SOT is needed by the existence of two morphological relevant alternatives, one anchoring the embedded event to a present attitude, the other anchoring the embedded event to a past attitude. In the latter case SOT is not needed, since there are no morphological alternatives to express anteriority of a state: the imperfect is able

[15]. On the relations between the aktionsart of a predicate and the aspect of imperfect tense, see Cipria and Roberts (2000).

to anchor the embedded event both to a present and to a past attitude. If this reasoning is correct, H3 holds provided that SOT is conceived as an abstract agreement relation, taking place even without any morphological marking – the morphological marking is indeed a property of the lexicon, independent form the syntactic mechanism instantiating the relation of agreement.

These considerations also imply that in Italian while the present subjunctive morphology is unambiguous, since it can only anchor an event to a present attitude, the imperfect morphology is ambiguous. In some contexts it represents the morphological marking of an anaphor bound by a past anchor (see example (2)). In some other cases – when the time adverbial occurs, it does not specify whether the anchor must be present or past[16].

Building on these considerations, a formal device for SOT will now be drawn in order to establish which of the two hypotheses, H2 and H3, is more likely to account for the data.

5. SOT as Agree

5.1. Agree

In the late 1980s and early 1990s the idea was put forward that agreement relations are instantiated by raising to a Specifier position (Kayne 1989). The early minimalist idea of Case and agreement was based on the idea that agreement consists in a spec-head relation, under the notion of 'feature checking' (Chomsky 1995). However, building on data from raising and the existential construction in English, Chomsky (2000, 2001) proposed another type of agreement relation, named 'Agreement at a distance' or 'Agree' for short. According to this idea, an agreement relation may take place even without any movement to a specifier. Moreover, Chomsky argues that all instances of

[16]. An illustrative parallelism within the nominal domain may be given by the anaphoric system in languages like Italian, in which there are three types of third person anaphors (see Giorgi 1989): *se stesso/stessa*, *sè* and the clitic *si*. *Se stesso/stessa* needs an antecedent matching its gender and number features. *Sè* and *si* are underspecified as for gender and number and their antecedent is not constrained as for these features. Similar considerations may be extended to the distinction between SELF and SE anaphors (Reuland 2001).

agreement checking are realized through Agree, whereas movement to a specifier is conceived as an independent requirement due to EPP.

Agree is claimed to establish 'a relation (agreement, Case checking) between an LI [Lexical Item] α and a feature F in some restricted search space (its *domain*)' (Chomsky 2000: 101). Agree obtains when an uninterpretable feature – that is, a feature legible at LF – in a lexical item, which may be metaphorically thought of as a *probe*, seeks a *goal* matching its features in its c-commanding domain, where matching is identity of features (Chomsky 2000: 122, 124). Once matched, the uninterpretable features of the probe are erased.

Chomsky (2001) claims that whether features in a lexical item are interpretable or not is specified in the lexicon. Since only interpretable features are sent to LF, the distinction between interpretable and uninterpretable features must be indicated throughout the derivation, so that at spell-out interpretable features can be sent to LF and uninterpretable features are deleted. In order for this property to be visible in narrow syntax, interpretable features are claimed to enter the derivation valued, uninterpretable features without values. The value of an uninterpretable feature is determined through Agree with an interpretable valued feature. Agree deletes the uninterpretable features, which cannot be available for LF, while leaving available the valued features for PF.

Pesetsky and Torrego (2001, 2004, 2006) point out that the definition of interpretable and uninterpretable features concerns the semantic contribution some features give to the interpretation of a lexical item; the definition of valued and unvalued feature concerns instead the morphological content of a certain feature. They propose that interpretability and valuation are independent. Accordingly, features may be interpretable valued, interpretable unvalued, uninterpretable valued and uninterpretable unvalued. In their view, interpretable unvalued features probe their domain to get valued, and uninterpretable unvalued features do so as well[17] - once valued, the uninterpretable features are deleted while the valued features are sent to PF.

The distinction between interpretability, a semantic notion, and valuation, a morpho-syntactic notion, fits well the problem faced here, since the question is whether SOT, a morpho-syntactic notion pertaining valuation, and anaphoricity, a semantic notion concerning interpretablity, are interdependent or not.

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[17]. I refer to Torrego and Pesetsky (2004) for a detailed illustration of their proposal.

5.2. SOT

The hypothesis will be here pursued that SOT may be conceived as an instantiation of Agree between some feature of the matrix predicate and some feature of the embedded predicate. The tense feature may be the feature under Agree.

According to standard hypotheses within the minimalist framework, tense features are generally interpretable in I and valued in V[18]. Agree matches the tense features in I and V. EPP properties of I trigger the internal merge of V into I.

According to the hypothesis under investigation, Agree is triggered between the tense features of the matrix, which are interpretable and valued through Agree, and the tense features of the embedded predicate, which must be interpretable (as anaphoric) and unvalued – the hypothesis states that anaphoric tenses must get valued under Agree with the matrix tense features.

This reasoning applies to subjunctive clauses selected for by past matrixes according to H2, to all subjunctive clauses according to H3. However, since anaphoricity is the trigger for the entire mechanism, there seems to be no principled way to hold H2: why should only past matrixes trigger Agree? H3 does not need to face this problem. The fact that SOT does not seem to hold when the matrix is present, is instead an epiphenomenon, being SOT hidden by the present anchoring.

The anaphoric nature of the subjunctive mood may provide the trigger for the Agree operation: matrix V selects for a subjunctive CP[19]; subjunctive I is anaphoric ([+A]), hence it needs a non-anaphoric ([-A]) antecedent in order to refer to a temporal location

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[18]. See Pesetsky and Torrego (2004).

[19]. On the nature of subjunctive CP, see Giorgi and Pianesi (1997, 2004), Landau (2005), Shlonsky (2006). Landau and Shlonsky claim that selection involves intermediate steps involving C, where the mood feature is uninterpretable and unvalued (at least in Italian) and the embedded I head, where the mood feature is interpretable and valued, possibly through Agree with V, where the mood feature is valued – this would be consistent with the idea that tense features are valued in V.

Following Chomsky (2000, 2001) selection itself may perhaps be conceived as an instantiation of Agree between an uninterpretable selectional feature of a lexical item and the kind of category matching them. This idea may have relevant implication from a theoretical viewpoint: Agree would play a crucial role even in the mapping from the lexicon to the computational system, the Projection Principle, not only within the computational system, matching features between lexical items.

– it must be bound. Agree matches the subjunctive tense features and the matrix tense features, so that the subjunctive tense features can get a value.

(39) $[_{IP} \ldots I_{[-A]} [_{VP} \ldots V [_{CP} C [_{IP} \ldots I_{[+A]} [_{VP} \ldots V \ldots]]]]]$

Agree *Selection* *Agree* *Agree*

Binding/Agree

Notice that according to Chomsky (2000, 2001) a probe scans its *c-command domain* to search for a probe matching some of its features. Accordingly, the following assumptions holds for Agree (Chomsky 2000: 122):

(40) a. Matching is feature identity.
b. The domain of the probe is the sister of the probe.
c. Locality reduces to "closest c-command".

In (39), however, the embedded I, which is unvalued according to the hypothesis under investigation does not c-command the 'goal' – the matrix I/V. Vice versa, the 'evaluator', the matrix I/V, c-commands the embedded I. Hence, either c-command is not a condition for the Agree operation to be performed in the example at issue, or there must be a phase in which embedded I/V c-commands matrix I/V. The latter option seems to be improbable, given standard assumptions on clausal complementation. As for the former option, if feasible, another principle is to be restated. This option indeed contradicts the principle stating that 'properties of the probe/selector α must be satisfied before new elements of the lexical subarray are accessed to drive further operations' (Chomsky 2000: 132). According to this principle, an unvalued feature must get matched with a valued feature before new elements are merged. If this were not the case, unvalued features could match and be valued by features on lexical items c-commanding them – exactly what seems to be needed in the case at issue. Consequently, uninterpretable and unvalued features should be 'active' for operations involving elements introduced in the next phase. This may be permitted by the following principle (Chomsky 2001: 13):

(41) Phase 1 is interpreted/valued at the next relevant Phase 2.

Moreover, to be available to further operations, by the Phase-Impenetrability Condition (PIC, Chomsky 2000, 2001), uninterpretable/unvalued features should be at the head or at the *edge* of the phase preceding the introduction of elements matching them:

(42) *Phase-Impenetrability Condition (PIC)*
The domain of H is not accessible to operations outside HP; only H and its *edge* are accessible to such operations.

I-to-C *features* movement, as proposed by Giorgi and Pianesi (2004), may make tense features raised to C available for matching with the tense features in matrix V:

(43) $[_{VP}$ V $[_{CP}$ $[_{C}$ I-C] IP]]

For (41), CP is interpreted and valued at VP. For PIC, I – raised to C – is accessible to operation outside CP. Consequently, assumption (40)b may not be needed to allow Agree in the sentence discussed, while assumption (40)c may be 'weakened' stating that locality is defined by principle (41) and PIC.
A third possibility, preserving the c-command requirement on Agree, may be based on the claim put forward by Giorgi and Pianesi (2001) (among the others), that the temporal coordinates of the attitude event are represented within the embedded clause – in I, according to them. Building the sentence bottom-up, the temporal coordinates of the attitude predicate may be first introduced within the embedded clause. The embedded I would then be interpretable and valued. Matrix V may be then introduced, having uninterpretable, unvalued tense features. The tense features of matrix V may then probe their domain, find a goal in embedded I and get valued through Agree with embedded I. Matrix I, having interpretable unvalued tense features, may finally be introduced, getting valued by Agree with matrix V.
I will leave for further research the question which of the two solutions is more appropriate and I will turn back to the original question concerning SOT.

6. SOT paradigms

The mechanism illustrated here allows establishing the values of the embedded I/V. At the end of section 4 it has been claimed that the present subjunctive morphology is unambiguous, whereas the imperfect subjunctive morphology is ambiguous. Present

subjunctive morphology requires a temporal anchor to a present attitude (which I dub '[+A[pres]]'[20]); imperfect subjunctive morphology either requires anchoring the embedded event to a past attitude ('[+A[past]]'). When a 'focalization' time occurs, which does not overlap with the attitude eventuality, giving rise to 'shifted' readings, the imperfect morphology does not specify whether the anchor should be present or past ('[+A[∅]]'). Hence, if the matrix verb is present, through Agree the embedded verb gets present value ('strict' SOT) or imperfect value ('shifted' reading).

(44) a. $[_{IP} \dots I_{[pres]} [_{VP} \dots V [_{CP} C [_{IP} \dots I_{[+A[pres]]} [_{VP} \dots V \dots]]]]]$

Agree Selection Agree Agree

Binding/Agree

b. $[_{IP} \dots I_{[pres]} [_{VP} \dots V [_{CP} C [_{IP} \dots I_{[+A[\varnothing]]} [_{VP} \dots V \dots]]]]]$

Agree Selection Agree Agree

Binding/Agree

If the matrix verb is past, such as imperfect tense is, through Agree the embedded verb gets past (imperfect) value as a 'strict' SOT effect or as a 'shifted' reading effect:

(45) a. $[_{IP} \dots I_{[past]} [_{VP} \dots V [_{CP} C [_{IP} \dots I_{[+A[past]]} [_{VP} \dots V \dots]]]]]$

Agree Selection Agree Agree

Binding/Agree

b. $[_{IP} \dots I_{[past]} [_{VP} \dots V [_{CP} C [_{IP} \dots I_{[+A[\varnothing]]} [_{VP} \dots V \dots]]]]]$

Agree Selection Agree Agree

Binding/Agree

[20]. Actually, the notation '[+A[-past]]' would be probably more appropriate, since future matrixes have the same SOT rules as a present matrix, as examples (33)-(34) show. In any case, for simplicity i will keep the label '[+A[pres]]'.

Given present subjunctive morphology unambiguity, a present subjunctive verb cannot be embedded under a past tense attitude predicate, since no feature matching, that is, Agree, could take place.

(46) * $[_{IP} \dots I_{[past]} [_{VP} \dots V [_{CP} C [_{IP} \dots I_{[+A[pres]]} [_{VP} \dots V \dots]]]]]$

Agree *Selection* *Agree* *Agree*

Binding/Agree

Notice that the properties of the subjunctive tenses are lexically determined and may vary cross-linguistically. In French subjunctive morphology appears to be underspecified ([+A[∅]]), explaining examples (28):

(47) a. $[_{IP} \dots I_{[pres]} [_{VP} \dots V [_{CP} C [_{IP} \dots I_{[+A[\varnothing]]} [_{VP} \dots V \dots]]]]]$ (=(28)a)

Agree *Selection* *Agree* *Agree*

Binding/Agree

b. $[_{IP} \dots I_{[past]} [_{VP} \dots V [_{CP} C [_{IP} \dots I_{[+A[\varnothing]]} [_{VP} \dots V \dots]]]]]$ (=(28)b)

Agree *Selection* *Agree* *Agree*

Binding/Agree

The SOT rules proposed here may be finally extended to the complete paradigm of tense agreement between the matrix verb and each of the subjunctive tenses.

In Italian there are four tenses having subjunctive mood: beyond the present and the imperfect, there are the present perfect (‘passato’) and the pluperfect (‘trapassato’). The present perfect and the pluperfect are periphrastic perfective form, made up by an auxiliary carrying respectively present and imperfect subjunctive morphology and by the past participle. Paralleling the paradigm already seen, the morphology of the auxiliary establishes which are the appropriate contexts for a present perfect or a pluperfect to occur. A present perfect may appear in a clause selected for by a present matrix:

(48) a. Il testimone crede che l'imputato abbia confessato.
The witness thinks that the accused has.SUBJ confessed
'The witness thinks that the accused has confessed'
b. *Il testimone credeva che l'imputato abbia confessato.
The witness thinks that the accused has.SUBJ confessed

A pluperfect may appear in a clause selected for either by a present matrix or by a past matrix – as a strict SOT effect[21], or giving rise to a 'shifted' reading:

(49) a. Il testimone crede che ieri alle 5 l'imputato avesse già confessato.
The witness thinks that yesterday at 5 the accused had.SUBJ already confessed
'The witness thinks that yesterday at 5 the accused had already confessed'
b. Il testimone credeva che l'imputato avesse confessato.
The witness thought that the accused had.SUBJ confessed
'The witness thought that the accused had confessed'

c. Il testimone credeva che il giorno prima alle 5 l'imputato avesse già confessato.
The witness thought that the day before at 5 the accused had.SUBJ already confessed
'The witness thought that the day before at 5 the accused had already confessed'

This is the complete paradigm involving SOT and subjunctive tenses:

(50) *SOT*

Indicative tenses	Subjunctive tenses			
	Present	Present Perfect	Imperfect	Pluperfect
Present	√	√	√	√
Imperfect	*	*	√	√

To account for this paradigm, it would be sufficient to include the aspectual properties within the mechanism of SOT proposed above, with no need for further assumptions concerning subjunctive morphology. What is needed are rather standard assumptions on periphrastic verbal forms. Tense projections are generally taken to dominate aspect

[21]. In the present discussion I will abstract away from the presence of the adverb *già* 'already'.

projections[22]. The SOT mechanism may be taken to involve the T projections, since subjunctive is temporally anaphoric.

If the subjunctive form is not periphrastic, V has both tense and aspectual features valued, Asp having interpretable aspectual features, and T interpretable anaphoric tense features. Agree obtains between Asp and V and between T and V. EPP features of Asp and T finally attract V.

(51) … [$_{TP}$ … $T_{[-A]}$ [$_{VP}$ … V [$_{CP}$ C … [$_{TP}$ … $T_{[+A]}$ [$_{AspP}$ Asp [$_{VP}$ … V …]]]]]

Agree *Selection* *Agree* *Agree*

Binding/Agree *Agree*

As shown above, if the matrix verb is present, embedded T may be [+A[pres]] (present subjunctive morphology) or [+A[∅]] (imperfect subjunctive morphology). If it is past, embedded T may be [+A[past]] or [+A[∅]], both corresponding to imperfect subjunctive morphology. [+A[pres]] – that is, present subjunctive morphology – is instead unavailable.

If the subjunctive form is periphrastic, the auxiliary has valued tense features[23], the participle valued aspectual (perfective or terminative[24]) features. Since SOT involves embedded T, when the subjunctive form is periphrastic, the tense morphology of the embedded subjunctive auxiliary enters SOT – binding and Agree – relations with the matrix verb.

(52) … [$_{TP}$ … $T_{[-A]}$ [$_{VP}$ … V [$_{CP}$ C … [$_{TP}$ … $T_{[+A]}$ [$_{AspP}$ Asp [$_{VP}$ … V …]]]]]

Agree *Selection* *Agree* *Agree*

Binding/Agree

---

[22]. Among the others, see Bellettti (1990), Giorgi and Pianesi (1997), Cinque (1999).

[23]. Following Cinque (1999), auxiliaries are merged directly in a functional projection – here labelled 'T' for simplicity.

[24]. See Giorgi and Pianesi (2004). According to Cinque's hierarchy, the relevant functional head may even be 'T(Anterior)', as suggested by the obligatory presence of the adverb *già* 'already'. T(Anterior) is a distinct, lower tense functional head than those anchoring an eventuality to the speech time.

If the matrix verb is present, embedded T may be [+A[pres]] or [+A[∅]], corresponding to a present perfect subjunctive or to a pluperfect subjunctive. In the latter case a time adverbial is independently required to provide a time anchor to the embedded eventuality. If the matrix is past, embedded T may be [+A[past]] or [+A[∅]], both corresponding to a pluperfect subjunctive. [+A[pres]] is again unavailable in this syntactic context, which explains why example (48)b is ungrammatical.
An analogous reasoning may explain the French data in (29), provided that subjunctive morphology in French is underspecified:

(53) a. … [$_{TP}$ $T_{[pres]}$ [$_{VP}$ V [$_{CP}$ C [$_{TP}$ … $T_{[+A[\varnothing]]}$ [$_{AspP}$ Asp [$_{VP}$ … V …]]]]]

Agree *Selection* *Agree* *Agree*

Binding/Agree (=(29)a)

b. … [$_{TP}$ $T_{[past]}$ [$_{VP}$ … V [$_{CP}$ C … [$_{TP}$ $T_{[+A[\varnothing]]}$ [$_{AspP}$ Asp [$_{VP}$ … V …]]]]]

Agree *Selection* *Agree* *Agree*

Binding/Agree (=(29)b)

7. Conclusions

Starting from a puzzle raised by some apparent violations of the SOT paradigm in Italian, in this article the question has been discussed whether tense agreement is the morphological marking of tense anaphors – a claim apparently challenged by some violations to SOT. The available evidence and the formal device here developed to explain the facts concerning the instantiation of subjunctive tenses does not seem to falsify this claim. It has been shown that the puzzle concerning SOT – the occurrence of an imperfect subjunctive in a clause selected by a present matrix and the unavailability of a present subjunctive under an imperfect matrix – may be explained hypothesizing that present subjunctive morphology obligatorily requires a present (or more generally a non-past) tense anchor, while imperfect subjunctive morphology does not impose any restriction on the 'antecedent' apparently. It has been hypothesized that this property of the imperfect subjunctive morphology is due to its lexical and semantic ambiguity.
Whether this ambiguity may be solved into a unique semantics for the imperfect subjunctive (as it has been done in the past fifteen years with respect to the imperfect indicative) is a major topic for further research.

The precise mechanism of Agree between the matrix and the embedded tense may be an important topic for further research as well. Two alternative hypotheses have been drawn. One of them, if not falsified, may have relevant theoretical consequences on the theory of Agree, since it states that Agree may occur even when a probe does not c-command its goal and defines the domain of Agree in terms of general phase interpretability/valuation conditions and of PIC.

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A Comparison between Japanese and Chinese Relative Clauses*

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1. Introduction

Fukui and Takano (1999) argue that a variety of differences between English and Japanese relative clauses fall out in an elegant fashion, based solely on the following parametric difference between the two languages: English exhibits N-to-D raising, while Japanese does not.

Chinese relative clauses are head-final like Japanese relative clauses are, but we will see in this paper that for other properties they behave like English relative clauses. I claim that Fukui and Takano's (1999) generalization can be extended to Chinese, once we propose that in this language N moves to D covertly. I will first review Fukui and Takano's (1999) theory (section 2), and then illustrate the basic properties of relative clauses in Chinese (section 3). In section 4 I will provide an account for relative clauses in Chinese, as well as for the differences between Chinese and Japanese relativization. In section 5 I re-define the N-to-D parameter to include Chinese and provide a summary of the properties it accounts for.

*. For their help with judgments on the Japanese sentences, I would like to thank Naomi Harada and Hajime Ono. The research conducted for this paper was funded by the Italian Ministry of Education, University and Research, through the program "Incentivazione alla mobilità di studiosi stranieri e italiani residenti all'estero".

2. Japanese vs. English relative clauses

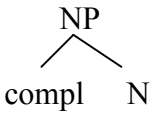
Fukui and Takano (1998, 1999) , following Chomsky (1995), propose that linear order is determined in the phonological component, according to the following principle:

(1) Symmetry Principle of Derivation
Pre-Spell-Out computations and post-Spell-Out (and pre-Morphology) computations are "symmetric", in the sense that they form mirror images of each other.

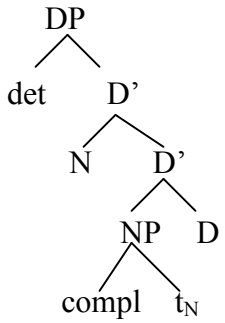
Fukui and Takano (1998) propose that the Linearization process consists of two operations: Demerge and Concatenate. Demerge applies to a single root and breaks it in two; Concatenate then assigns the linear order of the two maximal projections made available by Demerge. Of the two projections, the one that is already a maximal one at the point of application of Demerge "precedes" the other. Hence, the linearization process predicts that Spec-Compl-Head is the basic order (vs. Spec-Head-Compl, as proposed by Kayne (1994)). In the verbal domain, the VO/OV distinction is based on the presence vs. absence of V-raising.

The Symmetry Principle of Derivation together with the Linearization process also has consequences for the nominal structure. Fukui and Takano (1999) argue that a variety of differences between English and Japanese depend on a single parametric difference between the two languages: English exhibits N-to-D raising, Japanese does not.[1] In fact, according to Fukui (1986, 1988), Japanese lacks the functional category D:

(2) *Japanese*



(3) *English*

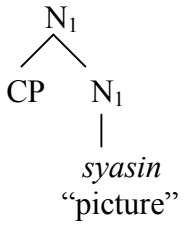


[1]. In Fukui and Takano (1998) head movement is treated as "substitution into Spec" rather than adjunction to head.

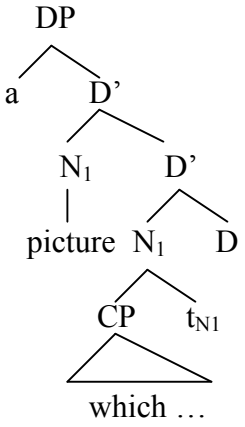
The above tree diagrams show that Japanese nominals are NPs, not DPs; given that the basic word order, according to Fukui and Takano (1998), is Spec-Compl-N, the surface order of English is derived by movement of the nominal head, N, to [Spec, D]. The trigger for this movement is the need to check features in D.

As for relative pronouns, they are not allowed in Japanese because they would not be bound by the "head" of the relative:

(4) *Japanese*



(5) *English*



Given the following definition of c-command, the relative pronoun is c-commanded in (5) but not in (4):

(6) Definition of C-command:
X c-commands Y iff X excludes Y and every element that dominates X dominates Y;
X excludes Y iff no segment of X dominates Y.

Fukui and Takano (1999) suppose that there is a general requirement on the licensing of the relative pronoun of the following kind (see also Cinque 1982):

(7) The relative pronoun must be bound by the relative head.

It follows that Japanese relative clauses cannot be licensed syntactically, since a relative pronoun cannot be bound in the structure in (4). Fukui and Takano (1999) and Takeda (1999) propose that Japanese clauses are licensed semantically, through an "aboutness" relationship.

In addition, Fukui and Takano (1999) propose that the relative clause in Japanese is TP and not CP. Following Diesing (1990) in spirit, they adopt the following principle:

(8) A functional category is present in the structure only when it is necessary.

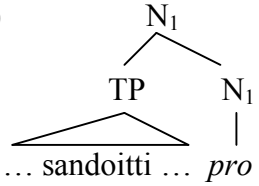
This condition allows subordinate clauses both in English and in Japanese to have CPs: subordinate clauses are always marked for the declarative/interrogative distinction, hence the CP as a functional category is present since it is necessary. The relative clause in English is also allowed to project up to the CP level, given that it is "operator-oriented" and thus its CP contains a relative pronoun or a relative operator. But Japanese relative clauses do not need to project up to the CP level, because they are not licensed syntactically, i.e. they are not introduced by a null operator or a relative pronoun.

Fukui and Takano (1999) also investigate the difference between English and Japanese with respect to internally-headed relatives. English doesn't allow them, while Japanese does[2]:

(9) John-wa [Mary-ga sandoitti-o tukutta no]-o tabeta.
John-TOP Mary-NOM sandwich-ACC made NM-ACC ate
'John ate the sandwich Mary had made.'

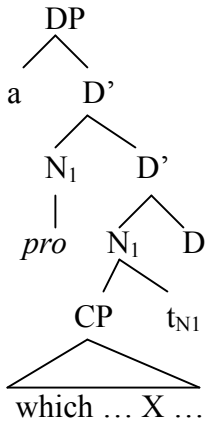
(10) *John ate [Mary had made sandwich].

(11) *Japanese*



[2] In the examples I use the following abbreviations: WA for the topical marker, NOM for the nominative marker, NM for the nominalizer, ACC for the accusative marker, for Japanese. For Chinese, I use CL for classifier, DE for the modification particle, ASP for the aspect particle,

(12) *English*



Following Cole (1987), Fukui and Takano (1999) analyze internally-headed relative clauses as in (11). At LF, the external "head" *pro* is interpreted as coreferential with the internal "head" *sandoitti*, 'sandwich'. This is allowed, given that neither [N_1, N_1] not the lower N_1 c-command the internal "head". If English had internally-headed relative clauses, its structure would have been as in (12).Through raising of the nominal head, the external "head" *pro* is located in [Spec, D]. In that position, the external head *pro* binds the internal head X, violating condition C of the Binding Theory. Hence, English cannot have internally-headed relative clauses because of the existence of N-raising.

Summarizing, Fukui and Takano (1999) show that the theory of phrase structure and linear order proposed by Fukui and Takano (1998) deduces the differences concerning relative clauses – given in (13) – between English and Japanese from the single parametric property in (14):

(13)

	English	*Japanese*
order	N-initial	N-final
relative pronoun	present	absent
licensing of relative	syntactic	semantic
gap	trace	*pro*
island effects	present	absent
gapless relatives	absent	present
relative Comp	present	absent
internally-headed relatives	absent	present

(14) The nominal head overtly raises to [Spec,D] in English but stays in place in Japanese.

3. Adding Chinese to the picture

Given that Chinese shows head-finality in the structure of nominals the same way Japanese does, one would expect its relative clauses to pattern alike with Japanese relative clauses. Instead, Chinese relative clauses seem to have the same characteristics of the English ones. A question that arises is then how Fukui and Takano's (1999) theory can account for the Chinese facts. The solution I propose lies in the availability of N-to-D raising in LF for Chinese nominals.

3.1. Characteristics of Chinese relative clauses

3.1.1. Relative pronouns

Chinese doesn't have relative pronouns, but it has been claimed that relative operators are present (see among others: Huang 1982, Ning 1993, Del Gobbo 2000, A. Li 1997, Huang, A. Li and Y. Li 2000, Aoun and Li 2003):

(15) a. [$_{CP}$ Op$_i$ wo kanjian t$_i$ de] guniang
I see DE girl
'the girl I see/saw'

b. [$_{CP}$ shei$_i$ wo kanjian t$_i$ (de)] guniang
who I see DE girl

The example above shows that a wh-pronoun, in this case an interrogative pronoun,[3] cannot be used in Chinese relative clauses, differently from what happens in English:

(16) a. the girl I met
b. the girl who I met

---

[3]. No overt relative pronoun exists in Chinese.

But we know that the gap in (15a) is due to wh-movement because we see island effects. In fact, Huang (1990) notes that although the formation of wh-questions in Chinese does not involve an overt process of A'-movement, two familiar structures – topicalization and relativization structures – do display dependency chains that are typically associated with wh-movement. To begin with, Huang (1990) observes that it is possible to relativize an element deeply embedded in a complement clause:

(17) Wo zhidao Lisi juede nimen dou hui xihuan t_i de ren_i lai le.
I know Lisi feel you all will like DE people come ASP
'The person that I know that Lisi feels that you all will like came.'

In (17) movement may proceed successive-cyclically crossing one bounding node at a time. Consider now extraction from a complex NP. The sentence in (18b) shows that an object inside the relative clause cannot be relativized:

(18) a. [$_{IP}$ Wo renshi [$_{NP}$ henduo [$_{CP}$ [$_{IP}$ xihuan Lisi] de] ren]]
I know many like Lisi DE people
'I know many people who like Lisi.'

(18) b.*[$_{IP}$[$_{NP}$ [$_{CP}$[$_{IP}$ Wo renshi [$_{NP}$ henduo [$_{CP}$ [$_{IP}$ xihuan t_i] de] ren]] de] nei-ge laoshi$_i$] xing Wang.]
I know many like DE people DE that-CL professor call Wang
*'The teacher who I know many people who like has the surname Wang.'

The other island constraints (Left Branch and Adjunct) apply as well. Chinese doesn't exhibit wh-island constraint effects, since no overt wh-movement exists in this language. Also, A'-chains in Chinese do not seem to exhibit Subject Constraint effects. Huang's (1990) proposal is that certain syntactic islands cease to be such in sentence-initial position because this is the only position where a given empty category can be base-generated as a *pro* and properly coindexed in accordance with the Generalized Control Rule (Huang 1984).

3.1.2. Licensing of relative clauses

Differently from Japanese, Chinese is an operator-variable oriented language. Various authors (Ning 1993, Del Gobbo 2000, A. Li 1997 and Huang, A. Li and Y. Li 2000, Aoun and Li 2003) maintain that Chinese has a syntactic, not a semantic licensing of relative clauses. But, given the existence of subject/object asymmetries in relative clauses and the need to resort to the Generalized Control Rule (Huang 1982) in order to account for them, a few words need to be spent in order to clarify what is usually intended for a *pro* strategy in Chinese. The proposal that Chinese resorts to a semantic vs. a syntactic licensing has been made in the literature with respect to the so-called "gapless" relative clauses. In the next section I briefly review different proposals on this topic. In the end, we shall see that relative clauses in Chinese are uniformly licensed in a syntactic way: either through an operator-variable construction or through a control structure. The so-called "gapless" relatives will be analyzed, following Huang, Li and Li (2000), as having a complementation structure.

3.1.2.1. Gapless relative clauses

Fukui and Takano (1999) argue that the existence of the so-called gapless relative clauses follows from the fact that in Japanese relative clauses are licensed through an "aboutness relation" with the relative "head":

(19) [syuusyoky-ga taihen na] buturigaku
employment-NOM difficult is physics
Int.: 'Physics (that) finding a job is difficult.'

As we saw above, they propose that the availability of a semantic licensing is a consequence of the non-raising of the noun to D in Japanese.

Gapless relatives seem to exist in Chinese as well, but their licensing is controversial.

3.1.2.2. Tsai (1992)

Tsai (1992) reports the well-known fact that in certain topic constructions no gap appears in the comment clause ("topic-in-situ"):

(20) [na chuang huo], [xingkui xiaofangdui lai-de zao]
that CL fire fortunately fire-brigade come-DE early
'(About) that fire, fortunately the fire brigade came early.'

The relationship between the topic and the comment is sometimes called "aboutness". According to Tsai (1992), the "aboutness" relationship can be characterized as a predication relation between a discourse topic and a comment clause with a *pro*, functioning as a variable in William's (1980) sense:

(21) [na chuang huo]$_i$, [*pro*$_i$ [xingkui xiaofangdui lai-de zao]
that CL fire fortunately fire-brigade come-DE early
'(About) that fire, fortunately the fire brigade came early.'

Tsai (1992) maintains that the existence of "sloppy relatives" can be taken as evidence for an "aboutness relationship". In "sloppy relatives" no gap can be found, therefore the null operator analysis is not viable, since there is no variable to operate upon:

(22) [[*pro*$_i$ [Akiu tan ganqin]] de shengyin$_i$]
Akiu play piano DE sound
'the sound which (is produced by) Akiu's playing piano'

(23) [[*pro*$_i$ [Akiu sha ren]] de jiama$_i$]
Akiu kill people DE price
'the price which (is charged in hiring) Akiu to kill people'

(24) [[*pro*$_i$ [Akiu zuobi]] de xiachang$_i$]
Akiu cheat DE consequence
'the consequence which (results from) Akiu's cheating'

(25) [[*pro*$_i$ [Akiu jiu ren]] de huibao$_i$]
Akiu save people DE reward
'the reward which (is gained by) Akiu's saving people'

Tsai (1992) furthermore points out – following a suggestion by Jim Huang – that similar sloppy construals can be found in English, but in the form of gerunds:

(26) the price of his killing Bill

(27) the price of him killing Bill

(28) the consequence of his cheating Bill

(29) the consequence of him cheating Bill

Since "sloppy gerunds" are typically associated with actions or events, Tsai (1992) expects the Chinese counterparts to show the same trait. In fact, no stative predicate can head a sloppy relative in Chinese:

(30) *[[Akiu (hen) congming] de haochu] hen duo.
Akiu very intelligent DE benefit very much

(31) *[[Akiu (hen) guzhi] de xiaocheng] hen can.
Akiu very stubborn DE consequence very miserable

The suggestion he makes then is that in a "sloppy relative" it is an implicit event argument which is relativized, and it is represented by *pro* in the examples in (22)-(25). It serves as the open place that makes the sloppy contrual possible.

Nevertheless, if the sloppy relative is embedded as a sentential subject, there is strong deviance:

(32) *[[[Akiu tan ganqin] hen heshi] de shengyin]
Akiu play piano very appropriate DE sound
? 'the sound of it being good that Akiu plays the piano'

Tsai (1992) proposes that (33) is out either because of compositionality on semantic grounds (Srivastav 1991) or by the adjacency requirement on syntactic grounds (Chomsky 1986a, Safir 1986).

3.1.2.3. Ning (1993)

According to Ning (1993), the analysis provided by Tsai (1992) triggers a violation of the requirement of 'non-vacuous quantification'. In his view, relatives as the ones in (22)-(25) are not gapless, since there is no thematically subordinate relation that can be established between the NP "head" and the argument inside the relative clause (Argument Condition, Na and Huck 1991). According to his proposal, they contain an adjunct gap. Ning (1993) assumes that the NP "head" is linked to a resultative VP in adjunct position:

(33) [Op_i [ta [$_{VP}$ [$_{V'}$ chang ge [$_{VP}$ [$_{V'}$?] t_i] de]] shengyin$_i$]
he sing-song DE voice
'the voice of his singing'

The above relative is then an operator-variable construction with a single-word adjunct operator whose internal composition contains an empty verb having the general meaning of "obtain":

(34) [$_{CP}$ [$_{VP}$ [$_V$ e] Op]$_i$ [ta mai shu [$_{VP}$ e]$_i$ de] [qian]]
he buy book DE money
'the money he got from selling books'

The following example shows that the meaning of the verb is confined to "obtain":

(35) *[ta mai che de] [zhang]
he sell car DE bill
*'the bill he (paid) by selling the car'

The operator is recoverable by being theta-marked by the empty verb having the designated meaning of "obtain".

3.1.2.4. Li (2000)

Below are some of the examples provided by Li (2000):

(36) zhe jiu shi [[ta kaoshi de]] jieguo
this just is he take-exam DE result
'This is the result of his exam-taking.'

(37) zhe jiu shi [[ta zuo-e de] houguo
this just is he do-evil DE consequence
'This is the consequence of his evil doing.'

Li (2000) observes that the relative "head" cannot be related to any position within the relative clause: it is related to the entire relative clause. The following examples show that the "head" noun cannot be related to an embedded clause:

(38) *zhe jiu shi [[wo xihuan ta chang-ge de] shengyin]
this just be I like him sing-song DE voice

(39) *zhe jiu shi [[wo tingshuo ta zuo-e de] houguo]
this just be I hear he do-evils DE consequence

Notice that the adjacency requirement in (38) and (39) is actually satisfied.
According the Li (2000), the above relatives pattern like [NP [P XP]] in English:

(40) [the voice [of his singing]

(41) [the consequence [of his evil doing]

Gapless relatives are licensed through a direct modification relation between the "head" noun and the entire XP that modifies it.

3.1.2.5. Huang et. al. (2000)

According to Jim Huang (p.c.) "gapless" relatives cannot be licensed by an "aboutness" relationship, because if it were the case, then we should always have a topic-comment counterpart of a "gapless" relative:

(42) [ni chang ge de shenying]
you sing song DE voice
'the voice of your singing'

(43) *shenying, ni chang ge
voice you sing song

According to Huang et. al. (2000), gapless relatives are structures of complementation, not modification. Nouns like *consequence*, *price*, *condition* are 'relational nouns' with argument places to be saturated. The so-called gapless relatives are in fact complements that saturate these argument places. They observe the following contrast:

(44) *ta tiaowu de guniang
he dance DE girl
Int. 'the girl with whom he danced'

(45) ta tiaowu de banyu
he dance DE companion
'the partner of his dancing; his dancing partner'

They observe that (45) should not be analyzed as a relative clause involving a comitative adjunct operator meaning *with whom*. If that were possible, there is no reason why (44) could not be grammatical as well. Their proposal is that *guniang* is a one-place predicate, therefore (45) is ungrammatical because of theta-theory, since tiaowu, 'danced' does not bind any argument position. *Banyu*, 'companion' instead is a two-place predicate, therefore (46) is grammatical.

3.1.2.6. Summary: Gapless relatives

In conclusion, we do have gapless relatives in Chinese, but their licensing is syntactic (complementation structure) and not semantic ("aboutness" relation). The fact that a subset of gapless relatives are ungrammatical can't be related to island violations, since no gap seems to be involved in this kind of relatives.

3.1.3. Relative complementizers

Chinese doesn't lack a complementizer in relative clauses the way Japanese does. Following Huang (1982), Cheng (1986) and Bao (1989), Ning (1993) takes *de* as the

functional head of CP, whose selected complement clause is a predicate structure. As we saw above, Fukui and Takano (1999) maintain that Japanese relative clauses are TP and not CP. No complementizer is present in Japanese relative clauses since there is no need for it, the relatives being licensed semantically. Instead, Chinese relative clauses are operator-variable contructions, hence CPs.

3.1.4. Internally-headed relatives

Internally-headed relatives are not available in Chinese:

(46) *Zhangsan kan le [Lisi xie le shu].
Zhangsan read LE Lisi write LE book
Int. 'Zhangsan read the book that Lisi wrote.'

The unavailability is intuitively linked to the fact that internally-headed relatives are usually present in well-behaved SOV languages. Chinese, as we know, is SOV in the nominal system, but SVO in the verbal one.[4]

3.2. Chinese nominals as DPs

Following Li (1997), in Del Gobbo (1999a, b), I claim that the DP hypothesis is correct for the Chinese nominal system. In particular, in Del Gobbo (1999b) I provide evidence for the existence of DP in Chinese from the domain of nominal apposition in Mandarin, from the comparison of definite and indefinite nominals in Mandarin and Cantonese, and finally from the similarities between Mandarin and Cantonese proper names and bare nouns. On the basis of the results of the above mentioned research, here I take for

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[4]. Aoun and Li (1993) propose that Japanese but not Chinese allows an operator to be base-generated with the NP it is associated with and to be subsequently moved away from this NP. According to Watanabe (1991), in internally-headed relatives an abstract operator is base-generated with the internal head and is subsequently moved to the Spec of Comp of the relative clause. In Chinese this is not possible, hence the language doesn't allow internally headed relatives. I follow here Takeda (1999) and maintain that relative clauses in Japanese are uniformily licensed through an "aboutness" relationship and I won't adopt Aoun and Li's (1993) proposal.

granted that Chinese nominals always project at least up to the DP level, and in this respect they are different from Japanese nominals, for which Fukui and Takano (1999) claim that there is no D projection.

3.3. Summary of Chinese relative clauses

Chinese makes use of an operator-variable strategy to license relative clauses; no relative pronouns are present in the language, but we can detect the existence of relative operators. The relative operator raises to Spec of CP, hence Chinese relatives are CPs and not TPs. The complementizer *de* can never be omitted. Gapless relatives in Chinese are not licensed by a semantic mechanism: Huang, A. Li, and Y. Li (2000) show that gapless relatives in Chinese are nothing other than complements. I recapitulate the situation in the schema below:

(47)

	Chinese	*Japanese*
order	**N-final**	N-final
relative operator	**present**	absent
relative pronoun	**absent**	absent
licensing of relative	**syntactic**	semantic
gap	**trace/*pro***	*pro*
island effects	**present**	absent
gapless relatives	**present**	present
relative Comp	**present**	absent
internally-headed relatives	**absent**	present

In the following section I propose a way to capture the differences between Chinese and Japanese relative clauses: N-to-D movement applies covertly in Chinese and doesn't apply at all in Japanese.

4. An account of Chinese relative clauses

4.1. N-to-D in LF

Fukui and Takano (1999) link the difference between Japanese and English relative clauses to the parameter in (14), repeated below:

(14) The nominal head *overtly* raises to [Spec, D] in English but stays in place in Japanese.

Notice that because of its head-finality, it is not possible to assume that the head noun in Chinese raises overtly to D. For Italian, Longobardi (1994) shows that the following paradigm is to be understood in terms of overt movement of N to D, since when the noun raises, it crosses the possessive:

(48) a. Il mio Gianni
the my Gianni
b. Il Gianni mio
the Gianni my
c. Gianni mio
Gianni my
d. *Mio Gianni
my Gianni
'My Gianni'

Because of their semantic similarities (48a) and (48c) are related by movement of the nominal head up to the determiner position. This pattern is not available in Chinese, since the nominal phrase is strictly head-final:

(49) a. wo de Zhangsan
I DE Zhangsan
b. *Zhangsan wo de
Zhangsan I DE
'My Zhangsan'

Nevertheless, Li (1997), Cheng and Sybesma (1999) and Del Gobbo (1999a, b) independently show the existence of movement of N to D (or Cl, for Cheng and Sybesma 1999). I claim that such movement applies at LF. This explains the head-finality of the Chinese nominal system – for which the language is like Japanese – and the properties of its relative clauses – for which the language is different from Japanese and more similar to English. If we assume with Li (1997) and Del Gobbo (1999a, b) that Chinese has a category D, the covert nature of the N-to-D movement allows us to account both for word order and for the characteristics of relative clauses in this language.

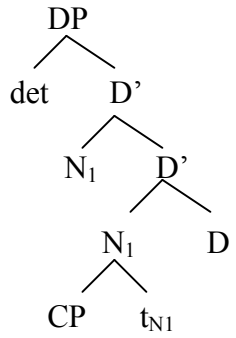
I therefore maintain that the correlation made by Fukui and Takano (1999) still holds: certain properties of relative clauses follow from the absence of N-raising in *overt syntax*. Chinese has N-raising up to D, but only at LF. In the following section, I analyze the characteristics of Chinese relative clauses, with reference to the N-to-D movement in LF.

4.2. Analysis of Chinese relative clauses

4.2.1. Relative pronouns

Chinese doesn't have relative pronouns, but as we saw, it has relative operators. On the assumption that Binding Theory applies at LF, raising of N-to-D in LF is sufficient to c-command the null operator within CP:

(50)



4.2.2. Licensing of relative clauses

Differently from Japanese, Chinese is an operator-variable oriented language: in Chinese, relative clauses are licensed syntactically, not semantically. Chinese does have gapless relatives. Their licensing is syntactic and not semantic: they are generated as complementation structures, but they do not give rise to an 'aboutness' relation. Since the language allows N-to-D movement and the relative operator can be bound by the noun raised in LF to D, there is no need to resort to a semantic licensing, differently from Japanese.

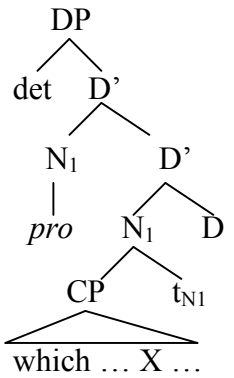
4.2.3. Relative complementizers

As for the presence of a complementizer, I follow the traditional literature (Huang 1982, Cheng 1986, Bao 1989 and Ning 1993) and take *de* to be the functional head of the CP.

4.2.4. Internally-headed relatives

Internally-headed relative, we saw, are not available in Chinese. In Japanese, Fukui and Takano (1999), following Kayne (1994) and Cole (1987), assume that an internally headed relative has a *pro* "head". At LF, the external "head" is interpreted as coreferential with the internal one, given that the external "head" does not c-command the internal one. In English, instead, since the nominal head raises to [Spec, D], a c-command relation is established and Principle C of the Binding Theory is violated. Assuming that Binding Theory holds at LF as well, the same explanation can be used to explain the unavailability of internally-headed relatives in Chinese:

(51)



5. Conclusion

Fukui and Takano (1999) propose that a variety of differences between English and Japanese relative clauses derive solely from the following parametric difference between the two languages: English exhibits N-to-D raising, Japanese does not. Here I propose that the same parameter can explain the differences between Chinese relative clauses on one side, and both Japanese and Chinese relative clauses on the other one. Let me restate the parameter so to include Chinese:

(52) The nominal head overtly raises to [Spec, D] in English, but it does not in Japanese and Chinese.

The fact that the head doesn't raise overtly in Japanese and Chinese leaves two possibilities open:

1. that it stays in-situ through LF;
2. that it raises to D in LF. The first option is chosen by Japanese, and the second by Chinese.

The head-finality of the nominal phrase is then straightforwardly accounted for: in Japanese the head noun doesn't move at all; in Chinese it does, but at LF. The rest of the properties of relative clauses all follow from the existence or absence of movement. In Chinese, the existence of movement allows a relative operator to be bound, it provides syntactic licensing for the relative clause, leaves a trace,[5] explains the presence of island effects and the absence of internally-headed relatives, and indirectly supports the analysis of the modifier particle *de* as the complementizer.

To conclude, the N-to-D movement parameter, interpreted in its entirety, i.e. with the addition of the LF option, is able to account for the variation we observe within relativization in Chinese, Japanese and English.

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[5]. But we saw that the gap can also be a *pro* in Chinese, still syntactically licensed.

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