FOCUS AND THE SEMANTIC COMPONENT

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1. Focus and Grammar

In studying the facts of language, two domains have been devised in the process of defining grammatical relations:

a. *Sentence Grammar* which encompasses phenomena belonging to clause level, with NP and S (or S') as the relevant domains in which to specify syntactic constraints and dependancies (Chomsky, 1981; Koster, 1978; Rizzi, 1982). This theoretical abstraction is so restricted to be able to account for basic facts of competence in language acquisition;

b. *Discourse Grammar* which is crucially grafted into rules of sentence grammar; it does not directly relate to unconscious and innate LAD mechanisms but stems and develops on extralinguistic, contextual/ situational or pragmatic conditions.[1]

Not all children can be said to develop the same discourse grammar, though all possess a similar sentence grammar, which according to Chomsky (1981) is characterized into a core and a periphery: language specific facts are accounted for within a theory of markedness, as peripheral phenomena.

It is a fact, though, that as soon as children stop their passive exposure to adults' language and start engaging as active participants in conversational exchanges (roughly, two-three years of age), they also start to show the extent to which their discourse grammar has developed: the partition FOCUS-THEME which is responsible for the informational structure of discourse, as well as coreference mechanisms and inferential cognitive devices are all present, and allow the child to establish the appropriate relationships of elements contained in utterances within a discourse or a story.

As a matter of fact, no neat division should be drawn between these two theoretical domains, apart from empirical reasons, i.e. in order to reduce interfering factors which do not contribute in an essential way to the construction of an internal grammar. In particular, the realm

of performance, being the less studied if compared to competence, contains quite a number of such interfering factors.

We might also surmise that a lot of performance [as such describable within a discourse grammar] interferes strongly with competence [Bresnan, 1982: xxiii] leading to an interactive model for discourse understanding, rather than a sequential one, as proposed indirectly by Williams above [see Marsley-Wilson, Tyler, 1980]. Some such interferences at discourse level are listed below: i. *coreference and binding principles*: these involve sentence materials which in all respect obey sentential constraints but relate them to extrasentential antecedents; ii. *discourse motivated syntactic constructions*: as for instance wh- questions. In the paper we shall discuss examples of questions triggering contrastivity as a contextual restriction and imposing a contrastive answer as the only acceptable one; iii. *discourse motivated phonological structures*: some of these are indicated with the term 'anaphoric destressing' [see Ronat, 1982; Williams, 1980a], which affects the intonational contour of an utterance, and are related to focus structure and the individuation of thematic material in sentence final position; iv. *semantic interpretation* depending on i. and showing up both in ii. and iii. In particular, statements containing a narrowly focussed assertion or a broadly focussed one. In the latter, complements of the verb may be included in the same focus structure of the verb, whereas in the former they should be kept apart. Interpretation could be triggered independently from sentential material or be determined by the presence of coreferring extrasentential expressions; as a further option, it could be triggered locally by logical operators which in turn may vary their scope according to the presence of extrasentential factors.

With this state of affairs, we cannot possibly treat sentence grammar as if it were a lake in an island and discourse grammar as the sea around it. Rather, we should look at it as a lagoon, vitally and substantially linked to the sea. Thus the lagoon – sentence grammar – has its rules and restrictions on flora and fauna typologies, while at the same time being related to the sea – discourse grammar which imposes through tidal mechanisms life cycles external to the lagoon itself. In other words, to allow for feedback to take place between the two levels of grammatical relations, we need an interactive model of language processing rather than a sequential one, as Williams seems to suggest.

2. Ambiguity and the semantic component LF

In order to show the relevance of discourse grammar to the

determination of focus structure, we shall revise briefly Chomsky's argument to the contrary as in [1976, 1981]. In *Lectures on Government and Binding,* Chomsky maintains that the first level of semantic interpretation LF, syntactically based and entirely within sentence grammar, is the place in which focus structure should be determined[2]. These rules belong to the right side of the grammar, whereas the left side contains stylistic rules and phonological rules.

This choice is motivated by binding rules such as the one shown by the following example:

[1] The woman he loved betrayed someone.

[2] La donna che egli amava tradì qualcuno.

Binding principles operating at sentence level account for the fact that the pronoun "he/egli" and the quantifier "someone/qualcuno" are not bound, whereas in,

[3] Someone was betrayed by the woman he loved.

[4] Qualcuno è stato tradito dalla donna che egli amava.

[5] Qualcuno è stato tradito dalla donna che amava

the quantifier in subject position of the matrix clause binds the pronoun in the embedded one, but only in the English example [3]. In the Italian examples we note the two following observations:

a. when subject pronouns are expressed lexically, binding by an antecedent [quantifier] is blocked and the expressed pronoun is taken to refer to someone else in the previous discourse;

b. when subject pronouns are unexpressed, binding is obligatory, external coreference being thus forbidden, unless such an antecedent is missing.

The Italian version of an English sentence allows then, more than one interpretation, and more than one translation. At first sight, all seems to amount to the fact that Italian is a pro-drop language, or Null Subject Language [Rizzi, 1982], this being a parameter available at the level of universal grammar. However, the parametrization of this phenomenon only explains the fact that a position (NP, S) can be empty in base structure and appear in S-structure to be interpreted by LF principles as *pro.* In turn this *pro* will be assigned subject function owing to the features inherited from the finite verb under VP in the same S.

2.1 Scope Ambiguity and Quantifiers

In any analysis of quantifiers and of their relations to focus structure, ambiguity problems in scope assignment could not possibly be disregarded, as we shall briefly show. With an interactive model of

language processing, these problems can all be treated adequately at the level of discourse grammar in a more uniform manner. In this way, LF is the first (syntactic) level of semantic interpretation and in the hypothesis of a nondeterministic parser (see Delmonte (a cura di) 1983), it should yield all possible interpretation for a sentence, whenever ambiguity in terms of Functional Reversibility is caused by the presence of a quantifier or a quasi-quantifier. In this way focus will be assigned adequately after all possible interpretations are spelled out by LF in order to avoid conflicting focus assignment, causing semantic inconsistency or pragmatic inappropriateness.

As far as quantifiers are concerned, let us take Karttunen's example (1969):

[12] Harvey courts a girl at every convention.

As Karttunen notes (we quote from the Italian translation, 1977): "... nel senso specifico, Harvey corteggia sempre la stessa ragazza; nel senso non specifico può trattarsi ogni volta di una ragazza differente" (138). Two separate syntactic representations should correspond to variations in quantifier scope, as follows:

12i $[_{S'}[_S[_{NP}$ Harvey] $[_{VP}$ courts a girl $[_{PP}$ at every convention]]]]

12ii $[_{S'}[_S[_{NP}$ Harvey] $[_{VP}$ courts a girl]] $[_{PP}$ at every convention]]

Here we assume that the Adjunct PP, acting as a circumstantial, is generated under or adjoined to S', in one interpretation; this fact will allow us to justify the ambiguity in scope of the quantifiers so that 12i, will be interpreted with broad scope, "a" interacts with "every" in the PP to its right and under VP, yielding:

12iii. At every convention there is some girl such that Harvey courts her.

Whereas in the case exemplified by 12ii, no interaction takes place, and quantifiers are assigned narrow scope, as in

12iv. There is some girl at every convention such that Harvey courts her.

In the former case, there is only one and the same girl; in the latter every time there is a convention there is at least one girl that Harvey courts. Both interpretations must be allowed at LF, symmetrically to syntactic representations.

Disambiguation will take place at the level of complete semantic representation, after focus structure rules are made to apply in order to yield the only appropriate interpretation allowed by the context.

Intonationally, and phonologically, the two representations should be minimally different, as follows:

[13] Arrigo corteggia//*una ragazza ad ogni convegno.*

[14] Arrigo *corteggia una ragazza//* ad ogni convegno

where slashes indicate possible intonation boundaries, as already

defined, and underlining indicates focus structure. Thus a possible context for [13] would be radically different from a similar context for [14]:

[15] Sono tutte molto carine; io credo che non si sposerà mai.

[16] E' molto carina; io credo che si sposeranno presto.

Two different inferences could be drawn according to interpretation 13 or 14. These are obviously not the only possible inferences, which could be completely reversed if we add:

[17] Sono tutte molto carine; non l'avevo mai visto così interessato alle donne; io credo che si sposerà presto.

[18] E' molto carina; si frequentano da quando sono bambini; io credo che non si sposeranno mai.

It turns out then, that scope ambiguity is related to quantifiers and quasi-quantifiers -resulting in functional reversibility - it affects focus structure building rules, complete semantic interpretation, and intonational boundary assignment rules. In other words, the determination of focus structure in an utterance corresponds to individuating contextual conditions on sentence use. Besides, focus structure should not influence the determination of truth conditions on meaning, nor such notions as consistency and entailment; it should however be highly sensitive to such notions as presuppositions, implication, conversational implicatures, all determining the appropriateness of sentences to some specific context (see Rochemont, 1978).

3. Focus and Coreference

A central notion to a characterization of focus structure is coreference, as we have seen. Given that some central principle of coreference are at work at the level of sentence grammar, it remains to be seen how the problem may be addressed from the level of discourse grammar, also in view of the fact that children are exposed to texts and discourse structures from the start. Since we admit that a certain symmetry between phonological, syntactic and semantic representations exists, the question that we posit now is the following: what structurally relevant modifications are introduced by the notions: presupposition, coreference, anaphoric relations, and contrastivity, as derived from discourse grammar?

To derive presuppositions we could just posit the existence of a simple law as William's (1980b: 8):

Presupposition-Law: the presupposition must follow from something in the previous discourse (where "follow from" must be broad enough

to include at least what is called conversational implicatures).

There are clearly some difficulties in trying to define a notion as presupposition (see also Jackendoff, 1972; Levinson, 1983); what must be stressed, though, is the fact that Williams elaborates on Chomsky's [1971] definition of presupposition in terms of a subtracting operation, once focus has been determined. The problem with this approach is that not all utterances contain presuppositions: in normal, unmarked, noncontrastive utterances, focus cannot possibly be determined by associating a variable to or by assigning a property to a group identical to (in terms of lambda extraction) a certain constituent, since all that is being asserted is focus. Nor can scope be given broad/narrow interpretation on the basis of this subtracting operation, apart from marked syntactic structures in which narrow interpretation is preferred or is forced by the informational structure.[3]

In other words, in normal statements or declaratives, assertability does not allow the focus and the scope of negation/quantifier to be automatically picked up. This applies also to wh- questions, when their function is the request for information. Presuppositions may not be present in the utterance itself, though they may be inferred and as such be implicit or implicated. In Kempson's criticism of Chomsky's definition of presupposition we cross the borderline of sentence to discourse grammar: "... Thus for example the presuppositions of the assertion: i. John didn't meet Mary in the garden with normal stress assignment on *garden* are either that John met Mary, somewhere (in the garden being the focus of negation), or that John met someone somewhere (Mary in the garden being the focus), or that John did something (the entire verb phrase being the focus). This claim is inadequate if stress is normally assigned on the grounds that the full range of scope possibilities is available with normal stress assignment and this range cannot be predicted by considering the phrase containing the intonation centre." (1975:192). Generally speaking, we assume with Kempson that what is being asserted may or may not be part of the Pragmatic Component or Universe of Discourse, as she defines it (ib.: 172). The asserted proposition must then be excluded as conversationally inadequate if it constituted mutual knowledge between speaker and hearer; it also excludes ordering one's hearer to carry out some action which is already clearly true. As Kempson notes, this does not exclude the possibility of repeating, recapitulating or summarizing what one has said - also by means of various rhetorical operations such as metonymy, syneddoche, allusions, metaphors, etc. These possibilities are available and adequate or appropriate since as Kempson remarks, not all the speaker's utterances of the discourse become part of the

Pragmatic Universe of Discourse - only those which are explicitely agreed by the hearer to be true.

A minimal requirement for preventing our phonological component from producing ill-formed or inappropriate intonational contours is to introduce in the phonological component the notion of anaphoric destressing, which has been proposed among others by Williams [1980b: 13] as the Rhyming Law:

"... The final nucleus [the nucleus is the terminal material to the end of the intonation phrase] of an intonation unit [roughly, a clause] cannot be identical to any final portion of the preceding intonation unit [where identical minimally includes phonologically identical]".

This is his example:

(19) Q. Did you give the gun to George?

    A. No. I like George, but I certainly wouldn't give

    i. *George* a gun.

    ii. *a gun to *George*.

    iii. *George *a gun.*

    iv. *a gun* to George.

We added two more possible answer to Q. in order to show that some ill-formedness may result for reasons other than purely phonological ones. In particular, ii. is ill-formed because of the Rhyming Law and iii. is ill-formed if "George" is taken as the focus of the yes/no question: i. is ok according to the Rhyming Law and iv. is ok if focus in the question is "the gun". Similar examples can be found which can only be read according to the RL above, and are the following:[4]

(20) If you have a hundred dollars, then *spend* a hundred dollars [them].

(21) I have a headache, but fortunately it isn't *a bad* headache [one]

(22) I won't give it to John because I *know* John [him].

(23) A. What did Peter put in his pocket?

    B. Peter *put your book* in his pocket.

(24) A. I know you ate the cabbage, but what about the beans?

    B. I think *Fred* ate the beans.

(25) A. Has John read Slaughterhouse-Five?

    B. No, John *doesn't read* books.

or, C. No, John *doesn't read* trash.

The examples clearly show that when complete phonological identity is present, the constituent in sentence final position can be substituted by a pronoun, or simply be destressed [pronouns, when not contrastively intended, are always destressed in English - not so in Italian]. The last example on the contrary, requires referential identity: "books" is semantically related to "Slaughterhouse-Five"; "trash" is an epithet referentially appropriate to the semantic class in which the focussed

element is included, and predicates some property of the focussed element in question A. In this case, there must be some mechanisms for marking coreference between the two sentence-final constituents, so that they can be adequately interpreted. Contextual conditions could be modified in such a way as to vary the scope of negation:

[26] A. Gianni ha letto "Assassinio nella notte"?

      B. No. Gianni *non legge* libri gialli, ma *solo romanzi d'amore*.

As in the 25 example, the presupposition is not negated in 26 and can be represented as,

25i. John reads something.

Apparently, anaphoric destressing operates by changing focus relations and structure, but doesn't modify underlying semantic relations like negation scope. To derive the appropriate semantic structure on which anaphoric destressing operates, inferences must be worked out. This becomes clear if we try to substitute C for B in 26:

[??] C. No, Gianni *non legge* "Assassinio nella notte", ma ...

[?] D. No. Gianni *non ha letto* "Assassinio nella notte", ma ...

where we marked with [??] the C reply as inappropriate or pragmatically ill-formed because of tense implications: Present tense can be used when a habitual or usual activity is indicated. Also, it can be used with generic referring expressions like "libri gialli" to extend in the past, but not with proper names or titles. In that case some temporal specifications would have to added: like, "ogni mattina", or "solo di domenica". This is what makes both B.'s examples more appropriate than C./D. To produce the anaphoric reading then, some referential equation must be specified, such as,

26i. "Assassinio nella notte" **IS A KIND OF** "libri gialli"

After this equation has applied, "libri gialli" is the class to which "Assassinio nella notte" belongs and can be contrasted to the class of books that Gianni usually reads, "romanzi d'amore". If we look at semantic representation in LF, we get:

26ii. $\exists$ x [legge [Gianni, x] & **NOT** [x=libri gialli]]

26iii. $\exists$ x [**NOT** legge [Gianni, x] & [x=libri gialli]]

only 26ii with narrow scope of negation is adequate for 26B. Apparently, 26iii. could be used for the interpretation of 25B.C., but this is clearly not the case: also, these replies must be interpreted as containing negation with narrow scope and the underlying presupposition that John reads something, is still unvaried. In this sense 25B.C. are not assertions which say what John does not do, generically, nor contrastively interpretable utterances, and cannot be paraphrased by:

25ii. It is books that John does not read.

25iii. It is trash that John does not read.

whereas 26B. can,

26iv. Sono i libri gialli che Gianni non legge, ma ...

However, if we add the anaphoric equation to the clefted constituent, as in

25iv. It is books=Slaughterhouse-Five that John doesn't read.

where = can be rewritten as the inverted relationship IS A KIND OF applied to the two elements "books" and "Slaughterhouse-Five". This can be obtained only at the level of pragmatic representation or complete semantic representation. Other relevant examples for scope ambiguity of negation are constituted by "perché" clauses:

[27] Maria non è uscita *perché sua madre l'ha sgridata.*

[28] Maria *non è uscita* perché sua madre l'ha sgridata, ma *perché suo padre l'ha picchiata.*

[29] Maria non ha fatto i compiti *perché sua madre l'ha sgridata.*

[30] Maria *non ha fatto* i compiti perché sua madre l'ha sgridata, ma *perché suo padre l'ha picchiata.*

In examples 27 29 the scope of negation is narrow and the "perché" clause is under S': the meaning of the sentence is a negated action "she didn't go out/she didn't do her homeword". In examples 28 30 the scope of negation is also narrow and the "perché" clause is a verb complement, under VP, and contrastively negated. In this case the meaning of the sentence is not a negated action, and the matrix verb is not in the scope of negation. The contrastive interpretation can be derived also from the fact that in the second couple of examples the first "perché" clause is a repetition of material already introduced in the discourse. If we use wh- questions to contextualize the four examples, we get the following,

[31] Perché Maria non è uscita?

[32] Perché Maria non ha fatto i compiti?

What these questions show is that focus in the following answers must be assigned to the constituents licensed to fill up the variable in focus in the question, representable in LF as follows:

31i. Maria non è uscita per x

32i. Maria non ha fatto i compiti per x

The constituents licensed to fill up and substitute the variable x in 31i. and 32i. are circumstantial sentential complements introduced by "perché" as provided by 27 29 above. If we build up test questions for 28 30 examples, the negation disappears and the question is no longer wh- but yes/no, as follows:

[33] Maria è uscita perché sua madre l'ha sgridata, no?

[34] Maria ha fatto i compiti perché sua madre l'ha sgridata, no?

Tag questions and yes/no questions are ones which can introduce

appropriately 28 30. It is worthwhile noting that what is being questioned in this case, is the truth of the proposition introduced by "perché": the matrix verb reports a piece of shared knowledge, something true because mutually known and accepted: what is being questioned is the validity (truth: falsity) of the reason being adduced for a certain action that has already taken place: an intransitive action "uscire", and a transitive action "fare i compiti". The reply will introduce as new information and adequate focus, the true reason, in the second part of the utterance introduced by the contrastive "ma". Also the following would be an appropriate answer:

[35] Ma *no*, perché *suo padre l'ha picchiata*.

This would be taken as an appropriate answer only to 33 34 examples, thus substituting adequately 28 30: the reason lies in the fact that *no* in Italian can be regarded as a logical operator pronominalizing a whole S, in this case the "perché" S anaphorically reintroduced in 28 30.

As we saw previously, pronominalization applies when the constituent qualifies as old information: the element has either been already introduced in the discourse, or it is inferrable or deduceable from the context or the situation, as something that is mutually known and shared. However, pronominalization arises a number of well known problems: being crucially a pragmatic phenomenon, belonging to discourse grammar rather than to sentence grammar, there is no way to foretell what will be pronominalized [see also Stockwell et al., 1975: 170-171]. For instance, in the following example, the relationship between stress-reduction and "one" pronominalization is illustrated.

[36] i. *I* saw a man and *you* saw one.

ii. *I* saw *two* men and *you* saw *one*.

iii. *I* saw a house and *you* saw one.

iv. *I* saw a *big* house and *you* saw a *small* one.

v. *I* saw a *big* brown house and *you* saw a *small* one.

vi. *I* saw a *big* brown brick house and *you* saw a *small* one.

vii. *I* saw a *dilapidated* big brown brick house and *you* saw a *fine* one.

In i.-vii. "one" replaces "a house", "house", "brown house", "brown brick house", and "big brown brick house". "One" itself receives stress in example ii. because it contrasts with "two" in the previous conjunct; in all other cases, repeated material under conjunction looses stress whereas non-repeated material gains stress.

Contrastively stressed statements serve to contradict a preceding statement which the speaker believes to be false: thus a contrastive utterance is one which presupposes a statement identical to it but for the particular phrase which has been emphasized. Thus in the following

examples (from Rochement, 1978).

[37] A. The man in black kissed Mary.

B. *John* kissed Mary; the man in black kissed *Sue*.

Also the following constitutes an adequate contrastive context:

[38] A. John kissed *Sue*; *Bill* kissed Mary.

B. John kissed *Mary*.

Kempson (ibid., 192) comments that in utterances in which stress is contrastive, the interpretation of the scope of negation or question is not in general left open, but is restricted to the lexical item or phrase, or embedded clause which is stressed. Thus contrastive context will require Emphatic focus to be applied by the Phonological Component. Anyhow, it is the grammar that is responsible for scope assignment. In the following examples, Rizzi (1982) uses "nessuno" to show that quantifiers and quasi-quantifiers are extracted from postverbal position: when "nessuno" appears in postverbal position in S-structure it can be given wide scope in LF, and undergo long extraction when in embedded structures, as follows:

[39] Non desidero che ci disturbi nessuno.

[40] Non desidero che qualcuno ci disturbi.

which mean the same thing, roughly "nobody has to disturb us", and formally:

39i. (non + nessuno$_i$ [desidero [che ci disturbi t$_i$

39ii. non $\exists$ **NESSUN** x tale che io desidero che x ci disturbi

which closely resembles the interpretation of 40.

40i. (non desidero [che qualcuno$_i$ [t$_i$ ci disturbi

40ii. non desidero che $\exists$ **QUALCHE** x tale che x ci disturbi

However the meaning is completely different if "nessuno" is already in preverbal position as in,

[41] Non desidero che nessuno ci disturbi.

This sentence cannot be rendered intonationally as the two previous sentences because the negative marker "non" cannot be construed together with "nessuno", which can only have narrow scope. The resulting meaning is the opposite if compared to the previous one, and is roughly paraphrased as "I want that someone disturbs us": this is due to the fact that the two propositions or clauses contain both a negative element, and one is the predicate or complement clause of the other, resulting in an affirmative predication, absolutely synonymous to,

[42] Nessuno desidera che non ci disturbi qualcuno

as the LF essential representations clearly show.

41i. (Non desidero [che nessuno$_i$ [t$_i$ ci disturbi

41ii. Non desidero che $\exists$ **NESSUN** x tale che x ci disturbi

42i. (Nessuno$_i$ [t$_i$ desidera [che NEG qualcuno$_i$ [ci disturbi t$_i$

42ii. **NESSUN** x desidera che **NON** ∃ **QUALCHE** x tale che x ci disturbi

These sentences cannot be pronounced with a neutral intonational contour that encompasses the embedded clause ending with a slowly declining tone. Rather, the matrix clause must be set apart from the lower clause both intonationally and rhythmically by the insertion of a pause. Thus, the opposition between 39.40. and 41.42. is documented at the level of LF by the rules of interpretation which allow postverbal extraction of a quantifier because the variable is properly governed and is bound, whereas in case the quantifier has been generated in preverbal position it cannot possibly be raised to a higher clause because the trace (t) would not be properly governed.

In wh- questions the only noncontrastive pronunciation is one in which the wh- phrase functions as the focus of the sentence: it must be noted, though, that wh- words are always unstressed, except when emphatically stressed in highly marked pragmatic contexts. Wh-questions may be regarded as requests of the speaker for the hearer to provide him with some piece of information: basically thus, substituting for the variable marked by the wh- word, a phrase which will make the corresponding statement true. The answer to one such question then allows stress most naturally to fall on the phrase which provides this information. Thus, in the case of

[43] Chi ha baciato Maria?

in which a subject is questioned - though it must be noted that this constitutes an ambiguous sentence which allows functional reversibility (the subject may be computed as the object) - the following are all appropriate answers:

[44] a. *Gino.*

    b. *Gino* l'ha baciata.

    c. L'ha baciata *Gino.*

varying from a. and c. as the most appropriate, to b. in which the verb has been reintroduced and the object pronominalized. In accordance with Rochemont, the following can only be regarded as a contrastive answer,

[45] *Gino* ha baciato Maria.

and is only appropriate as a reply to questions like,

[46] A. Chi ha baciato Maria, Franco?

    B. *Gino* ha baciato Maria, Franco ha baciato *Susy.*

Since contrastivity can be defined adequately only in terms of the pragmatic component of the grammar, or in discourse grammar, pragmatic factors like different degrees of acceptability and appropriateness of use in context must also be taken into account when trying to explain performance facts. This highlights Grice's theory,

in particular the setting up of maxims of behaviour to explain the cooperative nature of communication.[5]

We can apply his maxims to a conversation at a birthday party.

[47] A. Giorgio, chi ti ha regalato quel bellissimo quadro?

     B. *Franca*, naturalmente.

     C. E' stata *Franca* [a regalarmelo].

     D. Me l'ha regalato *Franca*.

     E. [??] *Franca* mi ha regalato quel bellissimo quadro.

Apparently, the only pragmatically inappropriate answer is E., which reintroduces, by repeating, phonologically identical and informationally redundant material already present in the previous discourse. Also, a wh- question in which a subject is questioned requires a reply in which the subject is in focus, at least in Italian: this can be easily achieved by means of a syntactic structure intended to convey this particular discourse effect, i.e. either Subject Inversion or Cleft construction. Thus both B. and C. are syntactically and pragmatically appropriate. Constituents not in focus like the two object NPs, can both be reintroduced in pronominalized form as clitics. The most appropriate, though, also in line with Grice's maxims, would be B reply which substitutes a lexical NP for the variable being questioned. The same does not apply to the following examples, in which another argument of the verb is being questioned:

[48] A. Chi ha dato un bacio Maria?

     B. [??] *A Mario* ha dato un bacio Maria

where B is only acceptable in a highly marked and emphatic context and does not constitute a natural and informative answer to A. If more information than required is introduced into a reply, it is not only redundant and irrelevant, but can cause utterances to become unacceptable and inappropriate.

5. Focus and wh- questions

Generally speaking, focus structure introduces new or informationally relevant constituents at the beginning of the utterance: in this way, the order of the constituents assumes the role that in languages like Japanese, is left for morphological particles GA, WA, to perform.[6] Wh- questions differ from other questions in that they introduce a logical operator, the wh- word, which contributes to the semantic interpretation and to the final syntactic structure: it is the constituent that usually comes first to signal to the hearer what follows. In Italian also prepositions attached to wh- words must come first, since no stranding is allowed. As to semantics, wh- words indicate what the

content of the speaker request is: in this sense wh- questions combine in a single structure the two devices that we regard relevant to the definition of marked focus structure: the order or constituents and the presence of logical operators.

Wh- questions are similar to yes/no questions in that they allow "I don't know" as an adequate answer: in this case, non presupposition would have been shared by speaker and hearer. On the contrary, alternative questions differ in this respect, in that one of the two alternatives proposed by the speaker must be true, but what's more they must constitute common knowledge. Clearly, there's nothing preventing the speaker from expressing his uncertainty or indecision by replying "I don't know" to an alternative question. Direct questions also differ from indirect questions (see Wachowicz) in that the latter are statements, whereas the former are requests. Statements belong to unmarked illocutionary types, assigning focus structure to phonologically defined structures defined by default rules such as NSR (see Chomsky, Halle 1968). Intonational groupings defined by such default rules cannot account for focus structures in marked contexts, as the ones discussed by this paper. In particular direct questions are requests as imperatives: the former are requests for knowledge or information, whereas the latter are requests for some action to be performed.[7]

Other illocutionary types will have to include yes/no questions, which do not differ in constituent order from declaratives in Italian, as in:

[49] Ha finito i compiti, tua sorella [?]

which can either be an assertion or a question according to the intonational contour. Illocutionary rules belong to the left side of the grammar and are input to the phonological component (see Gueron, 1981).

Thus, it may not be right to treat all wh- questions in the same way, as propositions in which there is a partition between focus and presupposition: in typical requests for information the whole question is new and thus focussed:

50) Quanto tempo ci vuole per andare a Lodi?

[51] Dove posso trovare una cartoleria?

[52] Che cosa è successo in fondo alla strada?

[53] A chi tocca fare il turno di guardia?

[54] A che ora arriveremo a Bangkok?

[55] Quando finirà il suo lavoro Anna?

[56] Quali persone hai invitato alla festa?

[57] Chi ha mangiato la torta in frigo?

For each question the underlying semantic content can be paraphrased

by indicating what is implicit from the context and the situation, implicated rather than presupposed (see Levinson, Chapt. 4), and as such can be inferred by the hearer:

50i. For SOME PLACE x, I'm going to x (by some means of transport Y)

51i. For SOME PLACE x (Place = Stationary Shop), I'm looking for x

52i. For SOME THING x, x happened down th road.

53i. For SOME PERSON x, x has to stand guard first

54i. For SOME TIME x, we shall arrive at Bangkok at x

55i. For SOME TIME x, Anna will finish her work at x

56i. For SOME PEOPLE x, you invited x to your party

57i. For SOME PERSON x, x has eaten the cake in the fridge

Focus structure

50ii. (I don't know) how **long** it takes to go to Lodi x (by some means of transport y)

51ii. (I don't know) **where** I can find some stationary shop x

52ii. (I don't know) **what** x happened

53ii. (I don't know) **who** x is the first

54ii. (I don't know) **what time** we shall arrive x

55ii. (I don't know) **what time** Anna will finish x

56ii. (I don't know) **what people** you invited x

57ii. (I don't know) **who** x has eaten the cake

In this case, then, the complete question constitutes something new and is focussed, apart perhaps from circumstantials which can be backgrounded if they are introduced as redundant information to situate the request in the appropriate context. Yes/no question, on the contrary, can be peraphrased by the following:

(58) Hai finito i compiti?

58 i. (I don't know) whether x : x a proposition (you have finished SOME
    THING x
    = your homework)

If we look at the syntactic constituency of wh- questions we are presented with the following basic possibilities:

a) the subject is questioned:

(59) Who did something?

b) the object is questioned:

(60) What did someone do?

c) an indirect or oblique object is questioned:

(61) Who did someone give something to?

(62) Where did someone go?

d) an optional argument (adjunct) of the predicate is questioned:

(63) What time will something happen?

(64) For what reason someone did something?

From an informational structure perspective, it is clearly the subject that will usually be regarded as responsible for the thematic part of the utterance, and as such will not be focussed. This is true provided contextual factors do not influence and modify the unmarked focus structure. We could treat subject questions as a special kind of request for knowledge or information which is informationally marked i.e., when talking about some action, fact, event, process the subject is always understood or introduced at the beginning, and then pronominalized or reintroduced only for contrastive and marked purposes.

The motivation I am adducing for treating wh- subject questions as a special kind of wh- questions do not belong then to sentence grammar. In LFG, the theoretical framework we previlege, subject arguments are part of the predicate-argument structure of each predicate directly in the lexicon, so that syntactic and semantic restrictions can be specified when required. My motivations belong then to discourse grammar and in particular to the partition focus-theme.

Subjects usually constitute the topic, the theme of a discourse or text once they have been introduced. Suppose then, we have a language in which constituent order and surface syntactic structure do not supply enough information to enable the hearer to decode the underlying grammatical relations as a function either of dominance or of linear sequence of elements. Because ambiguous structures could result (see Delmonte, 1985, 1986) when no semantic information is used, the speaker will have to adopt discourse strategies to help the hearer carry onward the conversational exchange smoothly. Italian is a language in which the surface order of constituents does not constitute a sufficient clue as to what grammatical relations will be instantiated by the NPs' arguments of the verb in c-structure - differently from what happens in English, though (see Delmonte, 1984c, 1986). In particular we are referring to subject/object functions, because indirect and oblique objects carry prepositional markers. No double object sequence is allowed in Italian as in English, even though circumstantials can sometimes appear without a preposition. For instance, if we take the verb "arrivare", it should trigger a presentation interpretation of the sentence, with inverted subject in focus and no theme. In our framework, "arrivare" can appear in presentational structures in which it is followed by an NP Object-Theme, and is encoded with a themeless Subject. A subsequent lexical redundancy rule equates the Object NP to the Subject for agreement (see Baker, 1983). The difference then between verbs like "arrivare" and other verbs relies on the semantic

rather than on the syntactic level: "arrivare" is not a predicative but a presentative verb which induces interpretational variations encoded in the lexicon. These facts can be further verified by the following examples:

(65) A. Chi arriva domani?

B. [Domani] *Gino*.

C. [Domani] arriva *Gino*.

D. (??) [Domani] *Gino* arriva.

E. (??) [Domani] *E' Gino* che arriva.

where we included in parentheses the adverbial which can be omitted because is "given", and we underlined the intonationally prominent constituents in focus; inappropriate answers to A are markey by a double question mark; D is. inappropriate because contrastive, whereas E is a cleft construction, also a contrastive kind of predication. What is relevant here is the fact that the inappropriateness of D.E. must be measured against the context provided by the subject question in A. If we use a yes/no question, things change dramatically:

(66) Arriva Franco domani?

(67) *Gino* arriva domani; Franco arriva *dopodomani.*

(68) *E' Gino* che arriva domani; Franco arriva *dopodomani.*

An adequate reply to a subject question is then a presentation sentence with inverted subject; whereas an adequate reply to a yes/no question, a total question or a tag question can be an affirmative statement, or "I don't know", or still again a contrastive sentence and a cleft construction. It is important to note that the formal semantic interpretation of these sentences remains unaffected: what changes is due to contextual restrictions on sentence use, which are independent from the determination of truth conditions on meaning. In normal statements, the subject NP can appear pre/postverbally without becoming inappropriate, as in,

(69) Finalmente domani arriva *Gianni.*

(70) Finalmente domani Gianni *arriva.*

(71) Gianni *finalmente arriva* domani.

These sentences don't differ in their semantic interpretation at LF level (they do differ in "complete" semantic interpretation) – they all assert the same thing – but their informational structure differs: (69) focuses on the subject, (70) focuses on the event, and (71) adds some modality to it. We can thus formulate the following:

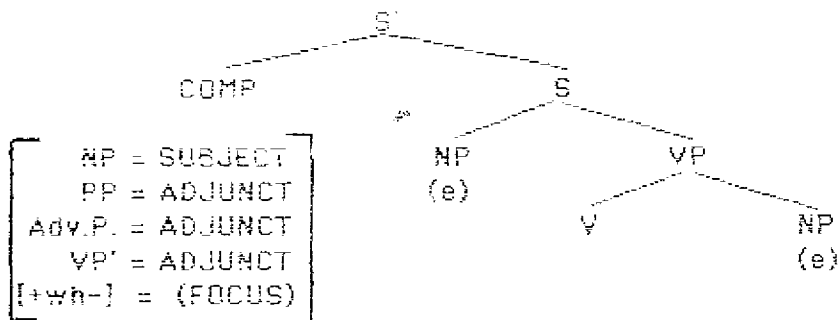(72) FOCUS STRUCTURE RULES FOR WH- QUESTIONS

i. Build focus structure with a narrow domain when subject or clausal adjuncts are questioned;

ii. Otherwise build focus structure with a broad domain, whenever verb
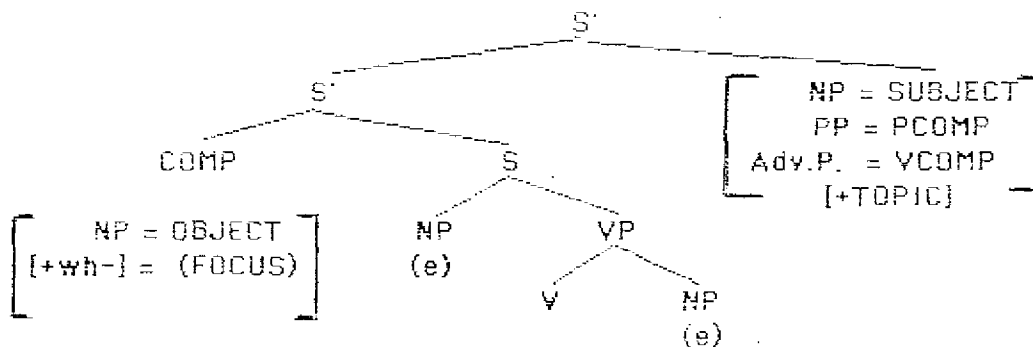
complements are questioned:

iii. Thematic material in ii. is given a separate intonation group and is right-adjoined to S'.

[72] postulates the existence of two different c-structure realizations for focus structure in Italian, as follows: [8]

(a)

```
                              S'
             _____
            COMP                                  S
   ┌─────────────────────┐        _____
   │   NP  = SUBJECT      │      NP                         VP
   │   PP  = ADJUNCT      │      (e)              _____
   │  Adv.P.  = ADJUNCT   │               V                          NP
   │   VP'  = ADJUNCT     │                                          (e)
   │ [+wh-]  = (FOCUS)    │
   └─────────────────────┘
```

(b)

```
                                       S'
                _____
               S'                                        ┌────────────────────┐
      _____                        │   NP  = SUBJECT     │
     COMP                        S                        │   PP  = PCOMP       │
  ┌─────────────────────┐    _____              │  Adv.P.  = VCOMP    │
  │   NP  = OBJECT       │   NP             VP             │      [+TOPIC]       │
  │ [+wh-]  = (FOCUS)    │   (e)      _____         └────────────────────┘
  └─────────────────────┘         V              NP
                                                 (e)
```

It is worthwhile remembering that in LFG theoretical framework, there is no need to specify an underlying structure from which different surface structures can be derived via movement (cyclic or postcyclic). All phrase structure rules serve to characterize surface structures only in that there is no constituent which physically moves from one place to another in a configuration, and interpretation of underlying grammatical relations proceeds smoothly on the basis of the information encoded in lexical forms which interact with annotated context-free rules.[9]

Thus, the two c-structures that we are postulating for wh- questions are important in so far as they can capture surface structure generalizations and meaning in a straightforward way.

In particular, in structure-1. the extracted constituents appear under S' in the COMP node, and receive clausal interpretation – i.e. there is no gap in the following c-structure to which they must essentially be referred to. Moreover, negation will either take scope over that single clause or will be outside of it, as in:

[73] *Per non aver investito quale persona* Gianni era triste?

[74] *Per aver investito quale persona* Gianni non era triste?

In 73 negation has scope on the clausally adjoined infinitive only, i.e. it has narrow scope reading as follows,

73i. Gianni era triste, perché non aveva investito x : x = persona

whereas in 74 negation has wide scope reading and does not include the questioned clause, as in,

74i. Gianni non era triste, perché aveva investito x : x = persona

Both readings will have to be allowed for the corresponding statements in which negation might or might not have one of the two readings above,

[75] Gianni non era triste perché aveva investito il direttore.

In this case, there is no structural indication that warrants a wide or narrow scope interpretation, as is the case with wh- questions: wh- questions, like other syntactic constructions, bind the focus of the sentence and determine the scope of negation, quantifiers, etc. The same result can be achieved if we use a cleft construction:

[76] *Era perché aveva investito il direttore* che Gianni non era triste.

[77] *Era perché non aveva investito il direttore* che Gianni non era triste.

In the following examples we do not act on negation to show that there must be two different structural representations, but on the principle that clausal adjuncts must be set off by an intonation boundary, whereas no such boundary must intervene when the PP or Adverbial Phrase is a verbal complement.

[78] Con quale donna non sarebbe felice Gianni?

which will receive the two following representations.

[78i]. con quale donna//non sarebbe felice Gianni?

[78ii]. [there is a woman x such that NOT [Gianni would be happy with x]][10]

or explicitly: there is a woman which whom Gianni is unhappy and I want to know who this woman is. And the following.

[78iii]. con quale donna non sarebbe felice//Gianni?

[78iv]. [NOT [there is a woman x such that [Gianni would be happy with x]]

which explicitely says that Gianni is happy with all women. In this case, we do not have a wh- question proper but a rhetorical question or an echo question. In fact the same problems of scope determination can be found in simple declaratives. as in,

[79] Gianni non sarebbe felice con nessun lavoro.

which can become,

79i. Gianni non sarebbe felice//con nessun lavoro.

in case the PP is an Adjunct clausally adjoined and not internal to the VP and subject to the scope of VP negation.

Three tests are particularly revealing for the validity of the two interpretative and structural hypotheses formulated under [72]1.2. We shall discuss them one at a time. Test 1. regards passive questions as listed below.

[80] Quale impiegato è stato licenziato dal direttore ieri?

[81] Da quale direttore è stato licenziato Gino ieri?

[82] Quale casa è stata venduta dalla zia dopo l'eredità?

[83] Quali difficoltà verranno superate dal tuo sistema?

[85] A quale materia era interessato tuo fratello?

In these examples ambiguity problems do not arise and only structure [72]2. will be realized. even though intonationally focus can be broadened to the verb or narrowed to the extracted and fronted constituent. Once verb morphology is accessed and processed, no difficulty exists as to which grammatical function is assigned to the questioned NP: so focus structure is only treated as a secondary clue to comprehension. This applies equally well to non-agentive and agentless passives. In this case discourse strategies are not needed and no strict correspondence between semantic focus structure and intonational structure must be enacted.

Test 2. regards complex sentences with extraposed subjects.

[86] *Chi era* la persona che Gino ha incontrato ieri?

[87] *Che cosa ha detto che avrebbe acquistato Gino* al mercato?

[88] *Chi ha detto* che Gianni sarebbe partito?

[89] *Chi ha detto* che voleva vendere la casa?

Wh- words are usually unstressed words and as such cannot receive themselves focus, when in isolation (apart from highly marked contrastive or emphatic contexts). We can posit the existence of a phonological rule that adjoins the wh- word to the first constituent to the right. This however applies only when subject function or adjunct function are assigned to the wh- words as represented by 72.1. We can verify it in the previous examples, and also in,

[90] *Perché* Gianni comprerà la tua casa?

[91] *Per quale motivo* venderà la sua casa Gianni?

[92] *Quale segretaria* ha ricevuto l'aumento?

[93] *Chi ha combinato* questo pasticcio?

[94] *Quale direttore* conosceva la pratica?

where the same phonological rule is applied in 93 but not in 90 91 which contain wh- words with word-stress. However, focus structure extends to include the lower embedded clause when the questioned element is assigned object function, as these examples show,

[95] *Che macchina ha comprato* Giorgio?

[96] *Di quale stipendio ha ricevuto il saldo* Gianni stamattina?

In Test 3 examples, we have ambiguous functionally reversible wh-questions in which subject and object functions are filled by NPs' carrying the feature [+animate, +human], and can thus be related to their matrix and embedded predicate under both possible functional alternatives. No structural clue is provided by Italian c-structure – differently from what happens in English, which makes "do" auxiliary available to set off subject from object questions: even Spanish, the other Null Subject Language with characteristics close to those of Italian, disambiguates the following examples by introducing "a". In Italian, two different semantic interpretations can be assigned, and both structural hypotheses are available, since the questioned NP can take either Subject or Object function:

[97] *Chi intendeva mettere in imbarazzo* Mario?

[98] *Chi era la persona che ha incontrato* Gino al bar?

[99] *Quale segretaria conosceva* il direttore?[11]

[100] *Chi ha detto che avrebbe assunto* Gino?

Since structural ordering does not constitute a disambiguating clue, sentence grammar must output both structural representations given under 72.1.2. Two interpretations will be produced in LF and will be disambiguated at the level of pragmatic representation by means of focus structure, symmetrically correspondent – in this case at least – to intonational grouping and syntactic costituency. In other words, it is only by means of pragmatic information coming from contextual

and world knowledge that the adequate interpretation will be assigned. What is important, though, is the relevance of discourse strategies as embodied by focus structure rules, in case sentence grammar fails to work out viable structural hypotheses for semantic interpretation. This is not so strange if we regard sentence grammar as a lagoon and not as a lake. As a further test, we can introduce negation in in the following examples,

[101] *Chi non intendeva mettere in imbarazzo* Mario?
[102] *Quale segretaria non conosceva* il direttore?
[103] *Chi ha detto che non avrebbe assunto* Gino?
[104] *Chi ha detto che non ha baciato* Maria?

where different constituents are within the scope of negation according to two structures instantiated for focus interpretation. Negation can have VP scope, both when subject is questioned with structure 1., and when object is questioned with structure 2. in 72. What changes though is focus structure: in the former case, it is the subject NP to be included under COMP within focus structure with a narrow domain, but without the scope of negation as the above examples show. In the latter, it is the object NP to appear under COMP within the scope of negation under broad focus structure, and the subject is extraposed at the end of the question and is without the scope of negation. Coming now to focus structure determination, its rules should belong to discourse grammar rather than sentence grammar as Chomsky has purported in various publications [1976, 1977, 1981]; since focus structure depends crucially on the partition focus-theme and given-new information, and affects dramatically the phonological structure of a sentence as to its intonational grouping, the discourse level is more appropriate to define it. Generally speaking, we take an Intonational Group Boundary to coincide with a root sentence in terms of Emonds [1976]: i.e. the highest S in a tree, an S immediately dominated by the highest S, or the reported S in direct discourse, or else it coincides with the VP. At the sentential level a set of structural configurations could be sorted out as picking out automatically focussed constituents and setting the theme apart, and viceversa. Difficulties arise whenever either focus or theme are absent in the current sentence and must be recovered in the previous discourse.

Moreover, since there is a straightforward relation between intonational structure and meaning, in the sense that what is focussed must be intonationally prominent, operations such as backgrounding or marking certain constituents as afterthought, seem to depend on a set of stylistic rules which do not contribute to modifying the meaning of the utterance but vary its informational structure. These rules

background information and usually coincide with the rule of parenthetical and appositive formation [see Emonds, 1976], and constituent scrambling [see Delmonte, 1985]. In general, since focus structure depends on semantic factors which have been the topic of this paper, the final intonational contour of an utterance is only determined after the level of LF, and we can establish focus structure discourse level dependancies as follows:

> utterances are assigned broad focus to the VP, thus including its complements, when modality and logical operators have broad scope; they are assigned narrow focus to the fronted constituents, to the verb and to sentential adjuncts when modality and logical operators have narrow scope.

4. Conclusions

We have provided, I believe, enough evidence to show that the two realms of sentence and discourse grammar are not separate and distinct realms, but must allow interactions to take place in case all syntactic structures have to receive their interpretation. We have also seen that LF, or the first level of semantic interpretation is a borderline realm in which principles of discourse grammar cannot be dispensed with: in particular, the problem of ambiguity will not receive an adequate characterization if it is limited to account for clause-bound phenomena and is not allowed to interact with discourse grammar principles. The final framework that results from this paper can be summarized in the following schema:[12]

I. LEXICON – Lexical Forms
Lexical Redundancy Rules
CONTEXT-FREE GRAMMAR

II. C-STRUCTURE ——> F-STRUCTURE
Functional Equations – Metavariables Binding

III. STYLISTIC CONSTRUCTIONS
Phonological Component focus structure

IV. SEMANTIC COMPONENT
Intensional Logic Model-Theoretic Component

V. COMPLETE SEMANTIC STRUCTURE
Pragmatic Component [Other Cognitive Processes]

NOTES

1. Williams [1977] deals with Discourse Grammar as a component with its rules, which "specify the relationship of a sentence to its linguistic context - that is its relationship to other sentences in a discourse. They are rules whose relevant terms, such as deletion site and antecedent, are not in general contained within a single sentence ... One may loosely describe passive as 'discourse conditioned' ... other such conditioned rules of sentence grammar are wh- movement in questions, topicalization, clefting and pseudo- clefting [102-103]" And further on, "... all rules of discourse grammar apply after all rules of sentence grammar. I wish to propose that discourse rules apply exclusively to the logical forms provided by sentence grammar. That is, Logical Form [LF] is the only level of representation provided by sentence grammar that is relevant to the rules of discourse grammar [106]". But as will be discussed in the paper, more interaction between sentence level grammatical components and discourse level rules should be provided in order to generate the right outputs.

2. S-structure differs from LF-representation by the rules of the LF-component. There are three such rules that enter into our discussion, namely:
[33] i. the rule of quantifier-movement
    ii. the LF-rule of wh- movement
    iii. the rule of focus
Rule [33i] maps S-structure [34i] to [34ii]; rule [33ii], in conjunction with the rule interpreting *who*, maps the S-structure [34iii] to [34iv]; rule [33iii] maps the S-structure [34v] to [34vi]:
[34] i. his mother loves everyone
    ii. for every person x, his mother loves x
    iii. I don't remember [wh [t expected [his mother to love whom]]]
    iv. I don't remember [for which person x, y [y expected [his mother to love x]]]
    v. his mother loves JOHN [JOHN with focal stress]
    vi. for x=John, his mother loves x.
In each case we have the clause 'his mother INFL love x' at LF re-presentation. In this structure, *his* may of course refer to someone understood from the discourse. But it cannot be interpreted as a variable

identical to x, as it can, say, in 'everyone loves his mother' ['for every person x, x loves x's mother', under one interpretation]' Chomsky, 1981: 196-7].

3. In Chomsky [1971: 90] we read: "... focus is the predicate of the dominant proposition of the deep structure" and [91] "... presupposition is determined by replacement of the focus by a variable". Further on we have a longer definition: "To summarize these remarks, we seem to have the following situation. Rules of phonological interpretation assign an intonational contour to surface structures. Certain phrases of the surface structure may be marked, by grammatical processes of a poorly understood sort, as receiving expressive or contrastive stress, and these markings also affect the operation of the rules of phonological interpretation. If no such processes have applied, the rules assign the normal intonation. In any event, phrases that contain the intonation center may be interpreted as focus of utterance, the condition being somewhat different and more restrictive when the intonation center involves expressive or contrastive stress, as noted. Choice of focus determines the relation of the utterance to responses, to utterances to which it is a possible response, and to other sentences in the discourse. The notion "focus", "presupposition" and "shared presupposition" ... must be determinable from the semantic interpretation of sentences if we are to be able to explain how discourse is constructed and, in general how language is used ... The focus is a phrase containing the intonation center; the presupposition, an expression derived by replacing the focus by a variable". [100]

4. These examples are usually quoted in the literature and are taken from the following sources: Ladd [1978], Bolinger [1973], Berman & Szamosi [1972], Stockwell [1972], Bresnan [1971], Schmerling [1974].

5. The conversational maxims of the cooperative principle serve only as a basis for a pragmatic theory: they are too vague and general to be used as a basis for a semantic theory. Nonetheless, they help understand the conventions which participants in conversation usually obey. They are the following:
A. *Quantity*: 1. Make your contribution as informative as is required [for the current purposes of the exchange]; 2. Do not make your

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contribution more informative than is required.

B. *Quality:* 1. Do not say what you believe to be false; 2. Do not say that for which you lack adequate evidence.

C. *Relation:* Be relevant.

D. *Manner:* Be perspicuous: i. avoid obscurity; ii. avoid ambiguity; iii. be brief; iv. orderly (from Grice, 1975).

6. As to the relation of WA and GA in Japanese and the partition focus-theme in Italian see T. Takeshita (1984-1985).

7. As Kempson (ibid. 165) notes, in the case of wh- questions and imperatives, the speaker must give information which will enable the hearer to carry out the command precisely, in the one case, and to provide information solely on the variable in question, in the other case. In wh- questions, as they are requests for information with respect to a particular variable, they are inadequate if they do not imply the truth of propositions which must be believed (because implied and inferrable from the context) in order to give a value to the variable in question. We shall use Kempson's example.

i. How long does it take to get to London?

where the question itself gives no implication of the manner of travel. Yet the semantics of duration is such that the hearer must know the manner of travel if he is to provide a specification of duration. Hence the implicature that the speaker is travelling to London by car and a possible answer.

ii. It will take you ages, by that old and slow car, sir!

or in case the hearer assumes the speaker's car to be a fast one.

iii. No more than three hours, sir!

In the case of imperatives, since propositions can only be true relative to a specific state of affairs at a specific point in time, it is arguable that a command to make some proposition true is pragmatically inadequate unless a specification of the time at which it should be made is included.

8. These are only rough LFG representations, much has been omitted because irrelevant to our present argument.

9. In the Lexical-Functional Grammar (LFG) delineated in Bresnan

[1982], the lexical component instantiates the grammatical functions entertained by the arguments of the verb in functional structures [f-structure] directly in constituent structure [c-structure]. Thus, grammatical relations are directly derived from surface structure by means of:

i. lexical redundancy rules like Passivization, Intransitivization, Impersonalization, Inchoativization and so on [see also Baker, 1983];

ii. lexical forms in which lexical equations are included for control verbs [Equi, Raising in GB terms], for unaccusative verbs, unergative verbs: the number and type of arguments governed by the verb or its predicate-argument structure is also indicated;

iii. the context-free grammar with functional annotations which are grammatical functions annotated under each major syntactic constituent;
iv. the mechanisms of f- and c-control for functionally and syntactically bound phenomena [see Mohanan, 1983; Zaenen, 1983]. These mechanisms also account for long-distance dependancies like tough-predicates, wh-questions, indirect questions, topicalizations, restrictive relatives, exclamatives, and other such constructions;

v. Focus and Theme annotations, accomplished directly under functional annotations for constructions in which the partition constitutes a sentence grammar phenomenon, such as cleft costructions, left-right dislocations, tough-predicates, topicalizations, exclamatives, wh-questions, subject inversion [see Delmonte 1983a, d; 1984b, c; 1985; 1986].

10. We did not extract the logical operator for POSSIBILITY in order to facilitate the reading of the semantic representation.

11. Canepari [p.c.] remarks that if we change the structural order of the constituents, the ambiguity disappears, as in:
i. Quale segretaria il direttore conosceva?

12. In what follows, I shall revise Chomsky's argument presented extensively in G&B [1981] and partially discussed previously, where we dealt with principles related to the behaviour of variables and quantifiers/quasi-quantifiers, as well as binding principles for pronominals.
Chomsky supports his theory of binding by showing that quantifiers and

quasi-quantifiers behave in the same way: the following crossover facts are smoothly accounted for in GB framework, as shown by these examples [ibid., 193-4]:

1. who did he say Mary had kissed.
2. who did he say had kissed Mary.
3. who said Mary had kissed him.
4. who said he had kissed Mary.

According to G&B, the pronoun "he" must be given an external referent in 1./2., whereas it may or may not be computed, by coindexing, as coreferent to the quasi-quantifier in 3.4. The same behaviour is predicted by G&B in case quasi-quantifiers are substituted by quantifiers in their extraction sites, as in,

5. he said Mary had kissed everyone.
6. he said everyone had kissed Mary.
7. everyone said Mary had kissed him.
8. everyone said he had kissed Mary.

where again we have that in 5.6. "he" must be given external reference, whereas in 7.8. it may or may not. That these principles can be computed in English by means of simple syntactic explanations in terms of precedence/dominance relations in a configurations is something that, in our opinion, cannot be ascribed to the nature and status of sentence grammar. Sentence grammar alone guarantees the functioning of competence mechanisms: discourse grammar, in GB perspective would play no role whatsoever in the definition of principles governing language acquisition.

On the contrary, on the basis of facts of Italian, we can say that the idiosyncratic lack of morphological information in English is adequately compensated by its strictly configurational nature: this fact causes the pronominal system to function at times -as far as the syntactic subject is concerned - as a supplier of syntactic markers for syntactically definable positions at a configurational level.

Explanations applying to English do not apply to non configurational languages, as Chomsky himself has to admit, and a different grammar and set of grammatical principles may have to be postulated [see GB: 127-135], in so far as the relevant domain becomes lexical structure rather than constituent structure.

Italian, due to the direct inheritance derived from Latin free word order structure, has also no strict configurational structure, but a rich enough

morphology and agreement mechanisms to allow it do dispense with subject pronouns. Another very important property of Italian is the fact that complementizers can never be omitted, unless when a very limited class of "believe" verbs are used in conjunctive mode with tensed complements, we shall discuss hereafter.

These are the Italian counterparts to the first couple of examples:

1i. *chi ha lui detto che Maria ha baciato

2i. *chi ha lui detto che ha baciato Maria

which constitute structurally literal translations, and are ungrammatical because the Auxiliary cannot be treated as a separate constituent from VP. They improve if we move subject pronoun in postverbal position, as in,

1ii. [??] chi ha detto lui che Maria ha baciato

2ii. [?] chi ha detto lui che ha baciato Maria

where 2ii. can still be improved if we substitute a Name for the pronoun, thus becoming "chi ha detto Giorgio che"; otherwise, it is appropriate only for marked contexts. 1ii. on the contrary, is still bad since "baciare" is non-intransitivizable and must have an NP-object postverbally. With intransitivizable verbs like "finire", or simply with intransitive verbs, also iii. becomes grammatical and acceptable,

1iii. Chi ha detto che Maria ha finito?

1iv. Chi ha detto che Maria sarebbe partita?

In this case, however, "chi" is not extracted from the lower embedded clause but from the adjacent matrix subject position. This would be allowed only with 2ii. and broad focus structure, as in,

2iii. *Chi ha detto (lui) che ha baciato* Maria?

On the contrary, narrow focus would duplicate example 1 only. It is important to note at this point that the "che" complementizer cannot be deleted, essentially owing to the different set of principles which the grammar of Italian obeys, and to perceptual reasons, as far as performance is concerned. Since Italian has a rule of free subject inversion, the postverbal NP could be computed both as Object and as Subject in surface structure. If in addition we allow complementizer deletion - as in English - the postverbal NP could also have to be optionally computed as Subject of a lower clause. On the contrary, in English, Subject Inversion is limited to a few stylistic contexts [see Rochemont, 1978], and so such further computation would be allowed at performance level.

Finally, Italian has two sets of pronouns which are sensitive to discourse grammar notions such as the focus-theme partition. Stressed pronouns can appear postverbally with object function and cannot be destressed. When sentence final, they receive default phonological focus by NSR and behave like names. At sentence level, they have disjoint reference, unless when highly contrastive, as the phenomenon of subject doubling treated by Burzio [1981] clearly has shown. When sentence final, they receive default phonological focus by NSR and behave like names. Thus they usually have disjoint reference at clause level, unless when highly contrastive contexts are present as in,

3i. Chi ha detto che Maria ha baciato lui e non Giovanni

which replicates in part [3] above and allows coreference between the wh- word and "lui", at least in one interpretation.

As far as 1. and 2. are concerned, we get the following set of possibilities: 1. structure is not possible in Italian, or only possible in part as shown in 1iii./iv. or when we let the "che"complementizer assume the role of relative pronoun as in,

iv. Chi era la persona che Maria ha baciato

where the intervening NP subject in the lower clause is also allowed, or the more complicated (but absolutely corresponding in meaning to the English counterpart) following example,

1vi. Chi ha detto (lui) che era la persona che Maria ha baciato

As to 2., Italian inverted subject in the higher clause cannot be coindexed with null subjects in the lower clause, nor with "chi" for that matter. This is explained independently of its displaced position, as the following example of reported speech shows.

2iv. Ha detto Giorgio$_i$/lui$_i$ che [$_{NP}$e$_i$] ha baciato Maria

where coreference is allowed. It would seem then, that subject wh- word "chi" binds a lower empty subject position, as in the corresponding English example, where the complementizer can be freely omitted. The two examples would receive the two following interpretations in LF,

1a. [for which x, he said Mary had kissed x]

2a. [for which x, he said x had kissed Mary]

where we have that in Italian, interpretation 1a. would only be allowed by the rephrasing computed at syntactic level in 1vi., or by the introduction of discourse notions such as narrow focus structure as shown in 2iii.

Chomsky's argument continues by showing that quasi-quantifiers behave

as quantifiers: in Italian if we introduce quantifiers we get a completely different behaviour, similar to English, but opposite to Italian examples with quasi-quantifiers or wh- words, as shown in 1.2. above. The examples corresponding to 5.6 are as follows:

5i. [lui] ha detto che Maria ha baciato ognuno/tutti.

6i. [lui] ha detto che ognuno/tutti ha/nno baciato Maria

structured exactly as their English counterparts. It is clear that different principles govern coreference of variables like quantifiers en English and Italian, as far as their correspondance with syntactic structures and interpretive principles is concerned. It is worthwhile reminding the reader that the principles to be invoked are essentially founded on precedence and dominance relations, and they are basically c-command and the Leftness Condition. The interpretation of 5.6 is as follows,

5a [for every x, he said Mary had kissed w]

6a. [for every x, he said x had kissed Mary]

If we come now to 3.4. and 7.8., we see that these examples can receive two interpretations, as follows,

3a. [for which x, x said Mary had kissed him]

7a. [for every x, x said Mary had kissed him]

3b. [for which x, x said Mary had kissed x]

7b. [for every x, x said Mary had kissed x]

These sentences can be structurally replicated in Italian, in

3i. Chi ha detto che Maria ha baciato lui

3ii. Chi ha detto che Maria lo ha baciato

where we introduced both stressed and unstressed pronouns which alone will guarantee interpretations 3a/b. Coreference between the wh- word and the postverbal stressed pronoun would be allowed in Italian only in highly marked contrastive contexts. The same applies to the quantifier examples,

7i. Ognuno/tutti ha/nno detto che Maria ha baciato lui/loro

7ii. Ognuno/tutti ha/nno detto che lui/loro ha/nno baciato Maria

corresponding more closely to 7a/b. interpretations.

Finally, interpretations for 4.8. are as follows,

4a. [for which x, x said he had kissed Mary]

8a. [for every x, x said he had kissed Mary]

4b. [for which x, x said x had kissed Mary]

8b. [for every x, x said x had kissed Mary]

where 4 can be structurally replicated in Italian as follows,

4i. Chi ha detto che lui ha baciato Maria?

4ii. *Chi ha detto* che ha baciato Maria

with the usual proviso that to get 4b. interpretation, there must be an unexpressed pronoun in the lower clause to induce binding; also focus structure must be narrow and cannot possibly extend to include the lower clause becaus· in that case it would generate an interpretation different from all previous ones.

[9] *Chi ha detto che ha baciato* Maria?

9a. [for which x, Mary said Mary had kissed x].

This would only be allowed provided focus structure is broad and no pronoun is expressed in the lower clause. On the contrary, example 4 does not engender such a situation.

4i. Ognuno/tutti ha/nno detto che lui/loro ha/nno baciato Maria

4ii. Ognuno/tutti ha/nno detto che ha/nno baciato Maria

where the missing subject pronoun does not alter meaning relations and binding principles.

It seems then that Chomsky's binding principles only apply with quantifiers in Italian. Quasi-quantifiers require a more general framework for the interpretation of wh- questions: in this case, in addition to principles of sentence grammar, also principles of discourse grammar must be assumed. In particular we have seen that unexpressed grammatical functions [null subject pronouns] and unstressed pronouns vs stressed pronouns constitute categories that introduce discourse principles at sentence level and must be computed by referring to the FOCUS-THEME partition. Contrastively, then, we have seen that the presence of an overt pronoun in subject position can generate ambiguity of reference in English, whereas this does not happen in Italian. Two sets of pronouns are available in Italian and only unstressed ones are used for coreference to a higher controller. At sentence level, this corresponds to saying that overt pronouns can be used for coreference to any clause bound antecedent, only when they are not in focus and except when contrastively stressed in Italian. English allows a pronoun to be bound by a lexical NP as in,

10. John$_i$ said that he$_i$ would be late.

or,

11. His$_i$ mother said that John$_i$ would be late.

where weak crossover may result – i.e. the NP may fail to bind the element which it c-commands. In Italian also strong crossover facts may

result, as shown by 4i. with interpretation 4b. and also by the following example of Stranded Subject,

12. e_i Ha detto che lui$_i$ ha baciato Maria, Giorgio$_i$

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