

The representation of negative "quantifiers"

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This paper aims to support the view that the distribution of negative phrases can be traced back in the part to the same principles which account for the distribution of other operator constructions like *Wh*-interrogatives. In trying to unify as far as possible the requirements for negatives and interrogatives, however, we are led to argue that, contrary to the common assumption, negative phrases are not quantifiers in themselves, but are interpreted in place by a unique clausal negative operator, which gives them scope over the whole sentence. We will see that this hypothesis follows naturally from the parallels between negatives and other indefinite expressions.

Sections 1 and 2 review some aspects of the recent proposals which connect the distribution of negative phrases with that of *Wh*-phrases. We will discuss the *Wh* Criterion and the Negative Criterion of Rizzi (1991a), arriving at the conclusion that a full application of the two principles in conjunction with the NegP hypothesis has serious theoretical shortcomings.

In the third section we will introduce some semantic evidence which suggests that not every negative phrase should be given the status of quantifier in the syntax. In section 4 an alternative interpretation will be proposed, according to which there is only one negative operator in the sentence, which must govern a negative phrase at LF in order to assign sentential scope to it. Giving up the assumption that negatives take sentential scope by undergoing Quantifier Raising, we claim, is the only essential readjustment needed to overcome the problems raised by adopting the Negative Criterion and the NegP hypothesis.

Sections 5 is devoted to supporting this claim by examining the behavior of negative reason adverbials. In this domain alternative analyses, which hold that negatives are always subject to LF-raising, fail to make the correct predictions for Italian. Our approach, on the other hand, can derive the right results with the addition of some qualification. In section 6 we will make explicit the conditions holding of operator-negative structures, arguing that the morphological characterization of Neg⁰ plays a major role in discriminating between languages with and without Negative Concord.*

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1. *Negation and the Wh Criterion.*

This section will introduce the three general hypotheses on which our analysis hinges: the Wh Criterion, the Negative Criterion, and the existence of an autonomous projection NegP. Their illustration will have as its leading thread the discussion of an important problem faced by the system developed in Rizzi (1990).

1.1. *The problem.*

Rizzi (1990) notes the following contrast:

- (1) *what did who say?
- (2) why did no one come?

(1) Shows a "superiority" violation (cf. Chomsky 1976, May 1985), which can be traced back to the ECP: the Wh-phrase in subject position rises at LF, leaving a trace which fails to be properly governed. Whatever formulation of the ECP is adopted, therefore, must be able to rule out such cases. The two assumptions crucially required are 1) that *wh*o moves at LF leaving a trace and 2) that the ECP holds at LF. For our purposes, we will refer here to the version of the ECP put forth by Rizzi (1990):

(3) *The Empty Category Principle:*

a non-pronominal empty category must be governed by a head within the immediate projection of the head itself

Sentence (2) is problematic in that the quantifier *no one* is an "affective" operator, in the sense of Klima (1964). Unlike quantifiers such as *every* or *some*, it licenses polarity items, can trigger verb-subject inversion and is presumably raised to Spec CP by LF. Rizzi refers to this latter characteristic in order to account for the opacity displayed by such elements with respect to adjunct extractions. The problem is what, while the sentences differ sharply in grammaticality, their derivation appears to be identical, according to Rizzi's analysis: in both cases a quantifier in subject position rises at LF, even though Spec CP is occupied by a Wh-phrase. More generally, this asymmetry runs counter to the proposals (e.g., Hornstein 1984 or Longobardi 1991) that group Wh-phrases *in situ* together with operators which rise at LF, like *personne* in French:

- (4) pourquoi personne n'est venu?
'why did no one come?'

After considering (and rejecting) the possibility of a doubly filled Spec CP at LF, Rizzi solves the problem simply by stipulating that Spec IP might optionally count as an A-bar position, just in case it should be filled by a quantifier and the usual Spec CP position should not be available for

movement. This move is made possible by the influential proposal put forth by several authors (Kitagawa 1986, Koopman and Sportiche 1988, Speas 1986), according to which clausal subjects are base-generated within VP. If this hypothesis is accepted, the positive reasons to consider Spec IP as an A-position disappear.

The assumption that Spec IP is an "open" position with respect to argumenthood, however, appears to be *ad hoc*. Moreover, it is empirically inadequate as it stands, because the reasons why a Wh-phrase does not have access to such a strategy are not clear. A recent inquiry into the constraints on Wh-phrases, however, seems to allow a more principled explanation of the asymmetry.

1.2. *The Wh Criterion and multiple questions.*

Rizzi (1991a), modifying and updating earlier proposals by May (1985), proposes the following principle governing the distribution of Wh-phrases:

(5) *The Wh Criterion:*

- i. a Wh-operator must be in a Spec-head configuration with X⁰[+ WH]
- ii. a X⁰[+ WH] must be in a Spec-head configuration with a Wh-operator

With the assumption that interrogative features are carried by the verbal inflection or are licensed through selection by a head, this principle explains why an interrogative Wh-phrase in Spec CP triggers verb raising in matrix clauses. Since Spec CP and C⁰ must match in the [+ WH] feature, an interrogative Wh-phrase must be licensed by [+ WH] features on C⁰. In root contexts, these are carried by the verbal inflection, so that the inflected verb must incorporate to C⁰. If the clause is dependent, on the other hand, the relevant feature on C⁰ is provided by lexical selection by another head, so that verb raising is not necessary.

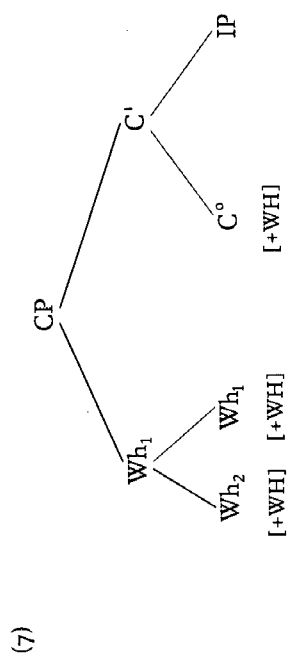
As Rizzi notes, there are two classes of Wh-phrases that at face value do not appear to be subject to the principle: relative Wh-phrases and Wh *in situ*. We are not concerned with the former here; but the latter include elements like *who* in (1). Rizzi's explanation for their exceptional behavior is that they are not *operators* at S-structure, given the following definition of Wh-operator:

- (6) a Wh-operator is a Wh-phrase in a scope position¹

Who, like all the Wh-phrases *in situ*, is still in its base-generated A-position, hence it does not fall under the Wh Criterion. However, as a Wh-phrase, it has intrinsic quantificational properties, and must end up in a scope position at LF. Multiple interrogation of course is a problem for this view, since there is apparently no scope position available for the Wh-phrases

¹ All scope positions are A-bar positions, but the converse does not hold. See Rizzi (1991a) for details.

left *in situ* at S-structure. On the other hand, multiple interrogation must be susceptible of having an adequate representation with all the questioned phrases in left-peripheral scope position; this is made plausible by the observation that, in some languages, multiple interrogation does actually involve multiple overt movement to the left (cf. Toman 1981, Rudin 1988). The solution envisaged by Chomsky (1976), then adopted and variously developed in subsequent work, is that all Wh-phrases end up adjoined to Comp at LF; in an updated framework, this can be stated as adjunction to Spec CP. This movement may take place at LF, in which case the Wh-phrases appear *in situ*, or directly at S-structure, in which case they are all realized in the left-peripheral position of the clause (see Pesetsky 1987 for an overview and a critical discussion of such proposals). In any case, the adjunction structure makes it possible that all phrases within the specifier of CP are in the required agreement configuration with C°:



It must be pointed out that there is a sharp difference between the kind of agreement discussed here, on the one hand, which entails sharing of the feature [+WH] (and negation for other operators), and, on the other, the morphological agreement of phi-features which can turn C° into a governor for ECP.² The anaphoric agreement that acts as a morpheme must be licensed by phi-features at S-structure, while [\pm WH] (whatever its exact nature turns out to be) and [\pm negation] are more abstract features, in that their distribution is checked at LF, without necessarily feeding the phonological component. Therefore, the feature-sharing involved in the matching of [+WH] has nothing to do with the licensing of anaphoric agreement at S-structure. In particular, it never involves index-sharing.

In (7), each Wh-phrase c-commands its antecedent in IP in multiple questions, thus satisfying Binding requirements. The only disallowed movement is that which involves a Wh-phrase originating in subject position. In this case, the subject trace will not be head-governed by the only possible governor, C°, since the sharing of phi-features which turns it into an appropriate governor must take place at S-structure. But at S-structure, Spec CP is occupied uniquely by a different constituent (wh₁ in (7)), not

² We follow here the analysis of subject extraction proposed by Rizzi (1990).

coindexed with the subject. Superiority effects can thus be accounted for. In the contrast between (1) and (2), therefore, the problem is posed by the behavior of the negative quantifier.

1.3. The Negative Criterion.

Rizzi (1991a), capitalizing on recent work by Haegeman and Zanuttini (1991), notices that negatives and other affective operators trigger residual verb-second:

- (8) *under no circumstances I would do that
- (9) under no circumstances would I do that

He then extends the Wh Criterion so as to cover all cases in which the presence of an element in Spec CP is linked to an interrogative or negative characterization of C°. This extension to negative expressions is made explicit by adopting the negative Criterion developed by Haegeman and Zanuttini (1991):

(10) The Negative Criterion:

- i. a negative operator must be in a Spec-head agreement configuration with a [+Neg] head
- ii. a [+Neg] head must be in a Spec-head agreement configuration with a negative operator

Exactly as for Wh-phrases, obligatory raising of the inflected verb as in (9) is explained assuming that the raised inflectional head is endowed with negative features, which in English and in similar languages are not phonetically realized. (8) Is then ruled out as a violation of the Negative Criterion, because the [+negative] adverbial is not in the required configuration with the inflectional head.

This approach would imply that in yes-no questions (including negative questions), which involve no Wh-phrase, Spec CP is occupied by an empty operator. This abstract operator bears the relevant feature licensing interrogative verbal inflection:

- (11) a. did John speak?
- b. [CP OP_i did_i [IP John t_i [VP speak]

The null operator is probably responsible for the opacity triggered by interrogative *if*, which is presumably a C°:

- (12) *how do you wonder if John behaved?

The parallel effects induced by negatives and interrogative Wh-phrases are thus traced back to a common distributional constraint, formalized for the two classes by the two criteria. Since the two kinds of expressions are both semantically quantificational and obey the same syntactic constraint,

it is natural to think that they should behave alike in the mapping of S-Structure to LF, where both should reach A-bar scope positions. However, if quantifiers like *no one* underwent the same kind of LF movement as Wh-phrases, the lack of superiority effects with negative quantifiers would be unexplained:

- (2) why did no one come?

It is tempting to conflate the Wh Criterion and its negative counterpart into a unique principle stated in terms of semantic primitives such as interrogation and negation, given that neither Wh-phrases in relative clauses nor in exclamations are covered.³ But, if the grammaticality of (2) is really due to any difference between the Negative Criterion and the Wh Criterion, such a restatement would be too crude: the two sub-principles should at least be allowed to apply at different levels of representation. Moreover, interrogative and negative phrases are included in the class of affective operators, characterized by a well-defined cluster of syntactic properties. However, affective operators also include elements such as *few*, *seldom* and *only*, which can only be regarded as negatives in a loose semantic sense.⁴

- (13) a. few people did anything
 b. in few cases would I agree with John
- (14) seldom did I forget anything
- (15) a. only Mary retains any ambition
 b. only with great effort could I read your handwriting

Even though the semantics of such elements is close, in certain respects, to that of negatives proper, there are clear interpretive (and morphological) differences between the two classes. If the Negative Criterion were simply assumed to apply in a general fashion to all expressions semantically characterized as negatives, it would be unclear how to deal with elements like those illustrated in (13)-(15), which behave syntactically like negatives, without postulating ad-hoc negative formatives with no morphological basis. For the time being, we would like to defer a discussion of other affective operators to another occasion (cf. Acquaviva (1993)), focusing here on negatives proper.

³ Relative and exclamative Wh-phrases are probably subject to a principle closely similar to but distinct from the Wh Criterion.

⁴ This "loose semantic sense" is syntactically precise enough to trigger opacity with respect to government:

- (i) how did you persuade Bill to behave?
 (ii) *how did you persuade few people to behave?

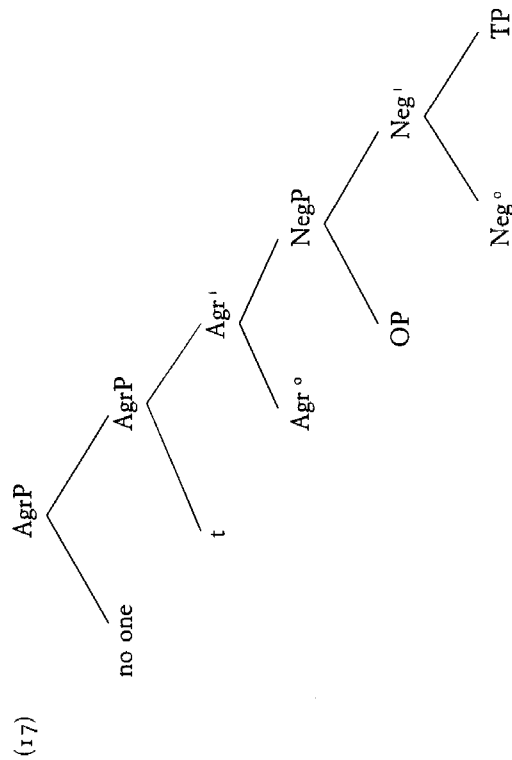
It is clear that all affective operators (and perhaps all monotone decreasing quantifiers) share many syntactic characteristics; however, discussion of such a broad issue is beyond the scope of this paper. But see Longobardi (1991) for a full-fledged analysis of the scope properties of phrases modified by *only* (or semantically equivalent modifiers in other languages).

1.4. Negation Phrase as an autonomous projection.

In the preceding section, we have seen that the Negative Criterion, though effectively constraining the distribution of negatives, does not suffice on its own to explain the surprising asymmetry between negatives and Wh-phrases displayed by contrasts like (1)-(2). If we accept the recent proposals which posit a NegP between AgrP and TenseP (Moritz 1989, Chomsky 1989, Belletti 1990, Ouhalla 1990), the problem seems to be solved.⁵ In fact, Rizzi (1991a) explicitly states that the Wh Criterion (and its negative counterpart) applies to *chains*, and not to positions. A separate projection NegP would then allow the Negative Criterion to be trivially satisfied in most cases: irrespective of S-structure or LF movement, in fact, at least the traces of Neg° and of the operator in Spec NegP will be in the desired agreement configuration. As was pointed out in the preceding section, it is independently necessary to posit the presence of an abstract negative/interrogative OP, in order for the Negative Criterion to account for the grammaticality of negative questions:

- (16) didn't John speak?

In this case, the negative OP licenses *didn't* (which spells out Agr° endowed with negative features) either staying in its D-structure position or by moving to Spec CP. In sentences like (2), the Negative Criterion is trivially satisfied: the negative operator in Spec NegP (an A-bar position) agrees with Neg° at D-structure, and this agreement suffices to ensure that the Negative Criterion is not violated:



⁵ In our frame of assumptions, the NegP hypothesis presupposes the validity of two other proposals: the "VP-internal hypothesis", according to which the clausal subject is generated in

The quantifier *no one* can rise to the scope position adjoined to AgrP, and its chain satisfies the Negative Criterion being marked at S-structure by Neg° incorporated onto Agr°. Notice that *no one* is not yet an operator at S-structure, according to a definition of negative operator that should complement that given in (6) for Wh-phrases, for it is not yet in an A-bar scope position.⁶

Such an approach entails positing that, in certain circumstances, Spec NegP may be occupied by a null operator, so that *both* elements of NegP are abstract; in this case, the negative morphological characterization should be supplied to NegP by a local negative quantifier. The reader is referred to some of the cited papers (Zanutini; 1991, Haegeman 1992) for discussion and the possible motivations underlying this move; it may be useful here, however, to show how the assumption that Spec NegP is filled by an abstract operator allows one to explain why sentential negation causes opacity with respect to government even when the negative morpheme is expressed on a quantifier like *no one*, instead of being spelled out as *not* in NegP:

(18) *how do you think that no one behaved?

Spec NegP is an A-bar specifier filled by a potential antecedent governor for the trace:

(19) how_i ... OP ... t_i

As a (filled) A-bar specifier intervening between the A-bar antecedent *how* and its trace, Spec NegP qualifies as typical potential antecedent-governor for the trace; according to Relativized Minimality, government fails to obtain between *how* and its trace, and the structure is ruled out:

(20) Relativized Minimality:

X α -governs Y only if there is no Z such that

(i) Z is a typical potential α -governor for Y

(ii) Z c-commands Y and does not c-command X

(21) Z is a typical potential antecedent governor for Y, Y in an A-bar chain = Z is an A-bar specifier c-commanding Y.

The existence of an abstract negative operator is also proposed by Ouhalla (1990), as the most economical way to account for negative islandhood (for both head- and operator-government) in languages where sentential negation

a position lower than Inflection (see above, paragraph 1); and the "Split-InfI hypothesis", according to which tense and (subject) agreement are represented by separate projections (Pollock 1989, Moro 1988). The existence of a separate NegP projection was also proposed by Pollock (1989); in his system, however, unlike in the references cited in the text, TP precedes AgrP.

⁶ Cf. Zanutini (1991) and Haegeman and Zanutini (1991) for the relevant definitions, given independently of the Wh Criterion. Even though a detailed criticism of the outlined approach will be developed in the following section, it is worth mentioning here that the West Flemish data discussed in Haegeman (1992) indicate that negative heads and phrasal projections differ in an important respect: traces of the former, but not of the latter, can satisfy the Negative Criterion. Thus, an LF representation like (17) would independently violate the Negative Criterion, because only the trace of *no one* is in the required configuration.

is categorially X°. In other words, Ouhalla's typological observations make it clear that, irrespective of the categorial status of sentential negation in each language, both a negative head and a negative operator must always be posited. As we have seen in the preceding section, the possibility of an abstract representation of the negative feature on a head is independently implied by the analysis of residual verb-second in terms of Negative Criterion. The lack of any specifications on Neg°, therefore, should not be taken as immediate counterevidence for the account here outlined.

Rather, it should be noted that such an approach forces one to assume that Neg° *always* raises up to Agr°. Even though this assumption is very stipulative for standard English, where Neg° is never spelt out when a negative quantifier has sentential scope, it is made plausible by the behavior of other languages, where Neg° is overt (note, incidentally, that the contracted form *-n't* in standard English expresses autonomous negation on the auxiliary *do*). In fact, it is independently necessary to assume that Neg° rises to Agr° (see the cited literature for details, and Acquaviva 1993 for a tentative explanation).

The Negative Criterion retains all its predictive power for negations not generated within NegP:

(22) *under no circumstances I would do that

(23) under no circumstances would I do that?

under no circumstances is in Spec CP, a scope position, at S-structure (probably also at D-structure), but, unlike the negative OP, it is not in agreement with Neg° at any level. Hence, a sentence like (22) is correctly ruled out, while (23) is rescued by the raising of Agr°-Neg°.

This refinement also affords a principled solution for a problem noticed by Rizzi (1991a) (footnote 11): in the sentence.

(24) I would do that under no circumstances

the negative embedded in the adverbial may be interpreted (by some, if not all speakers) with sentential scope, so that (24) may be paraphrased as *I wouldn't do that under any circumstances*. In this reading, sentential scope of negation involves the presence of NegP. But if this is the case, clause B of the Negative Criterion is violated at S-structure if the head

⁷ Rizzi's original example reads *in no case*; however, most speakers we consulted reject a sentence like *I would do that in no case* independently. Perhaps this is linked to the observation that sentential negation tends to be expressed in its scope position whenever possible:

(i) ??I saw no one at the party

(ii) I didn't see anyone at the party

Zanutini (1991), who marks (i) as ungrammatical, points out that postverbal negative quantifiers are fully grammatical only if they receive emphatic stress. The verbs *have* and *get* are exceptional in this respect (Zanutini's (292 a and b)):

(iii) Ira has no one to talk to

(iv) I've got no money in the bank

Neg⁰ does not agree with a [+negative] element in Spec NegP. Assuming this element to be a base-generated null operator, no violation is predicted: the abstract negative head is licensed by the operator OP, and *vice versa*, already ad D-structure. In *no circumstances* is not an operator, so it does not violate the Negative Criterion at S-structure.

A problem remains, however: how is *under no circumstances* licensed in sentences like (24) when it rises at LF, thus becoming an operator? In this case it is not a sentential subject, and consequently cannot be licensed by agreement with Neg⁰ incorporated onto Agr⁰. This apparently minor inconsistency is in fact connected to a series of problems which, taken together, motivate a reconsideration of the frame of assumptions underlying the analysis we have sketched.

1.5. Summary.

The contrast (1)-(2) shows that the distribution of negatives and Wh-phrases is not exactly parallel. The most recent attempt to formalize the relevant distributional constraints for the two classes, represented by the Wh- and the Negative Criterion, can only account for the behavior of Wh-phrases and does not predict the lack of superiority effects with negatives. Assuming that sentential negation is associated with a NegP autonomous projection, despite introducing a major asymmetry between the two classes, still fails to solve all the problems.

2. Problems with the Negative Criterion.

The purpose of this section is to argue that the difficulty pointed out in the preceding paragraph is not an inconsequential blemish in the elegance of the theory; rather, the question left open should be related to two other important weak points in the common core shared by the analyses of Rizzi (1991a), Haegeman (1992) and Zanuttini (1991): the assumptions that subject negatives undergo a downgrading movement, and that the Negative Criterion may apply at different levels across languages, independently of the Wh Criterion.

2.1. Quantifier Lowering.

Rizzi (1990, 1991a), following Moritz (1989), suggests that Spec NegP is the scope position to which negative elements rise at LF. This is also the view taken by Haegeman and Zanuttini (1991), Haegeman (1992), Zanuttini (1991), Moritz and Valois (1992). The assumption that scope requirements should force negative quantifiers to be interpreted in Spec NegP is in itself plausible; however, this hypothesis is rather problematic

with regard to subject negative phrases, which would leave an ungoverned trace at LF.⁸

Rizzi (1990) tentatively suggests that this downgrading movement be regarded as an instance of Quantifier Lowering, a kind of LF movement independently proposed for quantifiers undergoing raising in the syntax (see May 1985):

(25) a. a hippogryph is likely to be apprehended

(26) a. a hippogryph_i [_{IP} e_i] is likely [_{IP} e_i^u] to be apprehended]]

b. e_i^u is likely [_{IP} a hippogryph_i [_{IP} e_i^u] to be apprehended]]

(25) Is ambiguous between a reading in which the existence of hippogryphs is presupposed and another reading which simply states a belief. In May's analysis, the first interpretation corresponds to the structure (26a) at LF, in which the indefinite⁹ has scope over the predicate *likely*; the second reading has the structure (26b), in which the indefinite has been "lowered" to the embedded IP, thus lying inside the predicate's scope. Such a downgrading movement is only possible if the topmost empty category is in a non-thematic position: being bound by no antecedent, e_i in (26b) cannot be a trace, and must be represented at LF as a pronominal expletive. It cannot be PRO, since it occurs in a governed position; hence, it is an expletive *pro*. The same representation is impossible with control predicates:

(27) a hippogryph is anxious to be apprehended

(28) a. a hippogryph_i [_{IP} e_i is anxious [_{CP} PRO_i to be apprehended]]

b. *e_i anxious [_{IP} a hippogryph_i [_{CP} PRO_i to be apprehended]]

In (28b) the empty category e_i is in a thematic position (*anxious* is not a raising adjective), and therefore cannot be an expletive. The remaining three options for empty categories are excluded (PRO, NP-trace and variable); therefore, the representation is correctly ruled out, as containing an undefined empty category, and the sentence is unambiguous.

May's account hinges on the non-thematic nature of the subject position. Under the assumption that subjects are always generated and theta-marked within VP, the Spec AgrP position will necessarily be non-thematic. At first glance, then, the idea of generalized Quantifier Lowering appears very appealing. But it is straightforward to see the difficulties it faces.

To begin with, it is quite controversial a move to allow empty categories to change their status in the derivation: the topmost empty category arises from the movement of the indefinite NP, and is therefore a trace. However, the inevitable violation of ECP which would ensue is avoided by representing it as a pure pronominal (*pro*) at LF. But it is not made clear what prevents

⁸ Zanuttini (1991) assumes that NegP (NegP_{-I} in her terms) is generated above both AgrP and TP. However, in order to account for the usual subject-negation word order, she also assumes that the subject is adjoined to the left in the syntax; the objection that moving a subject to NegP results in downgrading movement, therefore, applies to her analysis as well.

⁹ Recall that all quantifiers are treated alike as undergoing Quantifier Raising in May (1985).

the same process from applying at S-structure: if an expletive *pro* is allowed in non-thematic subject position, why is it not allowed in the syntax?

Greater problems are raised by the "transformation" of the NP-trace into a variable. Notice that, if one assumes that the empty expletive is not coindexed with a *hippogryph* in (26b), the resulting A-bar chain [a *hippogryph*_i, e_i] lacks case: the empty category is not governed by the infinitival inflection, and the antecedent is not in a Case-marked position. Therefore, the argument expressed by the chain should not be visible for theta-marking, according to the Visibility Condition (cf. Chomsky 1986).

Thirdly, consider the schematic structure of a clause containing a negative subject lowered to Spec NegP at LF:

- (29) [_{AgP} e_i [_{nobody_i} [_{TP} [_{VP} t_i V']]]]

Such a representation would pose serious theoretical problems: if the subject empty category is deemed to be a simple expletive, non coindexed with *nobody*, the A-bar chain {*nobody_i*, t_i} would meet the same difficulties considered above with respect to Case-marking and thematic assignment: to qualify as variable, the trace in VP should be Case-marked, contrary to the fact.¹⁰ If, on the other hand, the empty category retains the index of *nobody*, the resulting three-membered chain would not be well-formed: the trace in VP would be A-bar bound by the phrase in Spec NegP, and the latter would be A-bound by the empty category in Spec AgrP. The grammar does not seem to allow such "mixed" chains: an NP-trace must be A-bound *locally*, so that a coindexed A-bar antecedent cannot intervene between two members of the chain.¹¹

For independent reasons, Aoun and Li (1989) have recently put forth a more principled way of dealing with quantified raising structures:

- (30) *The Scope Principle*

A quantifier A has scope over a quantifier B in case A c-commands a member of the chain containing B¹²

The essential contention of the Scope Principle is that traces can be relevant for determining the scope of a quantifier. Consider a raising structure involving two quantifiers:

- (31) most students seem to answer every question

(31) Is ambiguous between a reading in which most students answer all questions (but there might be students who do not answer any question

¹⁰ Lack of Case is in fact the reason for which the subject raises to Spec AgrP; see Koopman and Sportiche (1988).

¹¹ See, for these matters, Rizzi (1986) and Roberts (1987). For a qualification of May's proposals, see also Safir (1985: 148-149).

¹² The Scope Principle is proposed by the authors together with the Minimal Binding Requirement:

(i) Variables must be bound by the most local potential A-bar binder

In addition, Aoun and Li's analysis presupposes the validity of the VP-internal hypothesis for subjects and, more specifically, of the explanation of double object constructions provided by Larson (1988).

at all), and another reading in which every single question is answered by most students (but it is possible that not even a single student managed to answer all questions). In other words, either quantifier may have scope over the other. The ambiguity is caused by the fact that at LF the two quantifiers c-command each other: *most students* c-commands the whole chain of *every question*, and the latter c-commands a trace of *most students*:

- (32) [most students_i [_{t_i} [every question_k [t_k to answer t_k]]]]

Aoun and Li do not discuss the original example proposed by May (1985). However, it is possible to show that Quantifier Lowering is neither a necessary nor a sufficient explanation for the contrast repeated in (33) below:

- (33) a. a hippogryph is likely t to be apprehended
b. a hippogryph is anxious PRO to be apprehended

As emphasized in Higginbotham (1989), it is independently necessary to interpret syntactic traces as "place-holders" for their antecedents. Only in a raising structure like (33a) does a trace lie within the scope of the adjectival predicate: therefore, it is not necessary to resort to Quantifier Lowering to predict that only raising constructions will be ambiguous. What is more, May's proposal turns out to be in need of some further qualification in order to explain data which minimally differ from his original example. Higginbotham (1989) claims that a raising verb like *seem* is most economically interpreted as an intransitive verb, which takes as its only argument a proposition. This is most clearly represented by an impersonal construction like (34), where the matrix subject position is filled by an (overt) expletive pronoun:

- (34) it seems [that a hippogryph will be apprehended]

(34), Unlike (33), is unambiguous: the indefinite is unequivocally inside the scope of the predicate. Now, it is well known that some raising verbs, which have a clearly non-thematic subject position, do not allow the impersonal construction (see the cited reference for some discussion):

- (35) *it threatens [that a hippogryph will be apprehended]

The infinitival construction, involving raising of the embedded subject, is syntactically identical to (33a):

- (36) a hippogryph threatens [t to be apprehended]

However, here no construal is licit in which the existence of hippogryphs is not presupposed. (26) does not have the same truth-conditions as (37):

- (37) there is the threat that a hippogryph will be apprehended

The crucial observation is that in (36), like in (33a), a trace of the indefinite is within the scope of the predicate. Quantifier Lowering here is not

¹³ Notice that in (32) t_i in the embedded clause is a Caseless trace of NP-movement, and not a Case-marked; thus, the lack of coindexing between t_i and the most local potential A-bar binder *every question* does not violate the Minimal Binding Requirement.

sufficient to derive the correct unambiguous interpretation: something else must be specified. On the basis of these facts, it seems safe to conclude that Quantifier Lowering, even abstracting away from its theoretical problems, has no advantage over Aoun and Li's Scope Principle.

The import of this conclusion for our discussion of subject negative quantifiers is clear. If scope ambiguities in raising constructions can be accounted for without positing any downgrading movement at LF, the supposition that such lowering should take place with negative subjects loses its plausibility.¹⁴

2.2. Generalized Negative Raising.

Haegeman and Zanuttini (1991: 244) suggest that the level of application of the Negative Criterion could be parametrized, so that the principle may apply as early as at S-structure in languages like West Flemish, while it may be satisfied at LF in languages like Italian or French. Haegeman (1992) modifies this approach, restricting a "late" application of the Criterion to French only. Even in this view, however, negative quantifiers that are interpreted with sentential scope must count as operators at LF, so that at this level of representation all negative quantifiers with sentential scope must be in a Spec-head relation with Neg⁰, irrespective of the level of application of the Negative Criterion. In the approach outlined in Haegeman and Zanuttini (1991), a unique scope position identified as Spec NegP can be the target of LF-raising for several negative quantifiers. Structurally, the various quantifiers would be adjoined to the same position.¹⁵ Semantically, they would be interpreted as a single sentential negation by the same mechanism responsible for quantifier composition in multiple questions (see Higginbotham and May 1981).

There are some reasons to object to this proposal, however. Theoretically, it is not desirable to split the application of the Negative and the Wh Criterion in the same language, in so far as they are regarded as two related constraints. More concretely, it would still be unclear how to deal with the putative lowering of negative quantifiers in subject position. Finally, positing an abstract operator not matched by a head visibly realizing the

¹⁴ Alternatively, it could be hypothesized that subject negative quantifiers are generated within VP, then are raised to Spec NegP, and finally reach Spec AgrP; in this derivation, the trace left in Spec NegP could be sufficient to assign scope to the quantifier. This kind of explanation, however, involves improper movement (or, equivalently, violates well-formedness constraints on chain formation), and thus runs into the same theoretical problems mentioned above.

¹⁵ The sketched analysis presupposes that phrases adjoined to Spec NegP may enter into the required Spec-head agreement configuration with Neg⁰. This assumption is rather plausible, given that the same must hold for topicalized phrases, if they are adjoined to the highest inflectional projection. If this is the case, then their S-structure position is an A-bar scope position, so that topicalized phrases are operators at S-structure. The raising of Neg⁰ to Agr⁰ will then provide the required configuration. Owing to the number of independent issues linked with the analysis of topicalizations, we prefer to leave a thorough investigation for further research. See the cited references and Belletti (1990) for some discussion.

negative feature is independently required in at least one case: namely, in yes-no questions, because otherwise the head C⁰ would violate the Negative Criterion.¹⁶ It could be proposed that Spec NegP is indeed filled by an operator at S-structure, and that negative quantifiers adjoin to its projection to satisfy the Negative Criterion. But even in this case Quantifier Lowering should be posited for subjects. Moreover, given that Spec-head agreement holds between Agr⁰ and the negative quantifier in Spec AgrP, there is no reason left to hypothesize an adjunction to NegP for subjects: the chain of the quantifier is already marked (by Neg⁰ in Agr⁰) at S-structure, so it should be free to rise to some higher scope position. But this amounts to saying that negatives can also be interpreted in a scope position different from Spec NegP, thus losing a unified account for their movement at LF. If this should indeed be the case, then there would be no compelling reasons to separate the quantifier raising of negatives from that of other quantifiers: any negative could simply be adjoined to IP (or AgrP, or VP), so long as Spec NegP is filled by an operator. Some stipulation would then be required in order to derive the fact that the scope of "normal" quantifiers is clause-bounded, unlike that of negatives. An analysis along these lines would treat negative quantifiers on a par with all other quantifiers undergoing Quantifier Raising, as opposed to Wh-movement. But this would miss the significant generalization that Wh-phrases and negative quantifiers pattern very much alike. In fact, the difficulties considered here do not add up to a rejection of the Negative Criterion, which is still independently necessary (if not sufficient); neither do they undermine attempts to link the syntax of negatives to that of Wh-phrases.

It is apparent that each of these problems could be solved by some specific stipulation; however, the desirable target of a unified analysis of Wh-phrases and negatives can in fact be pursued. To solve the theoretical difficulties noted above, we argue that it is both necessary and sufficient to question the quantificational nature of negatives.

2.3. Summary.

The problems associated with the Negative Criterion, including the problematic downgrading movement postulated for subjects, basically derive from the assumption that all negatives end up in Spec NegP at LF in order to take scope over the sentence; in turn, this assumption naturally follows from the Negative criterion and the NegP hypothesis. However, this consequence is not necessarily derived. If a different analysis is devised to account for the scope of negatives, the assumption that negatives are raised to Spec NegP can be given up while maintaining the explanatory power of the system outlined in the first section.

¹⁶ In Acquaviva (1993) we present more substantial reasons for positing an empty operator with an abstract Neg⁰, based on the opacity induced by monotone decreasing quantifiers.

3. The LF representation of negatives.

In this section we are going to develop the isolated points of criticism expressed above into a hypothesis about the real quantificational nature of negative "quantifiers". Our proposal that negatives are in fact non-operators will be briefly sketched out in 3.1 and then substantiated by semantic considerations in 3.2. A final paragraph will take up the important issue of how to make the proper distinction between negatives and negative polarity items.

3.1. The proposal.

To summarize the discussion so far, we have taken the Wh Criterion and the Negative Criterion as our point of departure; we have seen that the presence of a NegP is independently well motivated, and that it can account for apparent exceptions to the Negative Criterion; however, the correct results are only predicted if we also assume the existence of a base-generated negative operator in Spec NegP, which causes Minimality effects with respect to government and ensures that the Negative Criterion is satisfied. If such operator is present, the question arises of how to deal with negative quantifiers: if they are interpreted in Spec NegP, we must give up the idea of a negative operator in that position; if they are not, a Negative Criterion violation ensues for all negatives in non-subject position. It could be argued that LF-adjunction to Spec NegP is sufficient for scope assignment; but this analysis would not work straightforwardly for subject negatives: if they lower to NegP, ECP is violated, and if they do not, it cannot be maintained that Spec NegP is where negatives are interpreted.

To solve the paradox, we have to make a much more radical claim: that negatives are not operators at all, and hence the Negative Criterion applies only to OP or overt operators in Spec NegP, or to negative phrases moved into A-bar positions (as in (22)-(23) above). In a sense, negatives are closer to polarity items than to Wh-operators. In other words, we suggest taking the original insight of a single NegP in a radical sense: that sentential negation is expressed by just one operator in the sentence, and that the projection expressing this operator (NegP) suffices to license the various occurrences of negative phrases in the clause, not only syntactically but also interpretively. Intuitively, this approach provides a principled way to distinguish sentential negation from negatives with non-sentential scope, in that only the former will be linked to NegP, in a sense that will be made more precise.

Without some further qualifications, the assumption that negative phrases are not assigned scope via movement at LF is immediately contradicted by some well-known facts. Since the work of Kayne (1981)

and Rizzi (1982), it is customary to think that *persone* and *nessuno* undergo Quantifier Raising:

(38) *je n'exige que *persone* soit arrêté

(39) ?*non pretendo che *nessuno* sia arrestato

'I [neg] require that nobody be arrested'

In (38)-(39), *ne* and *non* cannot be interpreted as scope-markers for the negative pronoun in embedded subject position, so that a double reading is the only one possible. In the classic explanation provided by Kayne (1981), the negative phrase rises at LF to an A-bar position indicated by the scope-markers *ne* and *non*, leaving a trace which fails to be properly governed. That these sentences are ruled out by ECP is proven by the grammaticality of (40)-(41), in which the negative phrases are in a properly governed position:

(40) ?je n'exige que la *police* arrête *persone*

(41) non pretendo che la *polizia* arresti *nessuno*

'I [neg] require that the police arrest nobody'

On the other hand, negative phrases in subject position are allowed if they do not have to rise out of IP, as indicated by the clause-mate scope-markers:

(42) j'exige que *persone* ne soit arrêté

(43) pretendo che *nessuno* sia arrestato

'I require that nobody be arrested'

Any analysis which does not posit LF-raising for the negative quantifiers is unable to account for this subject-object asymmetry.¹⁷

Secondly, the similarity between negative indefinites and negative polarity items cannot be pushed too far. The two classes differ sharply in distribution. Moreover, their meaning is basically different, as negative indefinites can be used in isolation as negative answers, while this is impossible with polarity items. In sum, there are compelling reasons to think that negative indefinites, unlike polarity items, are assigned scope in the syntactic representation through the usual device which characterizes quantificational structures: an operator-variable chain, in which the operator delimits the range of interpretations of the variable.

What we claim is that the operator involved in sentential negation is unique, even when negation is expressed morphologically on other elements.

¹⁷ Some qualification is in order, however. In Italian, it is straightforward to assign to a negative expression the scope marked by a higher *non*, even if the latter is in a superior clause; but it should be pointed out that many (perhaps most) French speakers cannot interpretively link *persone* to *ne* if they are not clause-mate. Moreover, the unacceptability of sentential scope reading for a negative in embedded subject position (exemplified by (39)) is not exceptional in Italian. Finally, and most importantly, the typical subject-object asymmetry displayed by embedded negatives is totally lacking in Spanish, which is surprising given the close relation of this language with Italian and French. The issue is addressed by Longobardi (1987).

The scope properties of these elements are not determined by LF movement, but rather by the unique clausal negation which has scope over them. The LF movement shown in (38)-(43) does not affect all negative phrases, but rather only those which are "too distant" from the negative operator, in a sense that will be made precise in section 4 below. It is not an instance of Quantifier Raising, but rather is motivated by independent interpretive requirements, which impose strict locality at LF between the unique negative operator and the negative indefinites.

Before turning to the empirical motivation of this claim, it is worth pointing out that it is theoretically desirable. The classification of natural language quantifiers proposed in Hornstein (1984), Aoun (1985) and Aoun and Hornstein (1986) divides them into purely semantic quantifiers, which are interpretively independent and do not undergo Quantifier Raising (e.g. *any*); syntactic quantifiers, which adjoin to IP or VP at LF, are clause-bounded and are interpretively dependent on the scope of other quantifier (e.g. *every*); and syntactic quantifiers which undergo Quantifier Raising, but are not clause-bounded (e.g. *someone*). First of all, it is striking that the last class should be made up of negatives (apart from Wh-phrases *in situ*): in Aoun and Hornstein's theory this semantic homogeneity is a mere coincidence. Second, it would be theoretically desirable to have just one rule of Quantifier Raising, as simple LF adjunction to the first IP or VP node. If it can be shown that other instances of LF movement are independently motivated, this result would be achieved, without positing two kinds of movements for quantifiers.

3.2. Semantic characterizations.

3.2.1. Strong and weak determiners.

The dichotomy of *strong* and *weak* determiners appears to be directly relevant to the present discussion. Elaborating on an insight due to Milsark (1974), Barwise and Cooper (1981) (and much subsequent literature) have provided a semantic classification of determiners, which subdivides them into *strong* and *weak*. Strong determiners, like *every*, *each*, *most*, *neither*, *both*, form quantified noun phrases ("quantifiers" in the authors' terms)¹⁸ which show these two characteristic properties: 1) they are ungrammatical if preceded by *there is / are*, and 2) they form necessarily true or false propositions (tautologies or contradictions) in sentences of the form *Det N is a N / are Ns*.

Properties 1) and 2) are illustrated by the following sentences:

- (44) *there is every man
 *there is each man
 *there is neither man

¹⁸ To be more precise, *any* syntactic category whose interpretation corresponds to a set of sets is a quantifier. Quantified noun phrases simply represent the most typical subclass.

- *there are most men
 *there are both men
 (45) a. every man is a man (necessarily true)
 each man is a man
 most men are men
 both men are men
 b. neither man is a man (necessarily false)

Weak determiners, which behave like cardinality predicates, do not show these properties:

- (46) there is a man
 there are some men
 there are many men
 there are no men
 (47) a. a man is a man (true only if there is at least one man)
 some men are men
 many men are men
 b. no man is a man (false unless there are no men)

Even if the propositions listed in (47) are usually true (false in the last case), their truth value depends on the model. It is important to realize that the sentences in (47) are not tautologies: in a model with no men at all, (47 a) cannot be true. The same applies to (47 b): as long as *no man* is interpreted as 'one of the men present in the domain of discourse' (that is, when the quantifier is specific) the sentence is certainly false. But quantifiers with weak determiners, unlike those with strong ones, can be *non-specific*, that is, not referring to elements already present in the domain of discourse. In a model with no men at all, (47 b) could no longer be regarded as false.¹⁹

3.2.2. Monotone increasing and decreasing quantifiers.

Another relevant semantic divide is that between monotone *increasing* and *decreasing* quantifiers. As has been noted above, negatives are not the only elements submitted to the Negative Criterion. Also *few* and *seldom*, for instance, are affective operators, trigger verb-second in root contexts and license polarity items:

- (48) a. few people did anything
 b. in few cases have I felt so desperate
 (49) a. John can seldom utter anything sensible
 b. seldom have I felt so desperate

¹⁹ For the sake of brevity, the text follows the definitions of Barwise and Cooper (1981); however, a more precise semantic analysis should relate these properties of indefinite noun phrases to their three distinctive properties: intersectivity, symmetry and existentiality (cf. Reinhart 1987, Higginbotham 1987, Keenan 1987 and Eng 1991).

Investigations on negation and polarity items (see Fauconnier 1975 and Ladusaw 1983) have brought to the following generalization: negatives, *few*, *seldom* and in general affective operators are all monotone decreasing quantifiers, in the sense of Barwise and Cooper (1981). This notion is defined by the authors as follows:

(50) A quantifier Q is monotone decreasing if, for any set $X \in Q$, Q also contains all the subsets of X

For example, *no students* and *few students* are decreasing because if they are paired to a VP predicate denoting a set, the sentence will remain necessarily true even if the predicate is replaced by another one, whose extension is subset of the former. Taking as VP *did the homework*, the VP *did the homework satisfactorily* will denote a smaller set of individuals (more precisely, the second set is included, albeit not necessarily properly included, by the first. It appears that both sentences are true:

(51) no student did the homework
 few students

(52) no student did the homework satisfactorily
 few student

Notice that this is not the case if we replace *few* with *a few*:

(53) a. a few students did the homework
 b. a few students did the homework satisfactorily

The truth of (53b) depends on the model, and is not logically entailed by the truth of (53a).

The adverbial *seldom* can be considered a quantifier if we paraphrase it as 'on few occasions' (as different from 'on a few occasions'). In this case, the set intersecting the reference of *seldom* must be seen as a set of situations in time, expressed by a proposition:

(54) a. John seldom speaks
 b. John seldom speaks clearly

The great majority of quantifiers present in natural languages are monotone increasing: if their extension intersects that of a predicate, then the resulting sentence will be true for all the *supersets* of the set denoted by the predicate:

(55) a. every student did the homework
 many students
 b. every student did the homework satisfactorily
 many students

(56) a. John often speaks
 b. John often speaks clearly

In this case, it is not the first member of the pair that entails the second, but *vice versa*.

Barwise and Cooper (1981) note that it seems to be a linguistic universal that if a language has a monotone decreasing quantifier, then it has also the correspondent increasing one. For instance, it is predicted that if a language has an adverbial meaning 'seldom', it will also have another adverbial meaning 'often'; the opposite does not hold necessarily. Furthermore, each monotone decreasing can be semantically analyzed as the negation of the correspondent increasing one. For instance, *few* is more accurately paraphrased as 'not several' than as 'a small number', the latter corresponding to *a few*.²⁰

The striking generalization that Barwise and Cooper express is that natural languages seem only to have negatives which are semantically equivalent to negation of a monotone increasing quantifier with a *weak* determiner. There do not appear to exist basic determiners of the form 'Neg - [strong determiner]', such as 'not every' or 'not most'. This is not to say that decreasing monotones must always have weak determiners (even if this is most frequent): e.g., *neither* is strong but gives rise to decreasing quantifiers when paired with an NP. However, even in this case the decreasing correspondent is formed with a weak determiner: *a / some* (in a discourse domain with just two elements).²¹

3.2.3. Negatives as indefinites.

Is there any plausible reason for this generalization? The extensive literature about indefinites and the Definiteness Effect (see, among others, Fodor and Sag 1982, Safir 1986, Reuland and ter Meulen 1987) has made it clear that scope assignment of quantified expressions should not always be syntactically represented by movement at LF. In particular, the need for such movement is only evident for quantified nouns with strong determiners, whereas different (usually weaker) constraints govern the distribution of quantifiers with weak determiners, and of indefinites in general. Indeed, Heim (1982) has proposed that all NPs which pattern as indefinite expressions (including all NPs with weak determiners) should be regarded as variables, instead of quantifiers as proposed by Barwise and Cooper (1981). The variables thus introduced in the discourse are bound in more than one possible way: the usual existential closure proposed in Heim (1982), by which an existential operator "closes" all variables inside the sentence, could be replaced in particular context by "unselective binding" by an operator already binding other variables; crucially for the present discussion, Enç (1991) argues that the obligatory LF-movement of indefinites and "true" quantifiers is the syntactic counterpart of their

²⁰ This is Barwise and Cooper's "Monotonicity Correspondence Universal", the fifth potential universal proposed by the authors. For a criticism, cf. Delfitto (1986).

²¹ This is the interpretation of *neither* proposed by Barwise and Cooper: 187. Different analyses of this determiner could require some readjustment in our proposal.

obligatory specificity, whereas the possibility for indefinites to be non-specific correlates with their ability to be interpreted in place (perhaps, following Heim's original proposal, as variables bound by higher operators). Enç (1991:23) does not take an explicit position as to whether definites should be interpreted without LF-raising even in their specific reading, and simply states that "... all NPs that can take wider scope at LF than at S-structure are specific". As Pesetsky (1987) shows for specific Wh-phrases, however, it is clear that even assuming that specific indefinites do rise at LF, this movement is not constrained by the same principles applying to definites and syntactic quantifiers.

In the light of these observations, it is not surprising that negative "quantifiers" (which can obviously be interpreted as specific or non-specific) should always be semantically analyzed as negated *indefinites*. Furthermore, in this case it is not necessary to resort to purely abstract operators (that is to say, operators not projected in the phrase-marker) for the purpose of scope assignment. The syntactic opacity which always accompanies negative expressions with sentential scope (or, equivalently, the typical island effects of "negative sentences", in a sense which encompasses monotone decreasing quantifiers with sentential scope) is the natural consequence of the presence of a negative operator filling the Spec NegP position. In turn, this structurally represented and syntactically active negation is the obvious counterpart of the semantic negation which, as has been mentioned, turns indefinite expressions into negatives. In this way, the recent contributions to the interpretation of indefinites allow us to claim that negative phrases are no more operators than other indefinites are.²² Along the guidelines of Pesetsky's (1987) analysis of *which* and with Hornstein's (1984) analysis of *any*, we can further claim that negatives, even in their specific reading, can simply be interpreted in place through binding by a negative operator.

²² Kratzer (1989) makes a similar point in her analysis of plural negatives introduced by *kein* in German, which she argues are not quantifiers by themselves, but rather bare plurals linked to a negative operator. Even though her approach is fundamentally very close to that expounded in the text, it differs from it in other essential respects. For a start, the interpretive asymmetry she detects between stage- and individual-level predicates only plays a role in the distribution of *kein*, which suggests that this determiner has particular properties among other negative determiners. The same conclusion is suggested by the contrast between singular and plural, and by the more fundamental contrast between German and other languages. Thus, even though Kratzer's treatment is revealingly similar to our general approach, it remains essentially an analysis of *kein*, which is a very peculiar negative determiner. For instance, consider the interpretive difference between (i) and its German counterpart in (ii):

(i) Hans is no linguist

(ii) Hans ist kein Linguist

While (ii) can mean simply "Hans is not a linguist", (i) has a rather different sense, probably having to do with the stage- / individual-level distinction: a negative predicate nominal like *no linguist* seems to require an individual-level interpretation. This interpretive asymmetry is most probably caused by the particular interpretive value of *kein*, because the system of negation in the two languages is otherwise very similar, if not identical. This is not to mean that analyses of *kein* may not advance our understanding of the syntax of negative indefinites, of course.

Since this binding apparently does not involve coindexation (as shown by multiple negatives: *I said nothing to no one*), we could describe it as unselective binding.

Finally, the difference between sentential and constituent negation is made visible in the syntax, because being connected with a NegP projected in a clause defines a negative indefinite as having scope over that clause; if NegP is in the matrix clause, negation will affect the whole sentence. Since negatives are indefinites, we are not forced to assume that a negative undergoes Quantifier Raising in order to be interpreted, and therefore a negative with local scope will be simply analyzed as an indefinite expression not bound by NegP.²³

3.3. *Negatives vs. negative polarity items.*

The proposal that negatives are syntactically compound of negation and type 1 quantifiers of Aoun's and Hornstein's classification (along with *any*) must be made precise in one fundamental aspect at least: What is the difference between negative polarity items and negative "quantifiers"? If the latter are not assigned scope by Quantifier Raising, which is semantically plausible, why then do they show sensitivity to ECP?

There is a certain amount of disagreement on the relation of negative quantifiers with negative polarity items. The Romance negative quantifiers have been regarded as pure negative polarity items (e.g. Laka 1990), or pure negatives (e.g. Zanuttini 1991), or, more often, as elements potentially endowed with the properties of both classes (e.g. Rizzi 1982, Longobardi 1987). In our analysis, both classes are not-quantificational, so that in this important respect they are alike. However, a complete identification is untenable, given the syntactic and morphological difference dividing the two classes. In this section we propose that the specific difference of negatives lies in their being subject to the Scope Principle of Aoun and Li (1989) (cf. (30) above) and, secondly, to a licensing requirement checked at LF.²⁴

²³ Even without embarking on a full-fledged analysis of constituent negation, these brief hints should suffice to show that it represents no obstacle to our approach. Since we are primarily concerned with the proper treatment of sentential negation, we will not delve into the interesting issue of negation with narrow scope here, even though the system being advocated is susceptible of developments in that direction. Zanuttini (1991), Longobardi (1991) and Acquaviva (1993) all address the issue, though it is a central concern to none of them. See also Cardinaletti and Guasti (1992) for a proposal about negation in small clauses.

²⁴ It should be borne in mind that "non-quantificational" is here used in the syntactic sense, meaning simply "non-undergoing Quantifier Raising". But this does not commit us to denying the quantificational status of negatives in a strictly semantic sense. Indeed, their semantically quantificational status might explain why negatives, but not negative polarity items, are sensitive to the Scope Principle. Hornstein (1984), whose approach underlies our analysis, provides convincing reasons for keeping the syntactic aspects of interpretation separated from the purely semantic (or pragmatic) ones.

For negative polarity items, it is sufficient for our present purposes to state that the class of triggers comprises, apart from negatives proper, all monotone decreasing quantifiers, including those quantifiers that in Barwise and Cooper's terminology are labeled "anti-persistent" (or "left monotone decreasing" elsewhere in the literature). Let us also assume that the relevant configuration is c-command by the trigger at S-structure.²⁵ Taking this much for accepted, a negative polarity item is correctly predicted to be licensed in subject position of a subordinate clause, if an appropriate trigger is in the matrix clause:

(57) I don't require that anyone be arrested

Why, then, are *personne* and *nessuno* ungrammatical in that position?

The null hypothesis is that the negative feature (which is not the [+N] feature that, according to Lasnik 1975 and Safir 1985, is shared by polarity items and negatives) originates in NegP, and that negative elements must be close enough to NegP to receive it. Recall that the relevant notion of locality must ensure that the clause-mate subject is close enough, while the subject of a subordinate clause is too far away:

(58) *personne n'est venu*
'no one came'

(59) **je n'exige que personne soit arrêté*
'I do [neg] require that nobody be arrested'

However, clausal boundaries are not absolute barriers, since a morphologically negative polarity item can be in the object position of a subordinate clause, while clausal negation is expressed in the matrix clause:

(60) *je n'exige que la police arrête personne*
'I do [neg] require that the police arrest nobody'

3.4. Summary.

Negatives are semantically indefinite. It is therefore possible to extend to them the view, independently argued for in the semantic literature, that indefinites are not quantifiers, but rather variables unselectively bound by an operator. We have claimed that such a configuration obtains in the syntax (in the broad sense), where a negative has sentential scope if it is unselectively bound by an operator in Spec NegP. This move has immediate theoretical advantages over previous approaches, in that it provides a way to reconcile the syntactic analysis of negatives with their semantic properties, thus paving the way for a simplified classification of natural languages quantifiers.

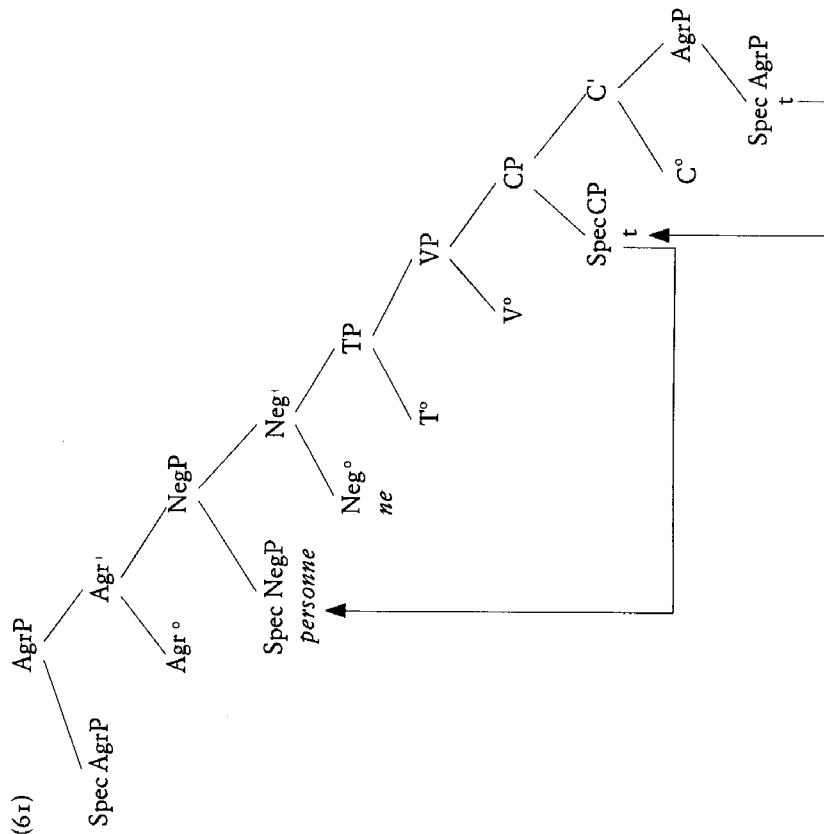
²⁵ Cf. Klima (1964), Ladusaw (1979, 1982), Linebarger (1987), Laka (1990).

4. Licensing and government.

In this section we are going to argue that the structural relation needed to connect any negative indefinite with a scope-marking NegP is that of Government, and that this requirement must be met at LF. In order to support this view, we will analyze the behavior of subject negative indefinites when they are separated from NegP by a clausal boundary and when they are in the same clause as NegP.

4.1. Government and the operator / variable index.

Government at LF appears to be the relevant notion. Consider first subject in a subordinate clause. It is clear that LF-movement must take place, otherwise the ungrammaticality of negative phrases in this position would not be accounted for. According to standard accounts, negative "quantifiers" rise to the scope position marked by the corresponding particle, *ne* in French and *non* in Italian. The updated version of this approach would claim that the relevant scope position is Spec NegP:



This analysis seems to be strongly supported by the observation that, in such cases, Spec NegP cannot be occupied:²⁶

(62) je n'exige (*pas) que la police arrête personne

However, this observation cannot be regarded as evidence that negatives require an empty Spec NegP as a landing site (as done, for example, by Moritz and Valois 1992), given the great number of languages in which a corresponding structure is licit.²⁷ Moreover, the approach has two major theoretical shortcomings: firstly, it assumes that Spec NegP is not filled until LF, thus leading to a violation of the Negative Criterion. Secondly, it still does not explain why structures like *personne n'est venu* are well-formed, given that the putative quantifier in subject position would leave an ungoverned trace when lowered.

Instead of assuming that movement to Spec NegP enables the negative to take sentential scope, we propose that what has sentential scope is not strictly speaking the negative, but rather the operator which binds it. This operator is base-generated in Spec NegP, and has therefore scope over all the arguments of the verb (including the external argument, whose trace is c-commanded by the operator). In NegP, the Negative Criterion is thus independently satisfied as early as at D-structure.²⁸ Two syntactic constraints

²⁶ All the accounts of clausal negation which assume the existence of a projection NegP also argue that elements like *pas* occupy Spec NegP.

²⁷ West Flemish is the best-studied case (Haegeman 1992); but cf. also the Gallo-Romance languages examined by Zanuttini (1991), plus Middle High German (Paul, Moser and Schröbler 1969) and the majority of German dialects subsequently developed, with the notable exception of contemporary standard German. Notice, however, that even in literary German structures corresponding to (62) were not impossible until well into the nineteenth century, as is shown by the wealth of examples collected in Paul (1959: § 510). This pattern persisted for much longer in the spoken language, and is still to be found nowadays in non-standard dialects. In all these cases, the "pleonastic" negative adverbial has all the syntactic characteristics of *pas* and none of those of *ne*, so that it may safely be assumed to fill Spec NegP.

²⁸ Given the definition of "negative operator", we predict ungrammaticality whenever a phrase endowed with the negative feature surfaces in an A-bar scope position without agreeing with an appropriate head. This is in fact the case whenever a negative adverbial (or, in some cases, an argument of the verb) surfaces in a left-peripheral scope position:

- (i) under no circumstances would John accept your proposal
- (ii) *under no circumstances John would accept your proposal
- (iii) a. no proposal will John accept without criticism
- b. *no proposal John will accept without criticism

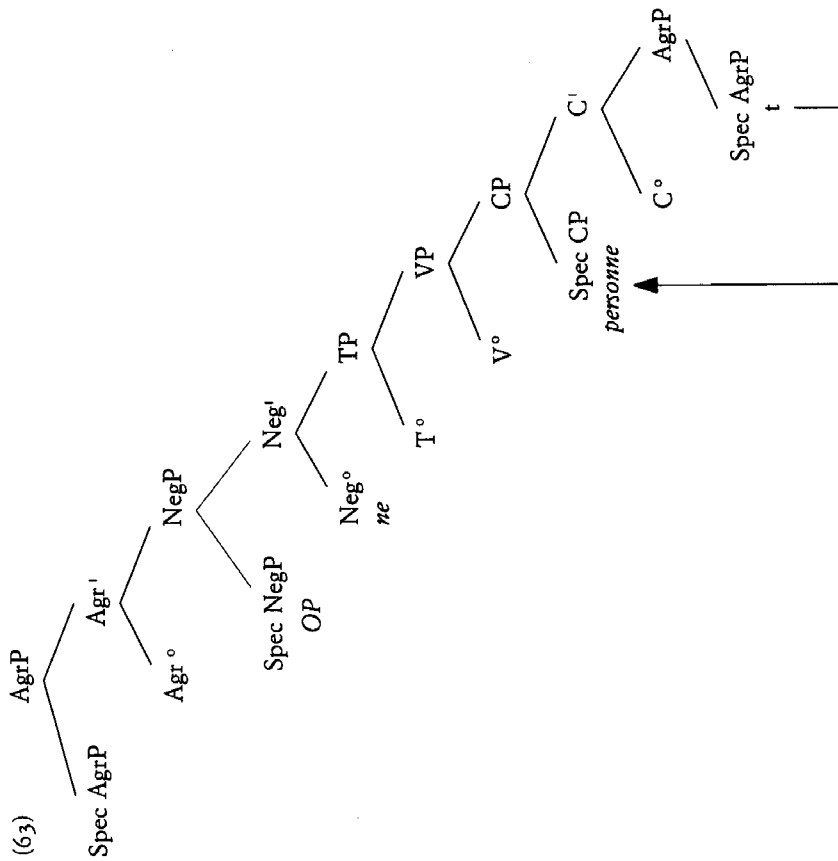
Nothing needs to be added to the original formulation of the Negative Criterion: only the raising of the inflected verb can provide the required configuration. The Criterion, in other words, is independent of the NegP projection, and therefore retains all its explanatory power.

A reviewer points out the grammaticality of Italian and English examples like the following ones:

- (iv) nothing she likes
- (v) per nessuna ragione al mondo Gianni accetterebbe questa proposta
- 'for no reason on earth Gianni would accept this proposal'

The problematic lack of verb-subject inversion might be caused by the fact that (iv) and (v) are

limit the number of licit representations: firstly, the Negative Criterion itself, which is not restricted to apply to the NegP projection only; secondly, a locality requirement between the operator and the logical variable expressed by the negative indefinite. This locality requirement states that the operator must not just bind, but also *govern* the negative at LF. In order to fulfill this locality requirement, a negative which is too distant at S-structure must rise at LF to a position in which it is antecedent-governed by the empty operator in Spec NegP, namely the embedded Spec CP:



In Spec CP, the raised element is in antecedent-government configuration with respect to the negative operator according to the definition of government put forth by Rizzi (1990), which we adopt:

cases of topicalization, assuming that this involves adjunction to AgrP (cf. notes 15 and 31). The surprising English case (which is rejected by our informants), at least, awaits a better explanation. See also Rizzi (1991a) for a tentative approach to the Romance-Germanic divide with respect to the role of C°.

(64) X antecedent-governs Y iff

- (i) X and Y are non-distinct²⁹
- (ii) X c-commands Y
- (iii) no barrier intervenes
- (iv) Relativized Minimality is respected

A configuration of antecedent-government obtains between Spec NegP and the Spec position of a complement CP. As for the required coindexing (which, as the definition makes clear, is not limited to referential indices), we have introduced in 3.2. the notion of unselective binding to characterize the link between the operator and the negative indefinites. In order to express the binding by the same operator of elements potentially endowed with different referential indices, Reinhart (1987) has explicitly advocated the introduction of *specifier indices* in the syntax, whose function is to make visible at S-structure the formal link between a given operator (always a specifier in Reinhart's analysis) and an indefinite NP acting as a bound variable. The issue of how this idea can be formally implemented in our system is taken up in detail in Acquaviva (1993); for the time being, let us simply adopt the essential of Reinhart's insight, and assume that an appropriate syntactic link corresponds at S-structure to the interpretive link between negative operator and indefinite variables; instead of agreement in a feature, we will rather speak of "coindexation". This step is the necessary consequence of a fundamental premise of our analysis, namely that the distribution of negative indefinites is governed by syntactic constraints which partially reflect interpretive dependencies between the sentential negative operator and the variables it binds. Introducing in the syntax an operator / variable index, as the index involved may be called, is also a natural development (though not a necessary consequence) of earlier theories which treated negatives as elements bearing a negative feature and capable of extending the scope of such a feature; Rizzi (1982) and Safir (1986), for example, proceed along these lines. Unlike such attempts, however, we would like to distinguish the feature morphologically expressed on negative NPs and particles from a syntactically visible marker, which groups together phrases in the scope of the same operator. Reinhart's conception of a syntactic counterpart to the Operator Index performs precisely this latter function.

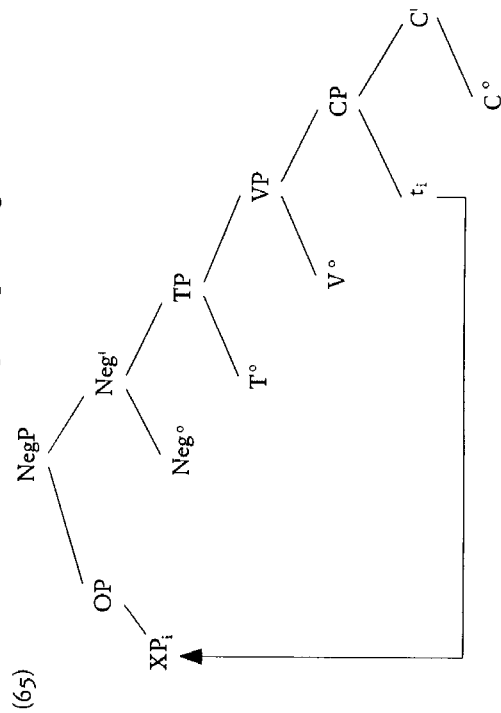
In conclusion, we have argued that an indefinite semantically bound by a negative sentential operator is coindexed, already in the syntax, with the expression of the negative operator: namely, the operator in Spec NegP. This assumption makes it possible to impose syntactic constraints on how close the operator and a coindexed NP must be. Let us now see how the hypothesis of obligatory government between operator and negative NP could account for the distribution of negative NPs in the position of embedded subjects.

²⁹ The wording "non-distinct", as opposed to "coindexed", is motivated in Rizzi (1990) by the necessity to allow for chains whose links are not characterized by a referential index.

4.2. Embedded subjects.

If the movement leaves a trace in Spec AgrP, ECP as required rules out the sentence, because the trace cannot be appropriately head-governed. If, on the other hand, the negative phrase is head-governed at S-structure, a standard application of a move- α can raise the phrase up to Spec CP, where it is in a government relation with the OP in Spec NegP. The main difference with respect to overt movement is that the traces of subjects cannot be licensed by the same mechanism available at S-structure, namely Spec-head agreement between the Wh-phrase in Spec CP and C^o (following Rizzi 1990). This agreement of phi-features is only possible with an "anaphoric" agreement morpheme on C^o, which must be identified by phi-features by S-structure. If such feature sharing does not take place in the syntax, C^o cannot be turned into a governor by a phrase raising at LF. Hence the ungrammaticality of subject negative "operators" with wide scope, as in (38-39) and (59): the only device to prevent an ECP violation is unavailable at LF, therefore a trace in subject position will always violate ECP.

Consider now the status of the negative raised to Spec CP. While the locality condition is satisfied, the Negative Criterion is violated at LF: a constituent endowed with the negative feature occupies Spec CP, while C^o itself fails to be appropriately marked, so that no agreement configuration obtains. This state of affairs is an immediate consequence of the second clause of the Negative Criterion applying at S-structure: already at that level, heads marked [+Neg] must be in agreement configuration with operators provided with the same feature. This means that by LF the empty specifiers accessible to a raised constituent (even if it is negative) will be exactly those whose head is not marked [+Neg]. The structure is rescued by a further step upwards of the negative, which, much as in the accounts previously considered, can then rise further and end up adjoined to the NegP (or, more precisely, to the operator sitting in Spec NegP):



In the resulting structure, the Negative Criterion is respected: a trace, in fact, does not bear the feature expressed on its antecedent, so that the non-negative head C° is in Spec-head configuration with a likewise non-negative element in Spec CP. The crucial difference with respect to other accounts is that the raising to Spec NegP is not motivated by interpretive properties of the negative, so that it can fail to occur whenever the Negative Criterion is not violated. One such case, the most typical one, involves negatives which are phonetically realized in the Spec AgrP position dominating NegP—in other words, clausemate subjects. Their S-structure raising does not lead to a violation of the Negative Criterion, because the landing site of the negative is an argumental position, as a consequence, a negative subject can be interpreted in place, without undergoing lower nor further raising.³⁰

4.3. Local subjects.

A negative polarity item in Spec AgrP is not c-commanded by an operator in Spec NegP, so that (66a), corresponding to the schematic structure described in (66b), is ungrammatical:

- (66) a. *anybody didn't come
 b. $[_{AgrP}$ anybody $[_{NegP}$ OP ...

However, as we noted above, it is an obvious requirement of any analysis of polarity items that the licensing conditions should not be stated in terms of chains. If traces are irrelevant for the licensing of polarity items, they are relevant for scope assignment; so it can be said that subjects are within the scope of Spec NegP, because they are generated inside VP (following the recent analyses mentioned above in paragraph 1.1. and footnote 5). For negative phrases, however, it is not sufficient to be within the scope of a negative operator: government is also required (by LF). For arguments

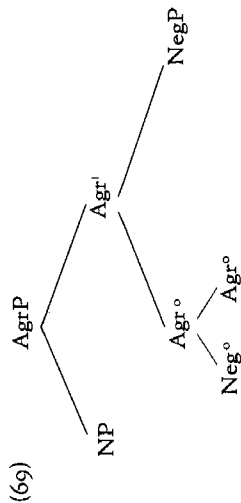
³⁰ A more elegant alternative is simply to assume that, when a negative which has been raised to an operator position is governed (and assigned scope) by the operator in Spec NegP, only the latter must satisfy the requirements imposed by the Negative Criterion. This is exactly the conclusion reached in Rizzi (1991b) for a class of Wh-operators, on the basis of the intriguing evidence provided by McDaniel (1989). McDaniel shows how, in certain varieties of German, a "resumptive" Wh-operator may extend the scope of a lower Wh-phrase, which is allowed to occur in positions not otherwise permitted by the Wh Criterion. In Rizzi's interpretation, this strategy does not actually violate the Wh Criterion, since only the head of the "chain" made up by the two operators must agree with a [+WH] head.

It is apparent that this analysis is easily extendable to the case of negatives. Since the link between the "resumptive" operator (Spec NegP in our case) and the "contentive" one is independently shown to require government (cf. both references cited above), such an extension would further support our contention that government must hold between Spec NegP and a negative for the latter to receive sentential scope. However, this approach seems to have no empirical advantages over the one proposed in the text, so that we prefer to leave both options open; see Acquaviva (1993) for some further arguments that the approach outlined in this note may prove preferable in the analysis of monotone decreasing quantifiers.

which are lower than NegP, the only possible governor in NegP is the operator. In the case of subjects, however, the operator in Spec NegP is too low structurally to be a governor: the requirement of c-command is not satisfied. Another option is in principle available: head-government by the head Neg^o, which, as we have seen, independently rises to Agr^o in both finite and infinitival clauses. The definition of head-government that we adopt, in fact, states that a head-governor must m-command, and not c-command, its governee:

- (67) α head-governs β if and only if:
 (i) α is a head
 (ii) α m-commands β
 (iii) no barrier intervenes
 (iv) Relativized Minimality is respected
- (68) α m-commands β if and only if:
 (i) α does not dominate β
 (ii) all maximal projections that dominate α also dominate β

It is immediate to see that, by being raised to Agr^o, Neg^o m-commands a phrase in the specifier of AgrP:



In fact, Neg^o is a full head (and not a sub-zero category, as could be argued for an affix lacking an autonomous projection), and in (69) no maximal projection dominates it without also dominating NP.³¹

Even though the solution appears to work smoothly as far as the structure is concerned, problems arise when turning to actual sentences containing a negative subject position. The least problematic case is represented by French:

- (70) *personne n'est venu*
 'no one came'

³¹ Note that this also guarantees that Neg^o should govern elements adjoined to AgrP, as has been proposed for the adverbial *mai* ('never') in Zanuttini (1991) and Haegeman (1992):

- (i) *mai nessuno ha osato accusare Gianni*
 'nobody ever dared to blame Gianni'

Thus, the head-government requirement does not force us to regard topicalized phrases as adjoined to the subject in Spec AgrP. This result is not fully in keeping with the conclusions reached by Haegeman (1992) for the legitimacy of NegP as adjunction site, as opposed to Spec NegP. Cf. note 15 above.

Ne, the realization of *Neg*^o, has been raised to *Agr*^o, as the word order shows (cf. the references mentioned in 1.4 for some evidence). In this position, *ne* m-commands *personne*. *Personne*, whose trace is structurally lower than *NegP*, bears the same operator / variable index as the negative scope-marker *ne* (for an explicit account of how this coindexation could obtain, see Acquaviva 1993). As a result, *ne* head-governs *personne*, which is then licensed as a negative NP in the scope of sentential negation. Things are not so easy, however, when we turn to the corresponding Italian and English sentences:

(71) nessuno è venuto

(72) no one came

The obvious problem with these sentences is that no *Neg*^o shows up. It is certainly possible to maintain, in spite of the appearances, that a full-fledged *NegP* is present here as in all sentences involving sentential negation; this is in fact the basic assumption behind the *NegP* hypothesis, and it can be proven by referring to the blocking properties of *Neg*^o with respect to a head raised across it, in the appropriate context (see Moritz 1989 and Acquaviva 1993). However, the mere presence of a null head *Neg*^o is still problematic for our idea that *Neg*^o should act as governor, because there is no evidence of negative features on it. In other words, it is difficult to see how an entirely null *Neg*^o, lacking also a realized specifier, should be susceptible of governing a negative NP, thereby licensing it. A possible way out consists of taking agreement into account: the negative subject could pass its negative features to the head *Agr*^o, so that *Neg*^o would be in the appropriate place to receive them. This sort of solution, however, requires some additional stipulations in the case of negative subjects of infinitival sentences (a structure to which we will turn directly), as in *for no one to come would be a disgrace*. But apart from that, the question is probably not entirely well posed. Consider in fact a typical sentence showing the effects of the Negative Criterion (the same would hold of the Wh-Criterion):

(73) never did John behave so badly

Residual verb-second is triggered by the negative adverbial in Spec CP. Here as in (71-72), however, there is no realized specification of agreeing negative features on the head, which happens to be *Agr*^o (or simply *Infl*^o) in both cases. Rather, the papers which put forth the two criteria explicitly treat the shared features as partly abstract features, whose lexical realization on the inflectional head is subject to cross-linguistic variation (cf. Rizzi 1991a, Haegeman 1992). Therefore, the absence of any features on *Neg*^o is not a direct piece of evidence against the idea that *Neg*^o should govern the subject. It is, however, necessary to restrict the structure in which both members of *NegP* can be null. Pending a more general consideration

of the cases in which this is allowed in the different languages, we will just anticipate that whenever *Neg*^o is empty, a morphologically realized negative element must be very close to it: either as operator in Spec *NegP*, or as subject in Spec *AgrP*; we will further argue in section 6 that other cases involve LF-raising of the overt negative (be it an argument of the verb or an adjunct) to a position adjoined to Spec *NegP*, adopting the basic insight of Haegeman (1992). The conditions under which *Neg*^o is allowed to be empty at LF are thus quite strict.

4.4. Infinitival clauses.

An even more serious problem is raised by examples like the following:

(74) for no one to come to the party would be a disgrace

Is the posited *Neg*^o here capable of governing the subject? if it is not, the whole idea that negatives be subject to a government requirement breaks down, because *no one* apparently has sentential scope, exactly on a par with the tensed variant of the sentence. On the other hand, if *Neg*^o governed *no one*, then it must be concluded that, more generally, the position of sentential subject in infinitival clauses may be governed. Usually, this position is occupied by the abstract pronominal PRO, characterized as [+ pronominal, + anaphoric] for the purposes of the Binding Theory (cf. Chomsky 1981, 1982). The following is an example in which a raised *Neg*^o might be deemed to govern a subject PRO:

(75) PRO non parlare sarebbe un errore

'PRO not to speak would be a mistake'

The assumption that PRO could be governed in negative sentences runs counter to the so-called PRO theorem: if PRO is governed by a given category α , *qua* pronoun it must have no antecedent within a domain minimally including α ; however, *qua* anaphor, PRO must simultaneously have an antecedent within the same domain. Since the requirements are contradictory, it follows as a theorem that PRO can never occur in a governed position.³² The hypothesis that PRO be an empty nominal endowed with a double positive characterization [+anaphoric, +pronominal], thus, successfully and economically accounts for its distribution, which is limited to arguably non-governed positions. In the light of this classical analysis, therefore, it cannot be held that a negative *Agr*^o "exceptionally" governs the subject position in infinitival sentences.

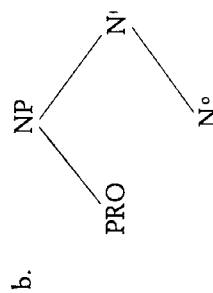
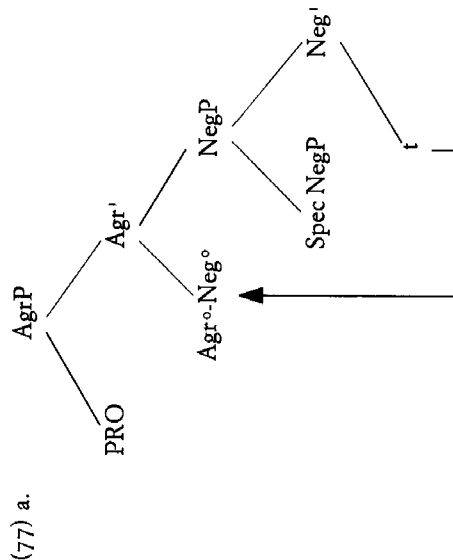
³² The argument here briefly summarized goes back to Chomsky (1981), where the minimal domain including a nominal and its governor is simply defined as "minimal governing category". In Chomsky (1986) the relevant binding domain is more precisely qualified as "(least) complete functional complex". For a novel approach to the issue, which would probably make superfluous the explanation sketched below, cf. Kayne (1990).

In turn, this conclusion casts doubts on the correctness of the entire analysis, which rests on the assumption that government is crucially required to connect a member of NegP to a negative having sentential scope.

There are, however, sound reasons to think that this technical difficulty is only apparent, and that our analysis does not in fact clash with such a basic tenet of the theory as the PRO theorem. Giorgi and Longobardi (1991) have provided compelling empirical evidence in favor of the following two propositions:

- (76) a. understood subjects of Noun Phrases may be syntactically realized as pronominal [NP e] categories
- b. the assignment of reference to such empty categories observes exactly the same pattern imposed by Control theory to PRO subjects of infinitives (Giorgi and Longobardi (1991; p. 191))

The validity of (76) leads to the conclusion that the specifier position of NPs may be filled by a PRO, as originally suggested by Chomsky (1981). However, this plausible hypothesis faces the same kind of theoretical problem previously sketched in connection with our analysis: it is posited that PRO may occur in a specifier position where it may be governed by the head which m-commands it, Neg°-Agr° in our analysis and N° in the one of Giorgi and Longobardi:



The problem, as we have seen, is that a governor for PRO defines a minimal binding domain, in which the contradictory requirements holding of anaphors and pronominals must be fulfilled. As Giorgi and Longobardi notice, however, the one independent piece of evidence for thinking that the governor should be included in the binding domain involves a different kind of structure:

- (78) a. John believes [him to be intelligent]
- b. John would prefer for [him to win]

in (78a), the governor for the embedded subject *him* is the verb *believes* (which exceptionally governs and Case-marks it). Since *him* is necessarily disjoint in reference from the matrix subject *John*, the conclusion follows that the relevant binding domain defined by the governor of the pronoun is the whole sentence. The same applies for (78b), where the governor is the prepositional complementizer *for*. Both *believes* and *for* govern and c-command the pronominal; on the other hand, Neg°-Agr° and N° in (77) above govern and m-command PRO, without c-commanding it: PRO is in fact outside the first projection dominating its governor, but internal to the first *maximal* projection dominating it. This asymmetry interestingly dovetails with the observation that the local domain required by binding relations must be defined in terms of c-command, and not of m-command (cf. Giorgi and Longobardi 1991: chapter 1). Since the locality relation relevant for binding appears to be c-command, Giorgi and Longobardi propose that the government involved in defining the appropriate binding domain should also involve c-command, and not just the looser notion of m-command. This hypothesis immediately accounts for the possibility of a PRO in a specifier position, where the head which defines the relevant binding domain governs, but does not c-command it.³³ Since our problematic structure does not differ in the relevant aspects from the one discussed by Giorgi and Longobardi, we can apply their solution to our case as well.

It may thus be safely hypothesized that, as our analysis led us to say, a subject negative is head-governed by a Neg° raised on Agr°. In the case of an infinitival negative sentence, as (75) above, Neg° does indeed govern PRO; accepting the adjustment suggested by Giorgi and Longobardi to the Binding Theory, this does not entail a violation of the PRO theorem, because the kind of government involved is not the one required to define a binding domain.

³³ The impossibility of PRO in the specifier of a tensed AgrP is probably independently caused, as Giorgi and Longobardi suggest, by the general ban against [+anaphoric] expressions as subjects of a (fully specified) agreement head.

4.5. Summary.

We have argued that the locality requirement holding at LF between a negative indefinite and NegP is government. In the case of negatives which are lower than NegP, the government is defined as antecedent-government by the operator filling Spec NegP; all negatives which are not in this local configuration with Spec NegP at S-structure must undergo raising at LF, which is constrained by ECP. Subjects of negative sentences, on the other hand, are structurally higher than the NegP which defines their scope. In this case, the negative is head-governed by Neg^o, which, as independently argued, is incorporated into Agr^o by LF. This solution also works in the seemingly problematic case of infinitival clauses, where the assumption that Neg^o is a governor for PRO in Spec AgrP seems to run counter to the PRO theorem. To overcome this difficulty, it is sufficient to adopt a slight refinement of the Binding Theory independently proposed to account for entirely unrelated facts.

5. Different predictions.

After laying down our proposal in some detail, we are now going to examine how it can claim explanatory superiority over previous analyses. The predictions of the competing theories differ significantly in the domain of reason adverbials, which are arguably antecedent-governed by an operator in Spec NegP, without being governed by an appropriate head. Before making our point, however, it will be necessary to assess critically a number of alternative options.

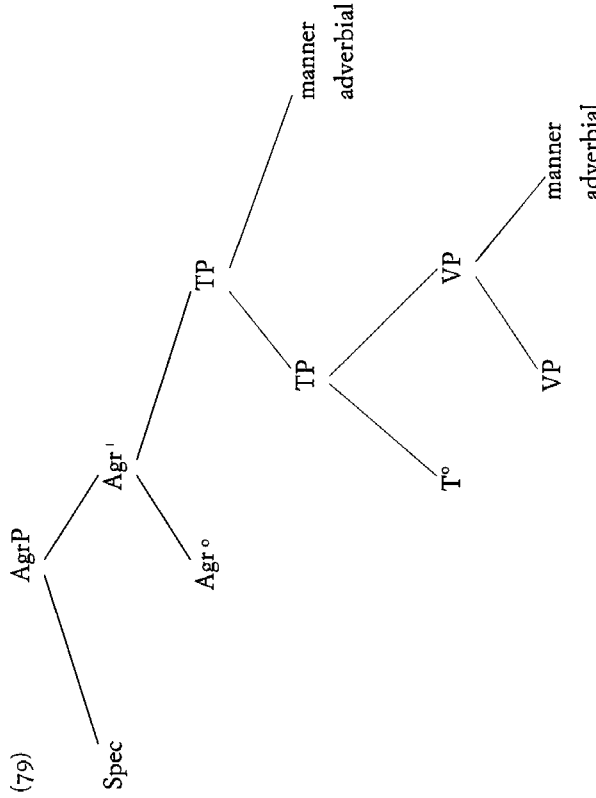
5.1. Recapitulation.

The proposed analysis does not differ greatly from more usual ones. Any approach holding that negatives are raised to Spec NegP at LF must assume that their S-structure position is properly governed by an appropriate head-governor, in order to fulfill the ECP requirements on traces. On the other hand, in our analysis any negative indefinite must be governed by Neg^o or by the negative operator in Spec NegP. In order to satisfy this requirement, negatives are raised to a position close enough to the operator to be antecedent-governed by it. However, in most cases the landing site of the negative is an A-bar position, because most structural slots which can potentially host arguments (= A-positions) are in fact occupied by arguments or by their traces. In an A-bar position, the negative qualifies as an operator, and for the Negative Criterion it must agree in the relevant feature with the head of the host projection. But this is usually not the case; therefore, the negative must rise up to NegP. It has been shown that the slight divergence of our account with respect to previous ones suffices to remove many problems in connection with clausal subjects. In this section

we are going to review a more robust piece of evidence in favor of our analysis; namely, that provided by a class of structures in which the two competing approaches make separate predictions.

5.2. Reason adverbials.

Adverbials can, but need not, be head-governed. Rizzi (1990: 47-50) provides some evidence supporting the view that the only head-governed adjuncts are manner adverbials adjoined to VP, adjunction to TP being restricted to reason adverbials:



The head T^o can govern across the first segment of the split VP projection. On the other hand, a trace in a position adjoined to TP cannot be properly governed by Agr^o (presumably, as Rizzi suggests, because this head can only govern coindexed elements). This configuration is ruled out by the ECP, which requires that a trace be head-governed within the immediate projection of the governor. Reason adverbials, however, can be base-generated in Spec CP, so that their non-extractability is usually obscured:³⁴

(80) why do you think that John fixed the car?

³⁴ In Rizzi's analysis, a reason adverbial can be generated in the Spec CP position of the clause over which it has scope. The scope ambiguity of (80), thus, is caused by the two possible structural analyses: if *why* has scope over the whole sentence, it is base-generated in the highest Spec CP; if it has scope over the subordinate clause only, it is generated in the lower Spec CP, undergoing movement in the syntax.

Even putting aside the potential problems linked to the presence of prepositions, the data (83)-(86) are not conclusive for showing that no raising takes place. It could in fact be argued that a somehow "stronger" form of Neg° acts as an appropriate head-governor in languages with Negative Concord, thus appropriately marking the putative trace of the adverbial in Romance, while the English corresponding structure would be correctly ruled out. In the next paragraph we are going to evaluate this possibility.

5.3. *Neg° is not an appropriate head-governor.*

5.3.1. *Inconclusiveness of some scope ambiguities.*

That Neg° should be among the heads capable of appropriately govern traces is questionable, given its purely functional status. Unfortunately, the point cannot be proven in the most obvious way, namely by moving the adverbial to the specifier position of the matrix CP:

(92) per quale ragione Maupassant scrisse *Le horla*?

'for what reason did Maupassant write *Le horla*?'

(93) per quale ragione Maupassant non scrisse *Le horla*?

'for what reason didn't Maupassant write *Le horla*?'

If we accept Rizzi's analysis, in both (92) and (93) the adverbial is base-generated in Spec CP. Hence, the grammaticality of both sentences is irrelevant with respect to the status of Neg° as a head-governor.

One should notice, however, that the non-interrogative counterpart of (93) is ambiguous:

(94) Maupassant non scrisse *Le horla* per questa ragione

'Maupassant did not write *Le horla* for this reason'

If negation is interpreted as having scope over the adverbial, then the sentence is truth-conditionally equivalent to 'it is not for this reason that Maupassant wrote *Le horla*'; with the inverse scope order, the interpretations is 'it is for this reason that Maupassant did not write *Le horla*'. Such ambiguity is lost in the interrogative (93): the c-commanding adverb cannot be interpreted within the scope of negation. The loose paraphrase 'given that he did not write, why was it the case?' is the only one admissible, while 'irrespective whether he wrote it or not, what is the reason that definitely did not motivate his choice?' is excluded. The conclusion that might be drawn is that the internal construal of the adverbial is possible only when it is interpreted in the right-adjoined position, which is c-commanded by negation; this would be the case if a trace were licit; but the construal is missing, therefore no trace is there and Neg° is no appropriate licenser for traces.

Such a conclusion would be too swift, however. Consider the following sentences, involving a manner adverbial:

(95) Gianni non ha violato la legge con piena consapevolezza

'Gianni did not break the law with full awareness'

(96) in che modo Gianni non ha violato la legge?

'in what way didn't Gianni break the law?'

Even if in (95) the internal construal of the adverbial is preferred on pragmatic grounds, (96) is as unambiguous as (93). This can be readily explained within the Relativized Minimality framework: traces of adverbials must be connected to their antecedents via government. But the intervening negation is represented as a NegP, whose (filled) specifier blocks antecedent-government by Minimality. In order to prove that Neg° is no appropriate head-governor we have to look at other constructions.

5.3.2. *Extraction facts.*

Let us assume that Rizzi (1990) is correct in separating the movement of "referential" phrases from that of "non-referential" ones,³⁶ in that only the former can connect the members of their chain via binding, as opposed to government. We can then account for the following asymmetries:

(97) a. la situazione da cui Gianni non ha saputo trarre partito è questa

'the situation Gianni was not able to take advantage of is this'

b. *il partito che Gianni non ha saputo trarre dalla situazione è questo

'the advantage that Gianni was not able to take of the situation is this'

c. il partito che Gianni ha saputo trarre dalla situazione è questo

'the advantage that Gianni was able to take of the situation is this'

(98) a. per che assenza non ti hanno permesso di accampare scuse?

*che scuse non ti hanno permesso di accampare la tua assenza?

'what excuses did they not allow you set up for your absence?'

c. ?che scuse ti hanno permesso di accampare per la tua assenza?

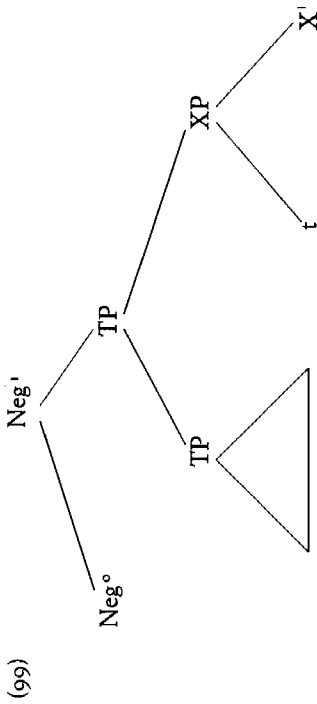
'what excuses did they allow you to set up for your absence?'

In (97a) and (98a), an argument provided with a referential theta-role is respectively relativized and questioned across sentential negation. The intervention of negation in the (b) sentences, however, blocks the correspondent Wh-movement of the nominal part of the two idioms involved, *trarre partito* 'to take advantage' and *accampare scuse* 'to set up excuses'. As the acceptability of the non-negative (c) sentences shows, negation is crucially responsible for interrupting the government relation

³⁶ See Rizzi (1990, 1991b) for the details of this proposal. Let it suffice here to state that "referential" should not be taken in the ontological sense.

holding between the raised idiom chunk and its trace. The conclusion drawn in the mentioned reference on the basis of similar evidence is that binding, but not government, can overcome the effects of the negative island.

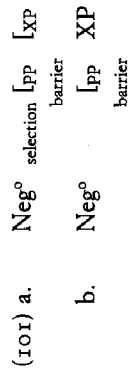
In order to check if Neg⁰ is an appropriate head-governor, we can now try to extract a referential argument from a complex reason adverbial, in such a way as to allow Neg⁰ to govern and c-command the trace:



Provided that the adverbial does not block movement independently, the trace could be connected to the antecedent via binding, overcoming the effects of the intervening NegP. In most cases, a reason adverbial is embedded in a complex PP, which according to Cinque (1990) causes its complement to be a barrier for binding as well as for government:

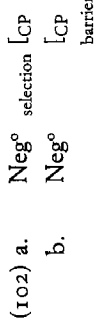
(100) Every maximal projection which fails to be directly or indirectly selected in the canonical direction by a category non-distinct from [+V] is a barrier for binding.³⁷

We have seen that when a negative is the immediate complement of a P, the whole PP counts as negative, so that (100) has no consequences. If the PP is a complex (clausal) one, two possibilities arise: either it is selected by Neg⁰, or it is not. In the first case, since Neg⁰ is a category non-distinct from [+V], PP is not a barrier for binding, but its complement is; if Neg⁰ does not select the adverbial, then the whole PP is a barrier for binding:



³⁷ Notice that Neg⁰, though not marked [+V], is not problematic with respect to Cinque's principle: like all other functional projections, it is categorially "non-distinct" from [+V]. Therefore, TP is not inherently a barrier.

If, on the other hand, the adverbial is not a PP but, for instance, a bare CP, in the case of selection by Neg⁰ there will be no barriers, while if the adverbial is not selected the CP itself will be a barrier:



In conclusion, this system predicts that a clausal PP will always be a barrier for binding from outside, and therefore also a barrier for antecedent-government. A bare CP reason adverbial, on the other hand, will be accessible for binding from outside only if selected by Neg⁰.

With this much as theoretical background, consider the following sentences involving complex reason adverbials:

- (103) a. non mi sono opposto perché sospettassi Gianni
b. non mi sono opposto perché Gianni attirasse i miei sospetti
- (104) a. I objected because I suspected John
b. I objected because John raised my suspicion
- (105) a. *Gianni, che non mi sono opposto perché sospettassi t
b. *Gianni, che non mi sono opposto perché t attirasse i miei sospetti
- (106) a. *John, who I objected because I suspected t
b. *John, who I objected because t raised my suspicion

Not surprisingly, a referential argument embedded in a reason adverbial clause cannot be moved to the matrix Spec CP. The ungrammatically is the same with the trace in subject and object position, as shown in the above sentences, and presence or absence of sentential negation is irrelevant. This well-known fact means that binding is impossible between the antecedent and a trace embedded in an adverbial. With respect to the assumptions sketched above, this can be the case either if Neg⁰ fails to select the adverbial in any relevant sense, or if the adverbial is indeed (indirectly) selected, but is embedded in a PP. Before proceeding, consider the consequences of the first possibility: if the reason adverbial is not linked to Neg⁰ in any relevant sense, then a fortiori Neg⁰ will not license its trace as an appropriate head-governor. This is, in essence, the content of the Condition on Extraction Domains, first proposed by Huang (1982) and variously adapted and interpreted in the subsequent literature: the licensing requirements for trace-licensing and the marking requirements for projections crossed over by movement are the same, or at least are of the same nature. Any account that explains the ungrammaticality of (105-106) above on the basis of the lack of proper government on the adverbial, therefore, will derive that Neg⁰ is not an appropriate head-governor for traces.

There is still the possibility that the opacity to binding in (105-106) be caused not by lack of appropriate selection by Neg⁰, but rather by the presence of an intervening PP barrier. But consider the following sentences:

- (107) a. ?non mi sono opposto perché sospettassi nessuno
 b. *non mi sono opposto perché nessuno attirasse i miei sospetti
- (108) a. *I objected because/for I suspected no one
 b. *I objected because/for no one raised my suspicion

The intriguing fact shown by (107) is that, in contrast with what happens in English, Italian negatives like *nessuno* ('nobody') can indeed be connected to the matrix clause negation, thus achieving sentential scope, provided that they are in a properly governed position. Recall that Romance negative "quantifiers" must satisfy at LF strict locality requirements with respect to their scope-markers: either they have to be governed by the operator in Spec NegP, as we propose, or they must rise to the same position, as in the more restrictive standard analysis. In accordance with the requirements of both approaches, the negative indefinite must surface in a properly governed position, so that it may rise to Spec CP at LF leaving a licensed trace; hence the familiar subject-object asymmetry. Several interrogatives are raised by (107-108): firstly, what motivates the asymmetry between Italian and English? Second, how can these data be reconciled with the absolute opacity reason adverbials display with respect to overt movement? Finally, in the hypothesis that the adverbials are not bare CPs, how is it possible that Romance PPs be less opaque than their English counterparts?

The last interrogative can be most easily disposed of. Several pieces of evidence point to the interpretation of *perché* as a complementizer: it is compound of the preposition *per* "for" and the complementizer *che* "that"; unlike the English *because*, it never subcategorizes for a noun (cf. *because of John* vs. **perché (di) Gianni*); it is in complementary distribution with any overt complementizer. These arguments seem sufficient to regard *perché* as within the projection CP; in addition, there is apparently no need to postulate an *ad hoc* and completely superfluous empty preposition to head an external PP projection. More specifically, *perché* fails to cooccur with a complementizer even in those dialects which allow for the simultaneous expression of the head C° and of the operator sitting in Spec CP (cf. Poletto 1990), thus strongly suggesting that its categorial status is that of a head C°. This result is entirely in keeping with the evidence provided by (107): the Spec CP position is free to host a raised negative. This is not the case for another causative conjunction, *siccome*, which typically cooccurs with the C° *che* in some dialects, and thus is most properly analyzed as in Spec CP:

- (109) *non mi sono opposto siccome sospettavo nessuno³⁸
 'I objected because I suspected no one'

³⁸ Notice that *siccome* differs from *perché* also in not requiring subjunctive in the adverbial clause. The crucial role of tense and mood in delimiting the scope of negatives is well known,

In this case, *nessuno* cannot rise to the occupied Spec CP, so that it fails to be governed by the matrix clause negative operator at LF.

Since *perché* does not head a PP, the ungrammaticality of (105a) above cannot be due to an intervening PP barrier; as a consequence, it must be concluded that Neg° is not among the appropriate licensors for traces, because otherwise it would be able to license the trace of an extracted referential argument in Spec CP.

In order to answer the remaining questions, it is necessary to sharpen our account of how negative indefinites receive sentential scope. Before turning to that task, let us briefly consider an alternative proposal.

5.4. *Pied piping of the adverbial.*

Assuming that at least some adverbials are bare CPs makes the situation no clearer. In this case, the only possible explanation for the strong opacity with respect to overt movement is lack of appropriate selection of the adverbial CP by Neg°, or by any other head. But this should prevent any binding relation between the matrix clause and an element within the adverbial, in contrast with the data in (107) above. A way to get out of the *impasse* is to assume that the features characterizing the negative indefinite are transferred to the head C° when the negative is raised to the Spec CP position; in turn, the whole CP can be raised at LF to Spec NegP, thus indirectly moving the negative to the required scope position. A similar line of inquiry is pursued by Moritz and Valois (1992), who follow a different theory of movement from that adopted here. It seems to us that shifting the movement to the LF level, though theoretically viable, in this case poses more questions than it is able to answer. Raising the entire clausal adverbial presupposes that Neg° is an appropriate head-governor, but this assumption need be independently motivated. The crosslinguistic differences we have considered would remain unexplained, or at least would require additional assumptions. The percolation mechanism, by which the entire CP receives the quantificational features from the negative in Spec CP, should be made not only explicit, but also restrictive enough to be prevented from applying in many other cases.³⁹ Most notably, if one accepts

even though a comprehensive analysis of their interaction with other operators is still to come. The issue is addressed in Longobardi (1991; note 15) and Zanuttini (1991, to appear); more generally, cf. Farkas (1985).

³⁹ Longobardi (1991) puts forward an explicit and restrictive account of percolation of quantificational features, formalized by the following convention:

- (i) if a lexical head α governs the lexical head β bearing a feature [+Q], then α may inherit the feature [+Q] from β .
 (= Longobardi's (83), p. 175)

We will not pursue a detailed assessment of this proposal, even though it is noteworthy that (i) would independently rule out an instance of percolation like that described in the text and argued for by Moritz and Valois (1992). For other approaches to feature percolation, less directly relevant for the analysis of negatives, cf. Ortiz de Urbina (1990) and Webelhut (1989).

that the adverbial CP can be endowed with the relevant quantificational features, it is predicted that embedding the CP into a PP should not cause a decrease in acceptability, exactly as a negative NP can perfectly be embedded in a PP. In so far as the appropriate structure can be built, the prediction is not borne out:

(110) Gianni non si è opposto per nessuna ragione
'Gianni [neg] objected for no reason'

(111) ?Gianni non si è opposto perché destasse nessuno
'Gianni [neg] objected because he suspected no one'

- (112) a. *Gianni non si è opposto affinché la commissione boicottasse nessuno
b. *Gianni non si è opposto così che la commissione boicottasse nessuno'
c. *Gianni non si è opposto di modo che la commissione boicottasse nessuno
'Gianni [neg] objected so that the committee should boycott no one'

As a result, we reject the idea that a pied piped clausal reason adverbial might undergo LF raising to Spec NegP.

5.5. Summary.

Reason adverbials are arguably close enough to NegP to be antecedent-governed by an operator in Spec NegP; however, they cannot be moved, nor is it allowed to raise a constituent from within them. There are compelling reasons for thinking that the intervention of the head Neg^o does not change these conditions, because Neg^o is not an appropriate governor for traces. Assuming that all negatives rise to NegP to be assigned sentential scope, therefore, predicts that no negative reason adverbial may have sentential scope, while our theory makes the opposite prediction. In fact, French and Italian confirm our analysis, in that in both languages a negative reason adverbial may have sentential scope. Moreover, in Italian this reading is also available for negatives embedded within a clausal reason adverbial, provided that it is a bare CP and that the negative can move at LF to reach Spec CP. An alternative approach, involving pied piping of a whole clausal reason adverbial, has been criticized on theoretical and empirical grounds.

6. Scope assignment and the negative feature.

We still have to explain why our theory is confirmed by Italian and French, but does not derive the correct results for languages like English. In this section we are going to argue that the discriminating property is the obligatory spell-out of negative features on NegP. Some reasons will be provided for thinking that the presence of morphological negative features on NegP is distinct from the presence of a more abstract feature, which

may be identified as operator index. Finally, we will consider how the system may be extended to account for negatives embedded in a clausal reason adverbial.

6.1. Morphological vs. interpretive negative feature.

The facts just reviewed about reason adverbials have a direct relevance on the difference between languages with and without Negative Concord. In English, the generalization is that a negative in a reason adverbial, either embedded in a simple PP or in a clausal projection, can never receive sentential scope. An analysis in terms of movement derives the desired results: it can be safely assumed that, in order to be interpreted with sentential scope, a negative should raise to Spec NegP (cfr. (82) above). But since Neg^o fails to license a trace, be it that of the whole adverbial or of the negative in Spec CP, this sort of movement is never allowed; as a result, no reading with sentential scope is allowed. In this case, the complete opacity to LF-movement mirrors the opacity with respect to overt movement (cf. (106) above). In Romance, things are different. Overt movement is as ungrammatical as it is in English, but a negative can have scope over the whole sentence, and is therefore somehow connected with the matrix NegP. This contrast is puzzling, since strong evidence suggests that Neg^o does not select the reason adverbial in either language family.

Speaking intuitively, the Romance matrix negation appears to be in fact "stronger" in some sense than the English one, even if this vague "strength" does not allow it to select an adverbial. It is revealing that English dialects with Negative Concord pattern with Romance:

(113) I ain't gonna touch it for no reason

It is evident that the presence of lexical negation on NegP overlaps with the capacity of the negative indefinite to receive sentential scope without moving. Yet we do not want to concede that in (standard) English all negatives have to move to Spec NegP, or else the explanation for subjects would be lost. What we propose is that the morphological negative feature be dissociated from the interpretive feature which characterizes a null negative operator. All elements having the first have the second, but not conversely. The dissociation is independently needed in order to account for the distribution of polarity items in double object constructions:

(114) a. I gave John a book

b. I gave John no books

(115) a. I gave no one any book

b. *I gave anyone no book

This well-known paradigm is commonly taken as evidence that in double object constructions the benefactive (the first object) c-commands the patient

or theme (the second object). In our approach, already at S-structure Spec NegP is filled by an empty operator—any alternative analysis must claim that the Negative Criterion does not apply at S-structure, thus losing the explanation for most of the facts discussed by Haegeman (1992) and Rizzi (1991a). It appears from (115b) that this empty operator, though coindexed with the negative indefinite, is not an appropriate licenser for polarity items. The same point can be made by adapting Kayne's (1981) original examples:

- (116) a. *in all these weeks, he's suggested that not a single term paper be written
 b. ?in all these weeks, he's suggested that we write not a single term paper

The object negative, but not the subject, can raise to a position governed by the operator in Spec NegP, as shown in (116a-b). The operator itself, however, cannot license a subject polarity item:

- (117) *in all these weeks, he's suggested that anyone write not a single term paper

The intuitive difference between a realized negative formative and an abstract one appears to play a significant role. Let us then make it explicit, by distinguishing the morphological negative feature from the (unselective) operator index. Since the realization of negative features apparently is not crucial for the Negative Criterion (provided that at least one member of NegP ends up in local relation with an overt negative, thus ensuring recoverability of the feature), we conclude that the [+negative] characterization of the original wording of the criterion is *not* to be identified with the morphological, overt negative feature.⁴⁰

6.2. Negative morphology and negative concord.

We can now formally characterize the difference between the English and the Romance (and non-standard English) operators: only the latter are specifiers of heads endowed with the morphological negative feature. It is natural enough to think that agreement within NegP can pass this characterization on to the operator.⁴¹ Adapting an insightful point due to

⁴⁰ Detaching a visible characterization from the content of the Negative Criterion implies that there could be instances of NegP without any relation at all with a morphological negative, and of course this move may cause indiscriminate overgeneration, ultimately depriving the Criterion of its explanatory content. But it would be incorrect to gage the admissibility of such a move without taking into account the syntax of monotone decreasing quantifiers like *few women*, *at most two people*, or *only three men*, which appear to require a NegP projection without having any negative morphology. Cf. Longobardi (1991) and, for a discussion, Acquaviva (1993).

⁴¹ Alternatively, one might assume that the null operator in Spec NegP can act as binder for indefinite negatives because it is, in turn, governed by a [+negative] head. The crucial role of head-government by Neg⁰ is suggested by the analysis of Haegeman (1992), who notes that Neg⁰ may satisfy the negative Criterion even by its trace, unlike phrasal categories. This suggests that government plays a role in licensing negative operators, since heads, but not phrasal categories, govern whatever is governed by their traces, in virtue of the Government Transparency Corollary of Baker (1988). Still another possibility is that what must govern negative indefinites is neither the operator in Spec NegP nor the head Neg⁰, but more generically a member of the

Haegeman (1992), we may now say that the greater "strength" of Romance Neg⁰ is defined in simple and precise terms as the requirement that the negative feature should be spelt out by S-structure.

To account for the data, all that is needed at this point is the following principle:

- (118) an indefinite morphologically marked [+negative] is assigned scope by a governing [+negative] operator.

(Recall that sharing of the same operator index is independently needed, for otherwise no government could obtain). In practice, principle (118) states that the required coindexation between operator and variable must include the morphological [+negative] feature. In languages with Negative Concord, the negative feature is spelt out at S-structure in NegP, and precisely on the head Neg⁰.⁴² Let us assume that this expression of the feature suffices to qualify the null operator in Spec NegP as appropriate governor for a negative indefinite. In this case, scope is assigned to the indefinite via government by the coindexed operator; the indefinite itself need not be raised, and therefore it is susceptible of receiving sentential scope even if it is a TP-adjoined reason adverbial. In a language like English, on the other hand, negation is expressed on NegP only in absence of any other element marked [+negative]. If an indefinite is thus marked, it cannot receive scope simply by being governed by the operator, because such an operator would

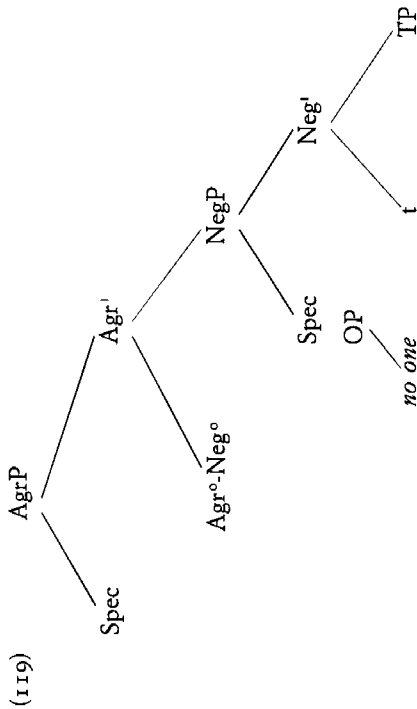
projection NegP. This last line of explanation appears particularly interesting, because it can be immediately linked with the interpretation of the sentence: interpretively, both OP and Neg⁰ express but one propositional negative operator, which is then associated with the existential closure of the sentence. From this viewpoint, it is irrelevant what element bears the [+negative] feature in the representation, as long as the feature is expressed. We are not going to pursue this matter further here; cf. Acquaviva (1993).

⁴² Negative Concord is often understood as the possibility for two or more negative indefinites to be interpreted as variables bound by one single negative operator. This much weaker notion differs sharply from the property of having obligatorily realized negative markers in NegP, which is referred to in the text. In our opinion, it would be preferable to restrict the use of the label to the second sense only, because the first one is arguably a general semantic property whose applicability is constrained by syntactic factors (cf. May 1989 for an analysis based on English, and Acquaviva 1993 for some discussion). The degree to which this option is available certainly varies across languages (as well as across styles), but it can hardly be useful as a criterion for typological classification. For example, as Manzotti (1991) illustrates, even in Italian, a language typically deemed to have Negative Concord, the possibility of "multiple-variable" reading for two negatives is strongly constrained, independently of the syntactic restriction devised in May (1989):

- (i) nessuno studente ha letto niente
 'no student read nothing'
 'no student read anything'
 (ii) ?nessuno studente ha letto nessun libro
 'no student read no book'
 'no student read any book'

Exactly as in English, the intended reading requires a particular intonation, and is stylistically not neutral. According to Manzotti's conclusions, *niente* and *nessuno* (both 'nothing') are the only items which can freely occur together with a negative indefinite—pronominal *nessuno* 'no one' might be added, however.

not share the necessary morphological feature with the indefinite. Thus, the negative indefinite itself must be raised to NegP and adjoined to the operator:



Now, the problem is how to ensure that the negative feature can characterize the base-generated operator. A reasonable answer is to invoke Quantifier Absorption, an LF operation which has been proposed by Higginbotham and May (1981) and variously adopted in the subsequent literature. Haegeman (1992) argues that Quantifier Absorption applying to negatives is the property which characterizes languages with Negative Concord, to the effect that several negative quantifiers are interpreted as a single multiple quantifier. However, notice that even in standard English Negative Absorption is attested:

(120) John said nothing to no one

Although (120) could certainly be paraphrased in a perhaps more accurate style, it is by no means a construction restricted to Negative Concord dialects of English. The interesting observation is that also in this circumstance the negations expressed on the two indefinites are interpreted as a single, and not double, logical negation. Hence, Quantifier Absorption exists for English negatives; in turn, it can be invoked for explaining how a null operator receives morphological negative features from an adjoined phrase.⁴³ The consequences of Quantifier Absorption for English are now

⁴³ Notice that by Quantifier Absorption the "unification" of operators is an LF-operation, and in our analysis principle (118) applies at LF; as a consequence, the movement of the negative to Spec NegP need not take place as early as at S-structure. The fact that a "late" LF-adjunction might significantly alter the syntactic configuration is not to be taken for granted; we have seen that the cases of "anaphoric agreement" discussed by Rizzi (1990), for example, require coindexing at S-structure.

straightforward: both the raised negative and the base-generated operator govern the trace of the indefinite, which is then assigned scope in accordance with principle (118).

It is still necessary to account for the presence of negative subjects which can receive sentential scope despite being governed by a null head Neg°, both in tensed and infinitival sentences:

- (121) nobody talked
 (122) it would embarrass John for nobody to support him

The only kind of relation between subject and inflection which does not change in either type of sentences is the purely structural relation of Spec-head agreement. This configuration, we believe, is sufficient for endowing the head Agr°, and consequently Neg° as well, with the relevant morphological feature [+negative]. An obvious objection is that not all the Spec-head configurations allow such feature sharing; the clearest example is provided by the licensing of *pro*, for which agreement with inflection is necessary, but not sufficient. Applying this line of reasoning to negation, Haegeman (1992) relates a major asymmetry between French and Italian subject negatives to a different specification of the head Agr°:

- (123) a. nessuno (*non) parla
 b. personne *(ne) parle
 'no one talks'

Why is the realization of Neg mandatory in French, but impossible in Italian? A plausible answer is that the agreement relation between Spec AgrP and Agr° is in Italian, in a sense to be made precise, "tighter" than in French; the greater "strength" of Italian Agr° is undoubtedly linked to its ability to license a null subject.

We do not find such an objection persuasive, however. In the now extensive literature about *pro* licensing, a certain consensus has developed on the necessity to distinguish formal licensing from recovery of the features (cf. especially Rizzi 1986, 1990 and Cinque 1990). The relative "strength" of a head can therefore be evaluated with respect to the presence or absence of the relevant features. In the case at hand, for Agr° to license a subject *pro* not only must it be an appropriate licenser, but it must also provide the necessary pronominal features. The morphological negative feature, however, is not linked to the expression of pronominal features, as is clear from the fact that both in French and in Italian Neg° appears on the featureless infinitival Agr°:

- (124) a. non fumare è di moda
 b. ne pas fumer est à la mode
 'not to smoke is trendy'

Therefore, it is admissible that, also in a non-*pro*-drop language such as English, the purely structural agreement configuration between Spec AgrP

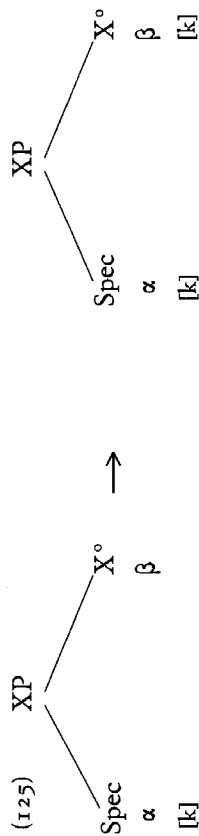
and Agr° should be sufficient to identify the head Neg° as endowed with the [+negative] feature.⁴⁴ The next step in order to derive the correct results is to ensure that a member of NegP could govern the subject negative. To this purpose, we can simply recall our previous discussion of the possibility that government by the head Neg° should be sufficient (cf. paragraph 4.3 above). The behavior of English negative subjects is then no longer at odds with the principle stated in (118): a negative indefinite in Spec AgrP suffices to qualify Neg° as [+negative]; in turn, this qualification of Neg° is sufficient to qualify OP as an appropriate scope-marker for the negative indefinite.

6.3. Clausal adverbials.

6.3.1. Dynamic Agreement.

Having argued that a negative indefinite must be governed by a [+negative] operator (or by an element belonging to NegP) in order to receive sentential scope, we have to explain why complex reason adverbials appear to be transparent to government at LF, but totally opaque at S-structure. Recall that in paragraph 5.3.2. above we have related this opacity to the fact that a reason adverbial is not selected by any head, in the framework outlined by Cinque (1990). Government obtains, however, between the operator in Spec NegP and the whole adverbial, even if the latter cannot be moved. The only possible way to reconcile our previous assumptions with the data in (107) is to mediate the interpretation of the negative indefinite through the interpretation of the whole adverbial CP; in other words, we have to check if the whole adverbial could "count" as negative.

We have to single out a property which could overcome the expected opacity in adverbial clauses, without allowing for overt movement. A plausible candidate is the notion of Dynamic Agreement, as characterized in Rizzi (1991a). By Dynamic Agreement, a constituent with a feature *k* sitting in Spec XP endows the head X° with *k*:



⁴⁴ Another possible objection is that in Italian Aux-to-Comp constructions, the subject of the tenseless clause cannot be a negative indefinite:

- (i) *essendo nessuno contrario, la mozione è approvata
'being nobody opposed the motion is passed'
'as nobody is opposed, the motion is passed'

In Rizzi's account, this process takes place in French, but not in English, whenever an interrogative sentence contains a Wh-phrase *in situ* and no Wh-phrase in Spec CP at S-structure:

- (126) a. tu as vu qui?
b. qui C° tu as vu t
[k]
- (127) qui as-tu vu t?
[k] [k]
'who did you see?'

The Wh-phrase *qui* is raised, either at LF as in (126) or at S-structure as in (127), and occupies its normal scope position in Spec CP (cf. Rizzi and Roberts 1989 for a detailed analysis of complex inversion); Dynamic Agreement ensures that the C° head is appropriately coindexed (not in the referential sense) and the Wh Criterion is thus respected, without the need for Agr° to rise up to C°.

6.3.2. Dynamic Agreement in Italian.

Is Dynamic Agreement available in Italian as well? At first glance, it would appear that the Italian versions of (126-127) are marginal or unacceptable:⁴⁵

- (128) ?hai visto chi?
(129) *chi tu hai visto?

However, some qualifications are in order. As Rizzi notes (1991a: footnote 12 and cited references), in Spanish Dynamic Agreement seems to be restricted to LF, so that the structure corresponding to (129) is ungrammatical, whereas questions with Wh-phrases *in situ* are acceptable. In the light of this observation, it is interesting that the Italian pair (128-129) indeed shows a rather clear contrast: (129) is completely ungrammatical, while (128) requires a contrastive stress on *chi*, which qualifies the rest of the sentence as "given" information, thus rendering the structure virtually indistinguishable from an echo question. In fact, May (1985) treats focused

- (ii) *per essere nessuno arrivato in tempo, la riunione è annullata
for to be nobody arrived in time the meeting is cancelled

'because nobody has arrived in time, the meeting is cancelled'
However, these examples are much more plausibly explained by the need for Neg° to incorporate with Agr°, which in this case is raised to C°. In this configuration, Neg° is not in agreement with the subject, and must therefore be autonomously realized:

- (iii) non essendo nessuno contrario, la mozione è approvata
(iv) per non essere nessuno arrivato in tempo, la riunione è annullata

If anything, these examples support our view that a negative indefinite must be governed by a member of the NegP projection provided with the [+negative] feature.

⁴⁵ (128) is of course fully grammatical as an echo question.

and echo questions alike, in both cases assuming that the Wh-phrase is raised at LF to a position adjoined to CP. Nevertheless, it is possible to focus the Wh-phrase *in situ* without necessarily obtaining an echoic interpretation. Consider the following pair:

- (130) *pensi che Gianni abbia parlato con chi?*
 'you think that Gianni talked with whom?'
 (131) *non sai se Gianni abbia parlato con chi?*
 'you don't know if Gianni talked with whom?'

If the interrogative clauses are embedded, the difference between echoic interpretation and genuine interrogation becomes apparent. (130) Is ambiguous between the two readings, and only the intonational contour can mark the difference: in the true echoic reading the pitch reaches a peak in correspondence of the Wh-phrase, while in the non-echoic focused reading the last syllable has a falling pitch. (131). On the other hand, can only receive the melody and the interpretation of an echo question. The contrast is made explicit by adding to the Wh-phrase a tag which is only compatible with an interrogative:

- (132) a. *quali parole esattamente ha pronunciato Gianni?*
 'what words exactly did Gianni utter?'
 b. **Gianni ha pronunciato queste parole esattamente*
 'Gianni uttered these words exactly'
 (133) *Gianni ha pronunciato quali parole esattamente?*
 'Gianni uttered what words exactly?'

The adverbial *esattamente* "exactly" must be connected to the interrogative *quali parole* "what/which words". In an echo question, the Wh-phrase *in situ* is a place-holder for a non-interrogative constituent. But, as (132b) shows, *esattamente* is incompatible with any non-interrogative constituent (apart from the altogether different reading in which it modifies the main predicate *pronunciare*). Therefore, (133) can only be understood as a genuine question, and the echo reading is excluded.⁴⁶

Another argument that Italian does indeed allow Wh-phrases *in situ* is provided adapting a point due to Rizzi (1990:47). In analyzing reason adverbials, Rizzi credits D. Sportiche with the observation that in French adverbials can in general be questioned *in situ* on a par with complements, but that this does not apply to reason adverbials:

- (134) a. *il a parlé de quoi?*
 'he spoke about what?'

⁴⁶ However, even in non-echo questions, the Wh-phrase *in situ* must be specific, or Discourse-linked. This is presumably the reason why the same test cannot be extended to expressions like *al mondo* 'on earth' or *mai* 'ever':

- (i) *cosa mai hai comprato?*
 'what on earth did you buy?'
 (ii) **hai comprato cosa mai?*

- b. *il a parlé comment?*
 'he spoke how?'
 c. **il a parlé pourquoi?*
 'he spoke why?'

Even though the *in situ* strategy is marginal in Italian, the same contrast emerges:

- (135) a. *ha parlato di cosa?*
 b. *ha parlato come?*
 c. **ha parlato perché?*

Finally, consider the following example:

- (136) *ciascuno degli studenti ha letto quale libro?*
 'each of the students read which book?'

This sentence is ambiguous between a reading in which *quale libro* takes scope over the universal quantifier (possible answer: *War and Peace*), and another reading with the inverse scope relation (the answer should pair a book title to every single student). It seems to us that, even though the first reading is distinctly favored, the second one is possible as well. This means, following the analysis of May (1985), that the Wh-phrase behaves on a par with left-moved interrogatives, in that it can be included within the scope of the subject quantifier. As May (1985: 62-62) shows, this is not the case for true echo questions, in which the focused Wh-phrase always takes the widest scope over all quantifiers.

These facts can be accounted for by a theory in which focused and echo questions are treated as distinct structures, with different properties in connection with LF-movement. However, our purpose here is not to put forth such a theory, but rather to illustrate that, even though (128-129) seem to show that Italian and French are significantly different with respect to the availability of Wh-phrases *in situ*, it is still plausible that Dynamic Agreement is an open option in Italian.⁴⁷

6.3.3. Assignment of sentential scope to the whole adverbial.

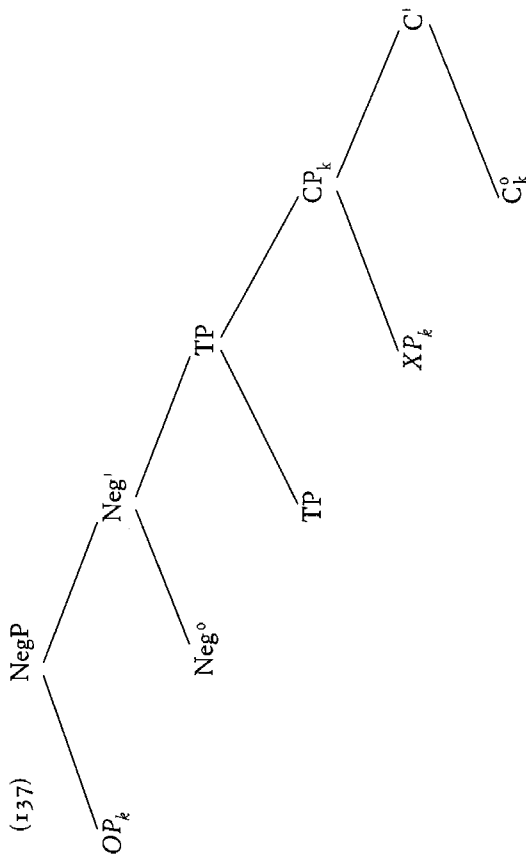
The assumption that Dynamic Agreement is a licit option in Italian can now explain how, to use our previous wording, the interpretation of the negative indefinite is mediated through the interpretation of the clausal reason adverbial. We have shown so far that:

- 1) clausal reason adverbials are totally opaque to binding from without.
- 2) nevertheless, negative indefinites in Italian can be connected to a matrix negation, thus obtaining sentential scope, provided that the clausal adverbial is a bare CP with an empty Spec position.

⁴⁷ That said, one should explain what causes the much greater marginality of Wh-phrases *in situ* in Italian than in French. We must leave this question open.

3) this interpretation is not obtained via movement to Spec NegP, be it of the negative indefinite or of the whole clausal adverbial, but rather by a government relation being established between the operator in Spec NegP and the whole adverbial.

The requirement that Spec CP be empty clearly indicates that it is the landing site for LF-raising of the indefinite negative. Once the negative indefinite is raised to Spec CP, by Dynamic Agreement it transmits its "quantificational feature" (which we have identified as the operator index) to the head C°. The whole CP adverbial is then endowed with the relevant operator index, and can thus be governed in place by the operator in Spec NegP:



This solution is at first sight fully equivalent to the assumption that the whole CP might receive the quantificational features from the negative indefinite, subsequently undergoing raising to Spec NegP. In fact, in one respect our approach is decisively more restrictive: the "coindexing" or "percolation" procedure is not generically available for any Spec-head configuration (in a language which allows for Dynamic Agreement); rather, in Rizzi's formulation even in languages like French application of Dynamic Agreement is greatly limited by selectional requirements, ultimately reducible to the Projection Principle: if the cluster of features characterizing a head is determined by lexical selection, it cannot be modified in the course of the derivation by the introduction of an additional feature. In the case at hand, this means that C° can receive the operator index from a raised negative, but only if C° itself is not selected—which is indeed the case for

reason adverbials. Consider, on the other hand, what the generalized application of feature percolation would predict in the following structure:

(138) $[_{AgrP} [_{NegP} OP_k \dots [_{CP} Wh [_{AgrP} \dots V^\circ [_{CP} C^\circ [_{AgrP} \dots V^\circ XP_k]]]]]]$

In (138), a negative indefinite in head-governed position (indicated as XP_k) is embedded into a complement CP, which is in turn separated from the negative operator by an intervening CP with a filled specifier. In the pied-piping analysis based on feature percolation, the negative may be extracted at LF (because its trace is properly governed) and raised to the most embedded Spec CP, where it can provide the head C° with the relevant feature:

(139) $[_{AgrP} [_{NegP} OP_k \dots [_{CP} Wh [_{AgrP} \dots V^\circ [_{CP} XP_k C^\circ [_{AgrP} \dots V^\circ t_k]]]]]]$

At this point, nothing prevents the innermost CP from being raised to Spec NegP: its trace would be properly governed by V°, and notice that the intervening Wh-phrase would at most cause a mild ungrammaticality if the raised CP receives an argumental theta-role. The relatively mild effects of Wh-islands on argument extraction in Italian are well known since Rizzi (1982), and are exemplified by (140):

(140) ?un uomo, che mi chiedo chi possa aiutare t_i
'a man who I wonder who could help'

The same weak violation is triggered when the extracted argument is clausal:

(141) ?[che Gianni sia colpevole]_i, che mi chiedo chi possa legittimamente pensare t_i , è semplicemente assurdo
'that Gianni be guilty, which I wonder who could legitimately think, is plainly absurd'

Technically viable as this hypothetical analysis might be, it is contradicted by the patent ungrammaticality of (142), which is much worse than the previous examples:

(142) *non mi chiedo se Mario possa pensare che Gianni ricattava nessuno
'I [neg] wonder if Mario could think that Gianni blackmailed nobody'

The wrong step of the analysis, if we adopt the Dynamic Agreement hypothesis, is that the negative indefinite could pass on the feature to C° of the most embedded CP. This is excluded, because both CPs are complements to verbs, whose selectional requirements cannot be violated in the course of the derivation.

6.4. Summary.

The facts considered strongly suggest that languages allowing sentential scope for negatives embedded in reason adverbials also overtly realize at least one member of NegP. This correspondence may be explained assuming

that the morphological negative feature is to be distinguished from an abstract [+negative] feature, which is relevant for the Negative Criterion. This conclusion is independently needed to account for the distribution of negative polarity items. We have claimed that NegP assigns sentential scope to a negative it governs only if the two agree in the morphological negative feature at LF. In languages in which NegP is allowed to remain abstract at S-structure, NegP must be provided with the relevant feature by raising of the negative itself, a movement which is forbidden by ECP in the case of negative reason adverbials. Finally, the marginal sentential scope reading for negatives embedded in clausal reason adverbials in Italian has been traced back to the availability of Dynamic Agreement, a feature-transmission convention which has been argued to be more restrictive than other possible treatments in terms of feature percolation.

Conclusion.

The idea that negative phrases and Wh-phrases be subject to the same representational constraint is an appealing one, and has proven a fruitful working hypothesis. The evidence collected in this study indicates that the recent analyses which have pursued this approach so far meet with some problems regarding both theoretical consistency and empirical coverage. We have argued that these problems stem from the undisputed assumption that negative expressions must be raised at LF to a scope position in order to be interpreted. The observation that negative "quantifiers" are semantically analyzable as negated indefinites has led us to put forth an alternative analysis, in which negatives, on a par with other indefinites, receive a quantificational interpretation through unselective binding by an operator. In the syntax, such a negative operator is expressed on the projection NegP, and may be non-referentially coindexed with any negative indefinite in the clausal domain. Sentential scope for negative indefinites obtains when they are bound by a sentential negative operator expressed in NegP in the matrix clause. The distribution of negatives is largely determined by a locality condition, which requires that a negative indefinite should be in a relation of local antecedence with the negative operator which binds it at LF. We have formalized this requirement in (118), repeated here:

(118) an indefinite morphologically marked [+negative] is assigned scope by a governing [+negative] operator.

This principle can account for otherwise problematic constructions, as we have argued in the final part, and, crucially, does not lead to the theoretical difficulties we have considered in the opening sections. It presents itself as a potential universal, together with the generalization that the negative head Neg⁰ is always incorporated on the highest inflectional head (by LF).

This alternative approach to the LF representation of negatives with sentential scope affords a unified analysis of negatives and Wh-phrases along the lines of the Negative and the Wh Criterion, tracing back asymmetries like (1)-(2) to the phrase-structural differences between interrogative and negative sentences. In particular, principle (118) and the presence of NegP allow a subject negative to be interpreted in place, without raising at LF. On the other hand, Wh-interrogatives must raise to Spec CP, presumably because the CP projection, unlike NegP, is not inherently endowed with an operator index.⁴⁸ In both cases, however, the Negative and the Wh Criterion hold as configurational constraints, significantly limiting the number of well-formed representations at S-structure and LF.

The distinction between morphological and interpretive negation, which might appear as a cost of our analysis, deserves some comment. The operator /variable index shared by all elements within the scope of a negative operator is conceptually and empirically well distinct from the specific morphological feature characterizing negatives proper (elements which convey negative meaning even in isolation). This distinction, which is neither novel nor unintuitive, is independent of our analysis, even though it plays a major role within it. It is worth pointing out that a single negative feature, shared by negatives proper and negative polarity items, was early introduced in the literature, and is based on strong empirical evidence that the two classes behave alike in certain respects. What we have proposed has been, naturally enough, to identify this scope-marking feature with the notion of operator index. Since the concepts of operator index and unselective binding have already been precisely defined in the literature, this move has the merit of connecting the syntax of negatives to general properties of the grammar. Moreover, a principled distinction between the morphological negative feature and the negative operator /variable index has afforded the prediction that the set of languages admitting sentential scope for a negative in a reason adverbial should overlap with the set of those languages in which NegP has the morphological feature [+negative] by S-structure, provided that reason adverbials are antecedent-governed by Spec NegP without being properly head-governed.

Although we have touched on the matter only marginally, an approach along the lines that we have indicated seems also apt to face the important issue of cross-linguistic variation without losing in generality. In connection with the Italian-English asymmetry, it is possible to derive the correct results

⁴⁸ Since it is not our purpose to provide a comprehensive account of the syntax of Wh-phrases as well, we will limit ourselves to this speculative hint. However, see Bertram (1989) and Nishigauchi (1990) for two approaches to Wh-phrases which share some fundamental conclusions with our treatment of negatives; in particular, the non-quantificational status of Wh-phrases and the requirement that government should connect an operator to its unselectively bound variables.

without positing any change in the principles involved: different morphological characterizations of the head Neg⁰ suffice. No "semantic parameters" are thus invoked to account for the typological divide between languages with and without Negative Concord. To the extent that this approach can be successfully implemented on a larger scale, it lends support to our contention that the morphological expression of negation plays a role in the syntax, and that this role is well distinct from that played by the operator index, or "interpretive negation".

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