

NEGATION, SCOPE AND THE DESCRIPTIVE/METALINGUISTIC DISTINCTION¹

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1. INTRODUCTION

This paper is about negation and scope. Its main purpose is to try to build a general semantics-pragmatics interface framework where scope issues are explicitly described in a formalism accounting for scope properties of logical operators in natural language and their pragmatic interpretation. What is striking about negation is that it does not require a specific syntactic domain to trigger different scope effects. In other words, as far as French is concerned, ordinary negation is always a constituent negation, whereas it takes a whole proposition in its scope. More surprisingly, French negation does not occupy, as in most languages, a preceding position relative the constituent it modifies (the verb), but follows it. This is a very odd property, which is solved when negation is complete as in written French, where the expletive *ne* precedes the verb. So, in (1) for instance, there are two ways, and not three, of expressing a negative sentence:

- (1) a. Pierre ne vient pas.
b. Pierre vient pas.
c. * Pierre ne vient.
‘Peter does not come.’

One of the implications for a semantic and pragmatic comprehension of (1b) is to understand how negation can scope over the verb first, and scope over the whole sentence, as expressed in (2):

- (2) Pierre vient pas > Pierre pas [vient] > pas [Pierre vient]

This issue, which mainly concerns the syntax-semantics interface, will not be discussed here.² What we are concerned with here is the contrast between (3a) and (3b):

- (3) a. Pierre ne vient pas.
b. Pierre ne vient pas, il court.

In (3a), the scope of negation is given by (4a) – that is, negation scopes syntactically over the verb and semantically over the clause, whereas in (4b), negation does not scope over the clause, but over the speech act:

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² What could be conjectured is that, as it has been demonstrated in the case of adverbials, the verb moves from a position after negation to a position before it: Pierre [ne pas [vient]] > Pierre [ne [vient] pas]. For more precise analyses, see Pollock (1989), Belletti (1990) and Chomsky (1991).

- (4) a. pas [Jean vient]
 b. pas [THE SPEAKER ASSERTS [Jean vient]]

(3a) is traditionally described as a case of metalinguistic negation. In metalinguistic negation (Horn 1985, 1989), speakers use the standard negation just in order to make explicit that he cannot assert the clause that negation scopes over. What is surprising with metalinguistic negation is that first it does not require a specific morphological nor a syntactic device to convey a metalinguistic meaning, and second that a following string must be realized in order to insure the metalinguistic meaning. For instance, (3a) cannot in any context receive a metalinguistic meaning, whereas in (3b) the metalinguistic reading is the only possible one.

Now, if such a difference occurs between these two simple uses of negation, the question is following: first, why does ordinary or descriptive negation not require a sequencing, for instance such as the one illustrated in (5):

- (5) Pierre ne vient pas, il reste chez lui.
 ‘Peter is not coming, he is staying at home.’

Second, what is the semantic and lexical limit between a corrective use and a metalinguistic use? For instance, is (6) an example of metalinguistic negation or a simple corrective use?

- (6) Pierre ne part pas, il arrive.
 ‘Peter is not leaving, he is arriving.’

As we see, the semantics-pragmatics issue leads us to a domain implying a lot of lexical semantics, and not only issues of scope.

The aim of this paper is to give a rationale for the derivation of the interpretation of ordinary and metalinguistic negations. Our main hypothesis, following Carston (1994, 1996, 2002) and Moeschler (1997, 2006), is that negation takes wide scope at logical form and scopes over its specific domain (a verbal constituent) at the level of pragmatic derivation. In other words, referring to structures like (4a) and (4b), (4a) will be the typical semantic representation for the ordinary negation, and this representation will be specified, at the level of explication to a representation as (7):

- (7) [Jean [pas-vient]]

The way a representation like (4b) can be derived is the second aim of this paper. More generally, I will extend the domain of metalinguistic negation to capture the logical and pragmatic properties of utterance as (8), where negation scopes over a presupposition (8a), an implicature (8b) and a speech act (8c):

- (8) a. The king of France is not bald, since there is no king of France.
 b. Anne doesn’t have three children; she has four.
 c. I don’t advise you to clean your room, I order you.

2. A LONG STORY FOR A BIG ISSUE

Let us start with the beginning of this story, that is, Russell’s analysis of definite descriptions (Russell 1905). Russell’s analysis leads to a classical distinction between external and internal negation: external negation has in its scope a full logical proposition, containing no free

variables, whereas internal negation has in its scope a propositional function, i.e. a non-propositional form containing free variables.

The king of France example is a good example to illustrate the formal difference between external and internal negation:

- (9) The king of France is bald.
 (10) The king of France is not bald.
 (11) The king of France is not bald, since there is no king of France.

(9) and (10) have a common presupposition, that is, (12):

- (12) There is a unique king of France.

(12) is a presupposition in the sense of the classical semantic definition of presupposition, that is, a proposition entailed by a positive clause and its negation (Gazdar 1979). This presupposition is cancelled in (13), and such an effect is responsible for the metalinguistic interpretation of (11). In other words, one possible paraphrase of (11) is the traditional metalinguistic description:

- (13) I cannot assert that the king of France is bald, since there is no king of France.

Now the issue is the following: since the negative clauses in (10) and (11) are identical (*the king of France is not bald*), how can we account for their different interpretations. Russell's analysis is a logical one, which is based on the analysis of (9): (9) is an existential sentence composed of the conjunction of three propositional functions³, as given in (14):

- (14) $\exists x [K(x) \wedge \neg \exists y [(y \neq x) \wedge K(y)] \wedge B(x)]$
 'There is an x such that x is king and there is no y such that y is different of x and king, and x is bald.'

Now what are the possible insertions for negation? Logically, there are four possible solutions, since negation is a propositional operator and applies, to a full proposition or a propositional function. (15) gives the four possible insertions for a negation in (14):

- (15) a. $\neg \exists x [K(x) \wedge \neg \exists y [(y \neq x) \wedge K(y)] \wedge B(x)]$
 b. $\exists x [\neg K(x) \wedge \neg \exists y [(y \neq x) \wedge K(y)] \wedge B(x)]$
 c. $\exists x [K(x) \wedge \neg \neg \exists y [(y \neq x) \wedge K(y)] \wedge B(x)]$
 d. $\exists x [K(x) \wedge \neg \exists y [(y \neq x) \wedge K(y)] \wedge \neg B(x)]$

(15a) is a consistent reading and corresponds to the wide scope reading of negation: it means that there is NOT such an x that is a king, that is unique and bald. The reading fits the interpretation in (11); that is, the denial of a presupposition, or the metalinguistic use of negation (13). So the first conclusion is that the wide scope of negation cancels existential presuppositions.

³ A propositional function is a logical form containing at least one free variable, that is, a variable that is not bound by a quantifier. Taken individually, $K(x)$, $\neg \exists y [(y \neq x) \wedge K(y)]$ and $B(x)$ are propositional functions.

(15b) and (15c) are inconsistent readings with the negative clause *the king of France is not bald*. Why? (15b) asserts the existence of an individual, that is, a unique individual who is not king of France and bald. Even if this description would imply that we are all kings of France except one person, this description does not fit with the content of the negative clause *the king of France is not bald*. The only possible description corresponding to (15b) is something difficult to express, maybe (16):

(16) The only one who is not king of France is bald.

(15c) is not consistent with the meaning of the negative clause either, because it states that there is a king who is not unique and bald. (17) could be a possible linguistic expression of (15c):

(17) The kings of France are bald.

So, the last logical possible reading is (15d): it states that there is a unique king of France who is NOT bald. Here, negation is internal, that is, modifies a propositional function (Bx). This reading is the exact reading of the ordinary negation of (9), that is, (10). So negation can have, relative to the logical form given in (14), only two targets: the whole proposition and the propositional function corresponding to the description of the predicate. Now, we have a very nice explanation of the two readings: external negation has in its scope a quantified logical form, that is, a full interpretable proposition; internal negation has in its scope the predicate (*bald*) its argument (*the king of France*) modifies.

If we try to give a more general picture of external and internal negation, we can state the two following propositions:

- (18) a. In wide scope, negation logically dominates propositional material: $\neg[\dots\phi\dots]$
 b. In narrow scope, negation logically dominates a less than full-propositional material, for instance a propositional function: $[\dots\neg\phi\dots]$

What we have to explain is the following: how can we explain that the default reading of negation, that is, ordinary negation, is the narrow scope reading? In other words, how can we explain that negation restricts its domain to a predicate? And the underlying question is: Which is the default reading? Narrow scope or wide scope?

3. THE THIRD MAN

Up to now, I have proposed two main distinctions: external vs. internal negation, and wide vs. narrow scope. These distinctions are logical, based on the position of the negation operator and its domain. Now, I would like to introduce a linguistic distinction, between descriptive and metalinguistic negation (Horn 1985).

Descriptive negation is traditionally described as being truth-conditional: in other words, it affects the truth-conditions of a sentence. On the contrary, metalinguistic negation is not truth-conditional, in the sense that it does not affect the truth-conditions of a sentence, but the assertability of the proposition described by a sentence.

Let us examine classical examples of descriptive negation (19) and metalinguistic negation (21):

- (19) a. Anne doesn't have three children.
 b. Abi is not tall.
 c. Abi doesn't regret to have failed her exams.

In (19), the following propositions are either true (1) or false (0):

- (20) a. $[[\text{Anne has three children}]] = 0$
 b. $[[\text{Abi is tall}]] = 0$
 c. $[[\text{Abi failed her exams}]] = 1$

On the contrary, metalinguistic cases of negation (21) produce different truth-conditional evaluation (22):

- (21) a. Anne doesn't have three children; she has four.
 b. Abi is not tall; she is very tall.
 c. Abi doesn't regret to have failed her exams, since she passed them.
- (22) a. $[[\text{Anne has three children}]] = 1$
 b. $[[\text{Abi is tall}]] = 1$
 c. $[[\text{Abi failed her exams}]] = 0$

In other words, metalinguistic negation does not affect the truth-conditions of the sentence. In (21a), *Anne has four children* is asserted by the speaker, and this sentence entails *Anne has three children*; so negation cannot affect the truth-conditions of the proposition 'Anne has three children', since it is entailed and thus true. In (21b), *she is very tall* entails *Abi is tall*; so negation cannot change the truth-conditions of the sentence, as in (19b). Finally, in (21c), the proposition presupposed and entailed by the negative sentence ('Abi failed her exams') is cancelled by the explanation clause (*since she passed them*), whereas the proposition 'Abi regrets to have failed her exams' cannot be true. So negation, in this classical case of presuppositional negation, cancels both the assertion and the presupposition. As we shall see later on, this behavior contrasts with cases such as (21a), where only the implicature is defeated by negation, but not the assertion.

As a brief summary, it seems that three properties of negation converge: (i) its logical property, (ii) its scope property and (iii) its truth-conditional property. If this convergence is true, we can ask the following questions: can metalinguistic negation be reduced to simple cases of external negation? In other words, can a pragmatic issue be reduced to a logical or scopal one? If this assumption is true, then metalinguistic negation, that is, external negation, should be identical to a fourth type of negation: illocutionary negation.

4. ILLOCUTIONARY NEGATION

Illocutionary negation has been first described by Searle (1969) as a strong argument for his analysis of speech acts, composed of a marker of illocutionary negation and a marker of propositional content. For instance, utterance (23) will be analyzed in Searle's theory of speech acts as (24):

- (23) I promise I will come.
- (24) Marker of illocutionary force: *I promise*
 Marker of propositional content: *I will come*

Now negation can occupy two positions in (23): in the matrix clause and in the subordinate clause. In the first cast, negation is *illocutionary* (25a), whereas it is simply *propositional* in the second (25b):

- (25) a. I don't promise I will come.
 b. I promise I will not come.

(25b) is still a promise, the promise of not coming, whereas (25a) is no longer a promise: not promising something is no more promising, it is an act of non-commitment, as Lyons (1977) claimed.

So, if F is the symbol of the marker of illocutionary force, and P the symbol of the marker of propositional form, (25) receives the following representation:

- (26) a. $\neg F(P)$
 b. $F(\neg P)$

Negation scoping over F is thus *illocutionary*, whereas negation over P is *propositional*. Their different meaning is confirmed by the fact that a double negation, $\neg F(\neg P)$, is not equivalent to a positive speech act $F(P)$, contrary to logical negation, since $\neg\neg P$ is equal to P . In effect, (27) does not mean (23):

- (27) I don't promise I will not come.

As a parallel to the descriptive vs. metalinguistic negation distinction, the issue is that propositional negation is truth-conditional. From a speech act analysis, (25b) and (23) are contradictory, as P and $\neg P$ cannot be true together, shown by (28):⁴

- (28) I promise to come and I promise not to come.

A rational speaker cannot say (28) without making two contradictory promises: they are contradictory because their propositional contents are contradictory, and because the speaker cannot commits himself to two contradictory propositions.

In other words, since $\neg F(P)$ does not entails $F(\neg P)$, illocutionary negation is clearly non-truth-conditional. But is it metalinguistic? A positive answer would have the following implication: it would lead to the performative hypothesis (Ross 1970). The performative hypothesis (PH) states that each primary performative (Austin 1962) has a performative preface in its deep structure. For instance, (29) is the primary performative of its explicit version in (23), both having as a deep structure (30):

- (29) I will come.

- (30) [I promise [I will come]]

But as Lycan (1984) has demonstrated, PH leads to the performadox. In effect, it predicts that (31a) and (31b) have the same truth-conditions:

⁴ For complete illocutionary logic, see Searle & Vandervecken (1985).

- (31) a. Prizes slumped.
 b. I affirm that prizes slumped.

This prediction is unfortunately false: in effect, (31a) is true if and only if prizes slumped in the real world, at the time implied by the utterance; on the contrary, (31b) is true because the speaker has uttered it, not because its propositional content is true. Moreover, HP predicts that (31a) – having as a deep structure, that is, as its semantic structure, (31b) – would be true because of its uttering as for (31b), which is false: truth-conditions are not determined by what the speaker means, but by its meaning adequacy to the world. In other words, wide scope, external negation and metalinguistic negation are not illocutionary negation.

Now, what is the consequence of this first negative conclusion? First, metalinguistic negation is not reducible to a speech act analysis, and is not connected to a possible position in a higher-order explicature, determining the illocutionary force of the utterance (Sperber & Wilson 1995). Second, negation does not seem to be syntactically specialized to mark explicitly its domain: in other words, the scope of negation is not determined by structural properties, but computed against contextual information. For instance, wide scope is a logical property emerging from semantic and pragmatic computations. One argument, given by Horn (1985, 1989), is the absence of a specific marker devoted to external or metalinguistic negation: no language needs for a specific linguistic marker to distinguish between internal and external negation.

This argument is used by Horn (1985, 1989) in order to defend what he calls the *monogist* approach, against the *ambiguist* one: in a monogist approach, there is no need for a linguistic, that is, semantic specialization for specific meanings: vague, broad or incomplete meanings are sufficient to convey more specific ones, provided that a pragmatic process enables the relevant meaning derivation.

So, the next issue is the following: Is negation ambiguous? If I can demonstrate that it is not, then a pragmatic treatment of the scope of negation is not only possible, but also necessary to explain the relationship between descriptive and metalinguistic negations.

5. IS NEGATION AMBIGUOUS?

Is negation an ambiguous word, that is, a word that receives semantically two meanings, a truth-conditional meaning and a non-truth-conditional one? A positive answer would lead to the use of a default analysis of negation. Such an analysis is at first attractive, but entails unsolvable problems. Moreover, it will imply a very restricted use of pragmatics, mainly triggered by non-ordinary settings. I would like to show that the right answer is not a positive, but a negative one.

But let us try the positive answer. It leads to the following question: How can we formally represent these two meanings? Two solutions to the scope issue have been adopted: the scope solution and the two negations solution.

In the scope solution, narrow scope is associated to descriptive negation, wide scope to metalinguistic negation. So two different meanings of negation are differently represented, but not connected. As we shall see in the next section, narrow scope is the default case: as soon as negation has to be computed, narrow scope is associated to the negated constituent (predicate) and abandoned only in case it is cancelled by a following clause, as in (21).

So let us try the two negations solution. This account⁵ relies on two negation operators: $\neg P$ for internal negation, and \bar{P} for external negation. These operators have different truth-values, but are both committed to the intrusion of a third truth-value, the neutral value (N). So

⁵ See Horn (1985) for a precise presentation, and Moeschler & Reboul (1994, chapter 8) for a shorter one.

the semantics behind the two negations solution is the giving up of a two-valued logic for a three-valued one: true, false and neutral.

Now, the question is how we can represent the neutral value. The solution is in fact easy to represent: let us represent truth-values on a two-dimensional space based on the opposition between true and non-true, false and non-false and the non-identity between true and non-false and false and non-true; then we have an intermediate space for the neutral value, as represented in figure 1:

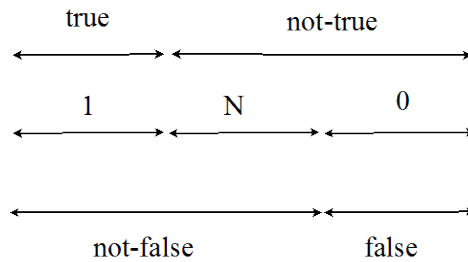


Figure 1: True, false and neutral

Now what would be the meaning of a neutral value? This third value accounts for cases of external negation. As we shall see later on, the implication is that in (8a), repeated in (32), the proposition *the king of France is bald* is not false, but true, as in the Russellian analysis:⁶

(32) The king of France is not bald, since there is no king of France.

We can now give a more precise account of the truth-value of a third-valued logic, given in Figure 2:

P	$\neg P$	\bar{P}
1	0	0
0	1	1
N	N	1

Figure 2: Truth-values of internal and external negations

The truth-values of $\neg P$ is not problematic: it reverses the ordinary true-value (1 to 0, 0 to 1); but which is the proposition that is neutral? For instance, if there is no king of France, the value of *The king of France is bald* and of *The king of France is not bald* is the same, that is neutral. In other words, the speakers asserting such utterances assert something that has no meaning...

Now, what is the meaning of external negation? External negation produces exactly the same results as internal negation when the proposition is true or false: a true proposition under external negation becomes false and a false proposition under external negation becomes true. Let us imagine the following context: suppose that it is true that the king of France is bald. Then, under external negation, this proposition means simply that it is false. So it would be false to assert *The king of France is not bald*, if the king of France is bald and if there is a king of France. Now what happens when the proposition *The king of France is bald* is false under external negation? In that case, the result is a true proposition, because the negation of a false proposition is a true one. Now imagine the last case: there is no king of France, so the

⁶ This analysis is opposite to the classical Strawson (1950) analysis, in which such propositions are neither true nor false, that is have no meaning.

proposition *The king of France is bald* has a neutral value. In that case, the external negation of that proposition leads to a true proposition: in effect, it is true to assert *The king of France is not bald*, exactly what the Russellian analysis predicts: if the propositional functions $K(x)$, $\neg\exists y[y\neq x \wedge Ky]$ are false, so their conjunction gives a false proposition, which becomes true under external negation. So the logical analysis of external negation fits the classical Russellian analysis, from which we started our demonstration.

So we face now a kind of paradox: the ambiguitist analysis seems to be descriptively adequate. So why renounce to it? The reason is twofold: first, we still should prove that linguistic negation has semantically two meanings, which will be challenged in the next section; second, the truth-table in Figure 2 is relevant for the neutral value of a proposition, which fits with the case given in example (32). But what does ‘external negation of a true or false proposition’ mean? As we saw, the situation can be acceptable when a true proposition becomes false under external negation, giving a false one, and illustrated in (33). But the situation where a false proposition under external negation is more difficult to accept, because it is true as a result of external negation scoping over a true proposition, as illustrated in (34):

(33) John: The king of France is bald.
Mary: No, he isn’t, since there is no king of France.

(34) John: The king of France is not bald.
Mary: ?? No, he isn’t, since there is no king of France.

So the descriptive adequacy is not as obvious as I pretended before.

The last argument against the two negations analysis comes from pragmatics: when a negation is used, it is only the second line in Figure 2 which is relevant, that is, the bold line in Figure 3 which makes the interpretation of external negation awkward:

P	$\neg P$
1	0
0	1

Figure 3: Truth table of logical negation

What are the conclusions of this argument? It seems more reasonable, from a linguistic point of view, to adopt the monoguitist approach in the treatment of negation. But in this case, how can we explain that negation receives either narrow or wide scope? In other words, what would be the basic semantic value for linguistic negation? Its internal or external meaning? We can make a step further by describing two possible solutions to this question: the first one is the classical semantic approach: internal negation is its default value; the second one is the Gricean answer: external negation is the default value. Let us now test these two possible solutions.

6. SEMANTIC VS. PRAGMATIC ANALYSIS

Following the classical view (Burton-Roberts 1989), narrow scope is by default attached to the predicate. So, from a syntax-semantics interface point of view, negation should be attached at LF to the predicate, whatever its categorical nature (verb, adjective for instance), as in (35):

- (35) a. We don't like L.A.
 b. Anne does not have three children.
 c. Abi does not regret to have failed.

- (36) a. [not-like [we, L.A.]]
 b. [not-have [Anne, three children]]
 c. [not-regret [Abi, failed [Abi]]]

This analysis can easily explain corrective uses of negation, that is, negatives clauses followed by a correction, as in (37):

- (37) a. We don't like L.A.; we hate it.
 b. Anne does not have three children; she has two.
 c. Abi does not regret to have failed, she is happy.

- (38) a. [not-like [we, L.A.]] \wedge [hate [we, L.A.]]
 b. [not-have [Anne, 3 children]] \wedge [have [Anne, 2 children]]
 c. [not-regret [Abi, failed [Abi]]] \wedge [happy [Abi [failed [Abi]]]]

Logical forms in (38) are not contradictory, since the positive predicate entails the negative one for (38a-c), and the negative clause entails the positive one in (38b):

- (39) a. [hate [we, L.A.]] \rightarrow [not-like [we, L.A.]]
 b. [not-have [Anne, 3 children]] \rightarrow [have [Anne, 2 children]]
 c. [happy [Abi [failed [Abi]]]] \rightarrow [not-regret [Abi, failed [Abi]]]

The crucial point is the metalinguistic use of negation. The classical approach predicts that wide scope is obtained as soon as a contradiction occurs inside the utterance. But the effect of external negation (wide scope) is triggered by a second clause entailing the truth of the proposition under negation (40a-b), or the falsehood of the presupposition preserved under narrow scope (internal negation), as in (40c):

- (40) a. We don't like L.A.; we love it.
 b. Anne does not have three children; she has four.
 c. Abi does not regret to have failed, since she passed them.

Their logical form are given in (41):

- (41) a. not[like [we, L.A.]] \wedge [love [we, L.A.]]
 b. not[have [Anne, 3 children]] \wedge [have [Anne, 4 children]]
 c. not[regret [Abi, [failed [Abi]]]] \wedge [passed [Abi, her exams]]

Now, the change of scope is not enough, because of the entailments of the second clauses, given in (42):

- (42) a. [love [we, L.A.]] \rightarrow [like [we, L.A.]]
 b. [have [Anne, 4 children]] \rightarrow [have [Anne, 3 children]]
 c. [passed [Abi, her exams]] \rightarrow [not-failed [Abi]]

So we must give a precise metalinguistic interpretation of the negated constituent: since *love* and *like* are consistent and *love* entails *like*, since *having three children* and *having four children* are compatible and *having four children* entails *having three children*, since negation affects the truth of its complement in (42c), wide scope must go beyond the propositions expressed. For instance, negation in (40a) scopes over the **saying** *we like L.A.*, in (40b) negation scopes over the **implicature** of *Anne a three children*, that is, ‘Anne has exactly three children’, and in (40c), negation scopes over the **completive clause** (*Abi failed*).

In other word, examples in (40) show that the second clause entails the negation of some pragmatic content accessible from the first positive clause, that is, the scalar implicatures for (40a-b) and the presupposition for (40c). In other words, in the classical view, the corrective positive clause cancels some pragmatic content:

- (43) a. [love [we, L.A.]] → [not [not-love [we, L.A.]]]
 b. [have [Anne, 4 children]] → [not [not-have [Anne, 4 children]]]
 c. [passed [Abi, her exams]] → [not [failed [Abi]]]

As a provisional conclusion, with some pragmatic apparatus implying scalar implicatures and presuppositions, the classical approach seems to be descriptively adequate. So why abandon it? What are the arguments against this approach?

There are two main criticisms against the classical approach: first, it implies that all cases of external negation are cases of garden-path sentences, implying a first and defective processing and a second and successful one; the second objection is based on cases of external negation without a second corrective processing.

Let us examine the first argument with examples (44):

- (44) a. Anne does not have three children; she has four.
 b. Abi does not regret to have failed, since she passed them.

The first and second processing are given in (45) and (46):

- (45) *First processing*
 a. Anne has not three children → Anne has two children
 b. Abi does not regret to have failed → Abi failed

- (46) *Second processing*
 a. she has four of them → Anne has three children
 b. she passed them → Abi didn’t fail

So, after the second processing, a contradiction occurs between the entailments of the second clause and the negative first clause (its assertion or its presupposition). But the argument, if it is acceptable for the case of presupposition, is rather strange in case of (44a), that is for cases of scalar implicatures. In fact, what the second processing implies, as we saw, it that what is cancelled by the second clause is not the proposition under negation, but its scalar implicature. In this case, the cancellation process is explainable, if we admit, as a strong assumption, Gazdar’s hypothesis, which claims that entailments are stronger than conversational (clausal and scalar) implicature and presupposition (Levinson 1983, 213). In other words, the scalar implicatures and presuppositions in (44) are *potential*, not *actual*.

The second argument is empirical, given by Carston (1994, 1996, 2002): she gave examples of external negation appearing not in the first clause, but in the second one, which

implies that the treatment of metalinguistic negation cannot be the result of a second processing:

- (47) a. There is no king of France, so the king of France is not bald.
 b. I've never smoked in my life, so I haven't give up smoking.
 c. Mary is patriotic and fanatic, not patriotic or fanatic.

Of course, there are classical counterpart examples of (47), where the external negation is located in the first clause: but if (48) conveys a necessary retreatment of the negative sentence, this is not the case in (47), where negative metalinguistic clauses are consequences of the first one:

- (48) a. The king of France is not bald, since there is no king of France.
 b. I haven't given up smoking, since I've never smoked in my life.
 c. Mary is not patriotic or fanatic, she is patriotic and fanatic.

This argument is acceptable from a semantic point of view: in effect, what is described in (47) and (48) is identical. But from a pragmatic point of view, the situation is clearly different: the orders [negative clause-correction] and [assertion-negative clause] do not give rise to the same types of processing. In the first case, the corrective sentence always gives the *reason* why the speaker cannot assert the negative clause: it is thus fundamentally *explanatory*. In a dialogical context, a simple pro-clause as *No*, followed by the explanation is sufficient, as in (49):

- (49) A: The king of France is bald.
 B: No, there is no king of France.

What happens with the second order, where external negation is located in the second clause? If we try to duplicate the dialogue in (50), it seems that the B answer becomes odd:

- (50) A: The king of France is bald.
 B: ? There is no king of France, so the king of France is not bald.

Why? Because the sentence *There is no king of France* is an answer to another question, given in (51):

- (51) Is there a king of France?

So the question is whether utterances such as (47) can be an answer to the following question?

- (52) a. Is the king of France bald?
 b. Did you give up smoking?
 c. Is Mary patriotic or fanatic?

The answer is yes, as (53) shows, but in this case, the second negative sentence, with external negation, is odd:

- (53) a. A: Is the king of France bald? – B: No, there is no king of France (?? so the king of France is not bald).
 b. A: Did you give up smoking? – B: No, I never smoked (?? so I haven't given up smoking.).
 c. A: Is Mary patriotic or fanatic? – B: No, she is patriotic and fanatic (? not patriotic or fanatic).

(53c) is better, because it brings in a contrast, even if the second clause is redundant. So the explanation is the following: in the positive-negative order, the negative sentence is an entailment of the first one, whereas in the negative-positive order, the second is an explanation of the negative one. Asserting an entailment or a presupposition is something odd, because the entailment is semantically accessible. In order to see this property, let us contrast the two sentences in (54):

- (54) a. Hmm, you're married, so you're not a bachelor.
 b. Hmm, you're married, so you're not free...

In (54a), the sequencing is over the entailment of the first sentence, which makes it odd; in the second case, the sequencing is over an implicature, that married persons are not supposed to be free for new love affairs.

What is the consequence of these analyses? First, there are cases of external negation that do not imply a second treatment; so the retreatment analysis is defective on this point. Second, there are pragmatic differences in the way external negation is processed when it occurs in the first or in the second clause.

In order to find a general solution, I would like to propose, following Carston, that external negation is not a marked case, but the default one, and internal negation a specification of the default case.

7. EXTERNAL NEGATION IS DEFAULT NEGATION

What is the alternative to the classical view? In fact, the alternative is a pragmatic, Gricean approach. In Gricean terms (Grice 1989), logical words have as semantics their logical properties and meaning. So, it means that negation should be semantically (i) propositional and (ii) truth-conditional. These two properties are ruled out in its pragmatic meaning. In other words, the ordinary pragmatic meaning of negation is the constituent reading, which implies that negation scopes over the predicate only. In its metalinguistic meaning, negation scopes not only over a proposition, but over all pragmatic material, whatever it can be: illocutionary force (illocutionary negation), presupposition (presuppositional negation), scalar implicature or downward entailment(s) (scalar terms). Here are the general formats of the classical analysis (56) and the alternative Gricean analysis (57) of sentence (55):

(55) The king of France is bald.

- (56) *Classical analysis*
 a. Semantics: the K is not-B
 b. Pragmatics: not [the K is B]

- (57) *Gricean analysis*
 a. Semantics: not [the K is B]
 b. Pragmatics: the K is not-B

At this stage, we do not seem to have made much progress: the analysis is identical, but only the level of analysis differs. So we have two things to do: first, to show how the two readings (descriptive and metalinguistic negations) are obtained; second to give arguments in favor of the pragmatic analysis.

7.1. How to derive the two readings?

Let us first examine the wide scope reading: in order to obtain the wide scope reading, nothing is done and no reprocessing is required. The semantic wide scope is the intended scope of the utterance.

But this is not enough: it should be, indeed, made explicit how wide scope has pragmatic effects, that is, the cancellation of pragmatic or semantic inferences. One condition to get the wide scope reading is the necessity of a second clause confirming the wide scope reading. In other words, the wide scope reading cannot be a default reading: a negative clause cannot trigger by itself wide scope. The implication of this empirical fact is that the second clause must have some semantic properties such that they can cancel a pragmatic inference. So the second clause must be semantically strong enough to cancel potential inferences, either presupposition or implicatures. As we saw in (43), these entailments are contradictory with the first negative clause. So the cancellation is the result of the fact that an utterance cannot be consistent with contradictory statements and entailments. This condition explains why wide scope, even if it is a semantic property of negation, is not the default pragmatic reading. If it were the case, dialogue (58) should have as the wide scope reading as the default one:

- (58) A1: The king of France is bald.
 B1: No, he is not bald.

But in (58B1) negation preserves the existential presupposition *There is a unique king of France*. As a proof, the sequencing given in (59) is rather odd:

- (59) A2: Why?
 B2: Because there is no king of France.

The same argument holds true of *Anne does not have three children*, *Abi does not regret to have failed* and *We don't like L.A.* Why is it the case? The reason seems rather simple: unless they want to trigger some particular stylistic effect (mostly non-propositional, cf. Moeschler 2009a), speakers are not supposed to allow invalid pragmatic inference. So, what is odd in (58)-(59) is the fact that after the B1's utterance, there are no indices for A to infer that the existential presupposition of his own utterance is contested or invalid. In other words, the reason why the second explanatory clause is made necessary is that the cancellation of a pragmatic inference cannot be delayed. The interlocutor's adjacent sequencings have as pragmatic consequence the acceptance of all pragmatic inferences inferable from the preceding utterances. So, when no explicit refutation of pragmatic inferences is made, the communicative consequence is that the pragmatic material is accepted and added to the context. The possible and deferred refutation of such material is generally seen as a threat on the discourse condition: either the interlocutor is slow and needs time to compute the pragmatic consequence of the speaker's utterance, or he too late realizes the actual consequences of his tacit acceptance. So, we have a strong argument for the pragmatic analysis: consistency in pragmatic inference is not only a question of logic, it is mainly a

question of time: contradiction cannot be delayed, unless some specific situational factors allow it.

Now, what about the descriptive meaning of negation? How can we be sure that negation will target the right propositional function in Russellian analysis, that is the predicate and not another constituent, as its or their arguments? As an example, we do not want negation to target as narrow scope $K(x)$ or $\neg\exists y[(y\neq x) \wedge K(y)]$ in logical forms (15), but only $B(x)$. Here pragmatics intervenes. To get the narrow scope reading, the following process must obtain:

- (60) a. The wide scope reading is insufficiently informative and the hearer must choose between the following entailments of the proposition under negation:
- i. There is a king of France.
 - ii. he is bald.
- b. The maxims of manner ‘be brief’ and ‘avoid obscurity’ explain the internal reading as the preferred one.

Let us examine these two propositions. First, there is a lack of information with wide scope, unless, an explanation is given. So when the negative clause is bare, without completion, it means that it is not informative enough: within the relevance framework, it means that it does not produce enough cognitive effects. So, the sub-maxims of manner intervene: the ‘be brief’ maxim explains why there is no need for the internal reading to complete the negative clause by a corrective one, which will makes explicit the downward entailment of negation. So, for instance, *Anne does not have three children* does not need to be completed by *she has two*, because this second clause is an entailment of the first one, on the one hand. On the other hand, the second sub-maxim of manner ‘avoid obscurities’ guarantees that there is no ambiguity, without completion or correction, of the negative clause.⁷

Now, what about the two entailments of the negative utterance? (60ai) is its existential presupposition. So, one way to make the negative utterance more informative, and thus relevant, is to accept this presupposition. The acceptance of the second entailment (*he is bald*) is in contradiction with the negative sentence, so the negative utterance would be contradictory. Therefore, the only possible acceptable entailment is the presupposition. Accepting the existential presupposition is only compatible with the narrow scope reading. (61) summarizes the internal reading:

- (61) *Internal negation*
- | | | |
|----|-----------------------|---------------------|
| a. | What is said: | not [the K is B] |
| b. | What is implicated: | there is a unique K |
| c. | What is communicated: | the K is not-B |

This analysis (based on Carston 1994) differentiates three layers of meaning: what is said, what is implicated and what is communicated. What is said is the truth-conditional meaning, what is implicated is what is pragmatically inferred and what is communicated is the result of the combination of what is said and what is communicated. So if it is false that *the K is B*, if it is inferred is that *there is a unique K*, then *the K is not-B*.

(62) gives the external reading analysis:

⁷ In this approach, a downward entailment of negation is the result of a pragmatic process, not a semantic property of negation (contra Ducrot 1980).

(62) *External negation*

- | | | |
|----|-----------------------|---------------------------|
| a. | What is said: | not [the K is B] |
| b. | What is implicated: | not [there is a unique K] |
| c. | What is communicated: | not ['the K is B'] |

In the metalinguistic derivation, negation has wide scope at the level of what is said, what is implicated and what is communicated. But what is crucial here is that the negation of the implicated content, that is, its presupposition, has a pragmatic effect: the proposition *the K is B* is no more interpreted as being used (with all its logical entailments), but as mentioned. The formula *not['the K is B']* means 'it is not possible to assert the proposition *the K is B*'. From a pragmatic point of view, the entailment from (48a), repeated in (63), is (64):

(63) The king of France is not bald, since there is no king of France.

(64) There is no king of France.

The conclusion is that from a wide scope semantic reading the apparently complex derivation is not as complex as it could be imagined at first sight.

7.2. Arguments in favor of the pragmatic analysis

There are mainly two arguments in favor of the wide scope analysis: (i) the wide scope analysis is similar for wide scope effects occurring in first and in second position; (ii) the wide scope analysis is compatible with a more general approach over implicatures and presuppositions.

Whatever is the order of the negative clause, the wide scope effect is not the result of a retreatment. As we saw, when the wide scope negative clause is in the first position, it is the second explanatory clause that cancels potential inferences; when the negative clause is in the second clause, the entailment of the first one makes the narrow scope reading inconsistent and the only possible entailment implicated under descriptive negation is cancelled. But as we saw, this second negative clause, if explicated, is needed in order to refute them.

The second argument is linked to the condition under which a wide scope reading can emerge. Up to now, I have given a very strong but simple condition: pragmatic presupposition or (scalar) conversational implicatures are not satisfied. Here is another stronger condition, which has been recently investigated by Vender & Delfitto (2010, this issue): negation needs a context background under which presupposition must be preserved. As Vender & Delfitto state it, "negative sentences *presuppose* the existence of a prior statement which presents a state of affairs that must be corrected" (Vender & Delfitto 2010). This presupposition has been called in the French tradition as cases of polemic negation, as opposed to metalinguistic and descriptive negation. In his chapter on polyphony (Ducrot 1984, 217-8), Ducrot distinguishes three types of negation (see Moeschler 1992a, 1992b, Moeschler & Reboul 1994: 285):

1. I call 'metalinguistic' a negation that contradicts an actual speech act to which it is opposed. I will say that the negative utterance has in its scope a speaker who uttered its positive counterpart. It is this 'metalinguistic' negation which allows for instance to cancel the presuppositions of the underlying positive utterance". (...)
2. [In polemic negation], the speaker of 'Peter is not smart', by assimilating himself to the utterer E2 of the refusal, opposes himself not to a speaker, but to an utterer. (...)

This ‘polemic’ negation has always a downward effect, and preserves the presuppositions. (...)

3. (descriptive negation) If I can describe Peter by saying ‘he is not smart’, it is because I attribute him the speaker’s property which would justify the speaker’s position in the crystallized dialogue underlying the polemic negation: saying that someone is not smart is to attribute him the (pseudo-) property that would make it legitimate to face an utterer having said he is smart”. (my translation)⁸

The third case of descriptive negation is described as a ‘delocutive’ derivation from polemic negation, that is, a special semantic consequence of uses.⁹ Apart this third case,¹⁰ the relevant opposition is between *metalinguistic* and *polemic* negation. Ducrot’s analysis makes a difference at the level of the entity that is supposed to be responsible for the assertion of the positive counterpart of the negative sentence. In metalinguistic negation, it is the *speaker* (*locuteur en tant que tel*) who endows not only the assertion but also its presupposition. This explains why the negative sentence’s speaker refuses with his negative utterance not only the assertion, but also its presupposition. In the ordinary polemic negation, the speaker is present through two entities, which Ducrot calls ‘énonciateur’ (*utterer*), that is, fictitious speakers who are supposed to endow a positive and a negative position, respectively, against the described state of affairs. In that case, presuppositions are not cancelled by negation and negation has its classical downward effect.

Now we can give a more precise context in which metalinguistic and polemic/descriptive negation can occur:

(65) *Polemic/descriptive negation*

Speaker A: (i) Assertion: P

(ii) Presupposition/scalar implicature : Q

Speaker B: (i) Assertion: not-P

(ii) Presupposition/implicature: Q/not Q¹¹

⁸ 1. “J’appelle ‘métalinguistique’ une négation qui contredit les termes mêmes d’une parole effective à laquelle elle s’oppose. Je dirai que l’énoncé négatif s’en prend alors à un locuteur qui a énoncé son correspondant positif. C’est cette négation ‘métalinguistique’ qui permet par exemple d’annuler les présupposés du positif sous-jacent. (...)

2. [Dans la négation polémique] le locuteur de ‘Pierre n’est pas intelligent’, en s’assimilant à l’énonciateur E2 du refus, s’oppose non pas à un locuteur, mais à un énonciateur. (...) Cette négation ‘polémique’ a toujours un effet abaissant, et maintient les présupposés. (...)

3. (négation descriptive) Si je peux décrire Pierre en disant ‘Il n’est pas intelligent’, c’est que je lui attribue la propriété du locuteur qui justifierait la position du locuteur dans le dialogue cristallisé sous-jacent à la négation polémique : dire de quelqu’un qu’il n’est pas intelligent, c’est lui attribuer la (pseudo-) propriété qui légitimerait de s’opposer à un énonciateur ayant affirmé qu’il est intelligent.”

⁹ ‘Delocutive derivation’ is a concept first used by Benveniste (1966), and generalized by Ducrot in his semantics theory of argumentation.

¹⁰ The original contrast between descriptive and polemic negation is given in Ducrot (1982: 38) between the two following examples:

(i) Il n’y a pas un nuage au ciel.
‘There is no cloud in the sky’

(ii) Ce mur n’est pas blanc.
‘This wall is not white’

¹¹The case of presupposition is different from that of implicature: in polemic/descriptive negation, the presupposition is preserved, whereas the negative utterance is contradictory to the scalar implicature, because of the downward effect of negation. So *Anne does not have three children* cancels the scalar implicature *Anne has exactly three children* from the positive utterance *Anne has three children*.

- (66) *Metalinguistic negation*
 Speaker A: (i) Assertion: P
 (ii) Presupposition/scalar implicature : Q
 Speaker B: (i) Assertion: not-P
 (ii) Presupposition/implicature: not-Q/not-Q

So, the difference in context for the triggering of wide vs. narrow scope is the condition on presupposition and implicature. And as we have shown it, this condition is a necessary condition for triggering the wide or narrow scope. The second condition is the explicit formulation of the denial of presupposition or implicature.¹²

8. IS THE NARROW WIDE SCOPE CASE SPECIFIC TO NEGATION?

The last point I would like to address is the domain of the narrowing process. In fact, I have proposed in Moeschler (2007) that this mechanism is quite general, and is a special case of pragmatic enrichment called *specification* (Wilson & Sperber 2004). The argument given in Moeschler (2007) is that the scalar implicature effect of particulars, that is quantifiers as *some*, *quelques*, etc., meaning *not all*, *pas tous*, is not the refutation of the upward entailment (*some* → *all*, *quelques* → *tous*), that is, the scalar implicature *some* +> *not all*, *quelques* +> *pas tous*, but the result of a pragmatic process called *explicature*: the determination of the content of the explicit, truth-conditional content of the utterance. The cancellability of this restrictive or specific process, exemplified in (67), is a case of metalinguistic revision of a quantifier, whose purpose is to block the potential inferences allowed by the quantifier:

- (67) a. Some students, in fact all, were at the party.
 b. Quelques étudiants, en fait tous, étaient à la réception.

In a similar way, the pragmatic use of *if* (*si* in French) has been traditionally described as bi-conditional (Cornulier 1985) and as a result of what Geis & Zwicky (1971) called *invited inference*. So, (68) conveys (69) and not (70), even if that last proposition is logically compatible with (68):

- (68) If you mow the lawn, you get 10 €
 (69) If you don't mow the lawn, you don't get 10 €
 (70) If you don't mow the lawn, you get 10 €

The relevant point is that the bi-conditional relation is logically a restriction on the logical conditional operator: *if and only if* makes a proposition true only when propositions have the same truth-conditions.

¹² The following table summarizes the different behavior of presupposition and implicature under descriptive and metalinguistic negation (Moeschler 2006: 95). Because of the difference in behavior between implicature and presupposition, I distinguished in that article two metalinguistic negation, what is not relevant here for my purpose.

	Assertion	Entailment	Presupposition	Implicature
Descriptive negation	not-P	Q	Q	
Metalinguistic negation 1	not-P	not-Q	not-Q	
Metalinguistic negation 2	not-P	P and Q		not-Q

The last example is the interpretation of the disjunctive connective: *or* as *ou* in French is systematically interpreted as the exclusive disjunction, which is a restriction on the truth-conditions of the logical disjunction operator: $P \text{ or } Q$ is true just in case one proposition is true and the other false, whereas the inclusive disjunction allows the two propositions to be true together.

As a summary, it appears that this restriction effect is not specific to negation and the computation of its scope: it is a general property of the pragmatics of natural language: whereas the semantics of logical words is underspecified, their pragmatics has as main function to restrict their logical domain as much as possible.¹³

8. CONCLUSION

In this paper, I have argued that negation has as its semantics wide scope, and that pragmatics is responsible for the wide scope metalinguistic reading and the narrow scope descriptive one. I also showed that this restriction process, that is, the restriction of the logical semantics, is a general one, applying to all logical connectives or quantifiers. If this assumption is correct, we have a very strong thesis to argue for in the semantics-pragmatics interface issue. It is exactly this issue that the LogPrag research project is concerned with.

Nevertheless, if we come back to the negation issue, other questions must be discussed. One of these issues is the semantics and pragmatics of negative events, and the possibility to apply the wide vs. narrow scope issue, and therefore the metalinguistic/descriptive negation distinction, to events and states. This issue has been partially addressed in Moeschler (2009b) and in Blochowiak (2009), and will be pursued soon.

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¹³ This very general hypothesis is at the origin of a new research project LogPrag (*The semantics and pragmatics of logical words in French: negation, connectives, quantifiers*), funded by the Faculty of Letters at the University of Geneva.

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