RESEARCH

A set of semantic and pragmatic criteria for descriptive vs. metalinguistic negation

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This article is about metalinguistic negation and the types of criteria making a straightforward distinction between descriptive (DN) and metalinguistic negation (MN). First, I will distinguish three types of negation: one type of DN and two types of MN, where MN1 is upward metalinguistic negation and MN2 presuppositional metalinguistic negation. This distinction is based on two semantic criteria (entailment and scope of negation), and one discursive or pragmatic criterion (connectives). Then, the use of the connective criterion will imply that $mais_{SN}$ (Ger. *sondern* and Sp. *sino*) triggers *DN*, whereas $mais_{PA}$ (Ger. *aber*, Sp. *pero*) licenses MN1 and a causal connective like *parce que* 'because' or *puisque* 'since' generates MN2. The general philosophy of the analysis of negation is both monoguist (negation is semantically unambiguous, and its meaning is logical) and contextual (there is no reinterpretation of the negative clause when negation is metalinguistic). Finally, this article aims to lend theoretical support to the experimental work on negation reported in Blochowiak & Grisot (2018).

1 Introduction

The issue of negation has been radically changed by Horn's article on metalinguistic negation and pragmatic ambiguity (Horn 1985). The idea of an unambiguous meaning, challenging the classical approach to negation, was the direct consequence of a systematic application of Gricean program in linguistic pragmatics: linguistic meaning is not multiple, as required by the Modified Occam's Razor Principle that "*Senses are not to be multiplied beyond necessity*" (Grice 1978: 118–9). In effect, a pragmatic research program in linguistics can take advantage of the idea that differences in meaning originate from usage rather than semantics. For instance, the difference in meaning between the two usages of negation in (1) and (2) could thus be described as originating from a difference in scope, which does not imply a difference in meaning of the negation operator:

(1)   The king of France is not bald.
(2)   The king of France is not bald, because there is no king of France.

As I assume a monoguist approach to meaning, the main challenge is to explain how different meanings in use can be associated with a single linguistic meaning. Regarding negation, I follow here the pragmatic trend, which claims that negation is not semantically ambiguous (Horn 1985). However, I also defend a more radical pragmatic analysis, which refuses to see the descriptive vs. metalinguistic uses of negation as cases of pragmatic ambiguity (Horn 1985; 1989). The classical Gricean and Hornian approach would predict

that (2) is processed in two steps (see also Gazdar 1979 for a similar analysis). For instance, (2) would give rise to the analysis given in (3):

(3)   First step: the king of France is not-bald.
         Second step: not [the king of France is bald]

In this analysis (as reported in Carston 1996), the first step is narrow scope, where negation scopes over the predicate *bald*; the second step is wide scope, including in its domain the existential presupposition, since the follow-up clause (*there is no king of France*) entails the negation of the presupposition ('there is a king of France').

   Our paper advocates an alternative to the pragmatic ambiguity analysis. The aim of the alternative analysis is to argue for a contextualist approach, where the issue of the scope of negation is a question of context. According to the contextualist approach, the semantics of negation has wide scope, and pragmatic processes explain why negation can have either narrow scope (descriptive negation) or wide scope (metalinguistic negation).

   One of our article's main topics is therefore the truth-conditional use of negation, or descriptive negation, whose semantic description can be represented roughly as in (4):

(4)   It is not the case that *P*.

Alternatively, what is described by metalinguistic negation is generally defined as a non-truth-conditional use of negation. The metalinguistic negation exhibits a strong use of negation: negation can scope over the very act of saying a sentence or a proposition, and not just over a proposition. In that case, the common paraphrase of metalinguistic negation would not be (4) but (5), and the difference in meaning between (1) and (2) is made explicit in (6) and (7):

(5)   I cannot affirm *P*.
(6)   It is not the case that the king of France is bald.
(7)   I cannot affirm that the king of France is bald.

Several issues are linked to the descriptive vs. metalinguistic distinction. The first is the status of utterances containing metalinguistic negation; the second is the nature of the criteria which can make this distinction operative.

   In terms of the first issue, metalinguistic negation is generally associated with *metarepresentation*. As defined by Wilson, "a metarepresentation is a representation of a representation: a higher order representation with a lower representation embedded within it" (Wilson 2012: 230). An embedded representation can be an utterance, a thought or a proposition/sentence: a public representation, a mental representation or an abstract representation, respectively. MN examples are those where embedded representations are public representations, or utterances. The classical examples of MN (Horn 1989; Carston 1996) are clear enough on this point:

(8)   Around here we don't eat tom[eiDouz] and we don't get stressed out. We eat
         tom[a:touz] and we get a little tense now and then.
(9)   Mozart's sonatas weren't for violin and piano, they were for piano and violin.
(10)   I didn't manage to trap two mongeese: I managed to trap two mongooses.

In other words, if uses of metalinguistic negation are metarepresentations, in the sense given by Wilson, then negation is a higher-order representation, and the utterance under the scope of negation is a lower-order representation.

This analysis is uncontroversial, but it only provides a narrow description of the uses of metalinguistic negation. In this paper, however, I aim to show that metalinguistic negation has truth-conditional effects. In order to develop a solid argument, I need to use clear-cut criteria to disentangle the two uses of negation. Three tests will be used: two semantic ones, *entailment* and *scope,* and a pragmatic one, the French connective *mais* 'but', as it appears in the contrast between (11) and (12):[1]

(11) Abi n'   est pas belle,   mais ordinaire.
      Abi NEG is   NEG beautiful, but   ordinary
      'Abi is not beautiful, but ordinary.'

(12) Abi n'   est pas belle,   mais extraordinaire.
      Abi NEG is   NEG beautiful, but   gorgeous
      'Abi is not beautiful, but gorgeous.'

First, DN in (11) and MN in (12) entail different things: the corrective clause in (11) *entails*[2] the negative clause, whereas it *entails* the positive counterpart in (12). Second, these examples differ in *scope*: while negation scopes over the positive proposition (POS) in (11) ('Abi is beautiful'), it scopes over its implicature in (12) ('Abi is not gorgeous'). Third, the connective relating the negative clause (NEG) and the corrective clause (COR) is not the same *mais* 'but'. Referring to Anscombre & Ducrot's (1977) distinction between *mais$_{SN}$* and *mais$_{PA}$*, I will argue that DN triggers *SN*, whereas MN licenses *PA*.

The article is organized as follows. Section 2 introduces the semantics and pragmatics of DN, while in section 3 I discuss the different usages of MN. Section 4 summarizes the criteria distinguishing these two types of negation and their relations, while section 5 develops the *mais*-test. The final concluding section describes the main consequences of this pragmatic analysis of negation.

2 Descriptive negation

2.1 Semantic properties of DN

Descriptive negation (DN) corresponds to ordinary – that is, truth-conditional – negation. As such, it is not enough to refer to the logical meaning of negation, simply because logical negation is propositional (*it is not the case that P*), whereas linguistic negation is syntactically either the negation of a sentence (13) or the negation of a constituent (14) (Klima 1964). For Klima, sentence negation can be tested by the addition of *neither* or *not even*, whereas constituent negation does not license *not even*, as (13) and (14) show:

(13)   Peter did not come, {neither Paul, not even on weekends}.
(14)   There was some rain not long ago, {* not even, even} in the desert.

Even if the semantics of (15) is given by (16), and corresponds syntactically to a sentence negation, its complete interpretation must specify the semantic focus of negation:

(15)   Abi is not married.
(16)   It is not the case that Abi is married.

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[1] The uses of French examples is principally motivated by lexical contrasts and the uses of connectives.
[2] I use entailment in its classical logical meaning: *P* entails *Q* if all situations that make *P* true make *Q* true.

If the interpretation of the proposition 'Abi is married' in (15) is given as false by the negation operator, the question is why this proposition is false. Two possible answers can be given here. First, if the question under discussion (QUD, Roberts 2004) is (17):

(17)   Who is not married?

the propositional function 'x is married' is false of Abi if Abi does not belong to the extension of *married*. However, in that case, a better answer would simply be *Not Abi* rather than *Abi is not married*. Second, if Abi is the topic of the discourse, what is expected is that Abi is defined by a set of properties, in which 'being married' is excluded. So, the complete interpretation of a negative sentence can be expected to contain a corrective clause, stating which property (or predicate) is not only true of Abi, but also relevant in the context of the conversation. For instance, a possible corrective clause might be (18):

(18)   Abi is not married; she is engaged.

So, the semantic meaning of (18) is inferred from NEG and COR, where NEG stands for the negative clause and COR for the corrective clause. In other words, I assume here that the complete interpretation of a negative clause must contain an alternative to the positive counterpart of the negative clause (POS), either explicitly or implicitly. Hence, if COR is overt, COR belongs to the set of alternatives to POS; if COR is covert, a complete interpretation of NEG must license a set of alternatives to POS, as represented in (19):

(19)   {Abi is engaged, Abi is single, Abi is divorced}

As an initial conclusion, it can be assumed that the investigation of negative utterances implies a relation between three propositions: NEG, COR and POS. The next sections will show that these relations are key to understanding the difference between descriptive and metalinguistic negation.

   Turning to the relationship between POS and COR, three properties can be usefully implemented, following Moeschler's (2013a) proposal: COR *entailments*, *scope of negation*, and *discourse connectives* linking NEG and COR.

2.2 Entailment

The entailment relation between NEG and COR is that COR entails NEG, as (20) shows:

(20)   a.   Abi is not married, she is single.
         b.   SINGLE (Abi) → NOT-MARRIED (Abi)

(21)   a.   Abi is not beautiful, she is ordinary.
         b.   ORDINARY (Abi) → NOT-BEAUTIFUL (Abi)

This entailment property is semantic. With scalar predicates, the strong predicate entails the weak one, whereas with antonyms, the affirmation of one predicate entails the negation of the other, the converse only being the case for complementary antonyms. As I will discuss in section 3, this entailment property exhibits a strong contrast between upward metalinguistic negation and downward descriptive negation.

2.3 Scope of negation

When it comes to the scope of negation, the inferential property again contrasts upward MN with DN, as in (22) and (23):

(22)   Abi is not beautiful.
(23)   Abi is not beautiful; she is gorgeous.

What is interesting here is that a DN use gives rise to a non-ambiguous implication. In other words, we are invited to infer from (22) that Abi is less than beautiful, which is made explicit in (24):

(24)   Abi is not beautiful; she is ugly.

Therefore, the issue is how COR entailments match the scope of negation (a proposition). I assume that *negation semantically scopes over a proposition* – here, 'Abi is beautiful' – rather than over an utterance or over a sentence.[3] Thus, this minimal meaning is a consequence of the asymmetry between the affirmation and the negation of antonyms: if 'x is beautiful' entails 'x is not ugly', then it is possible that 'x is not beautiful' simply describes a degree of beauty less than that which would qualify as beautiful, without having a precise target. For instance, if *it is not the case that Abi is beautiful* has a descriptive meaning, then the set of alternatives, made explicit in COR, must entail NEG, that is, 'Abi is not beautiful', as shown in (25):

(25)   Abi is not beautiful, she is {ordinary, ugly}.

On the other hand, if (22) is true, the upward alternative to *beautiful* is not expected, because, as in (23), COR entails POS, and not NEG.

   I hypothesize that the convergence between COR entailments and the scope of negation (i.e. a proposition) makes COR covert. This analysis will only be complete when metalinguistic negation will be taken into account, because, in this case, the presence of COR ensures the expected wide scope interpretation – that is, negation scoping on a scalar implicature. However, this does not mean that DN is obtained by default (see Blochowiak & Grisot 2018 for experimental confirmation). My argument is that negation is semantically unambiguous, and pragmatically specified as DN or MN.

2.4 Connectives

The third criterion is the connective used when NEG is followed by COR. COR introduces a correction of POS, which is explicit in dialogue, but implicit in a response to an initial move (26A). (26) is a dialogical illustration, where the prototypical connective in French is *au contraire* 'on the contrary', whereas in (27) *au contraire* follows NEG (27a), and not POS (27b):

(26)   A: Abi   est   belle.
              Abi   is   beautiful
              'Abi is beautiful.'
        B: Au contraire,   elle   est   ordinaire.
              on the contrary she   is   ordinary
              'On the contrary, she is ordinary.'

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[3] Traditionally, negation scopes over an aspect of logical form, such as a full proposition or a propositional function. We use *scope* to indicate the domain over which negation operates, which can be a full proposition (*it is not the case that P*), a presupposition or an implicature. This extension of meaning is necessary because of the assumption that the difference in meaning between the three types of negative utterance discussed in this paper are caused by the content domain of negation (a proposition, a presupposition, an implicature).

(27) a. Abi n'   est   pas   belle,   au contraire   elle   est   ordinaire.
          Abi NEG is   NEG   beautiful   on the contrary   she   is   ordinary
          'Abi is not beautiful; on the contrary she is ordinary.'
      b. #Abi est   belle,   au contraire   elle   est   ordinaire.[4]
          Abi is   beautiful   on the contrary   she   is   ordinary
          'Abi is beautiful; on the contrary she is ordinary.'

On the other hand, *mais* 'but', which I will return to discuss in section 5, is only possible in monologic utterances – see the contrast between (28) and (29):

(28) A: Abi   est   belle.
          Abi   is   beautiful
          'Abi is beautiful.'
      B: #Mais elle   est   ordinaire.
          but   she   is   ordinary
          'But she is ordinary.'

(29) Abi n'   est   pas   belle,   mais   ordinaire.
      Abi NEG is   NEG   beautiful but   ordinary
      'Abi is not beautiful, but ordinary.'

Essentially, in DN, COR entails NEG, the scope of negation is a proposition, and the prototypical connectives relating NEG and COR are *au contraire* and *mais* in French – three properties which, as we will see, are different from those that define MN.

3 Metalinguistic negation
3.1 Pragmatic properties of MN

MN was first discussed in examples of metarepresentation, contrasting other cases of direct discourse, indirect discourse, free indirect style, hearsay adverbs, echoic utterances with dissociating attitudes, pragmatic markers and tag-questions, among others (Wilson 2012). Manifestly, MN examples are those in which embedded representations are public representations, which is to say utterances – see examples (8) to (10), repeated here for convenience:

(8)   Around here we don't eat tom[eiDouz] and we don't get stressed out. We eat
       tom[a:touz] and we get a little tense now and then.
(9)   Mozart's sonatas weren't for violin and piano, they were for piano and violin.
(10)   I didn't manage to trap two mongeese: I managed to trap two mongooses.

If a metarepresentation is a representation of a representation – that is, a higher-order representation R1 embedding a lower-level representation R2, as in (30) – then MN must adhere to this format. For instance, (10) receives the representation in (31):

(30) $[_{R1}$ X $[_{R2}$ Y$]]$
(31) $[_{R1}$ it is not the case that $[_{R2}$ I managed to trap two mongeese$]]$

In other words, if metalinguistic uses of negation are metarepresentations, in the sense put forward by Wilson, then negation belongs to a higher-order representation, and the

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[4] # stands for semantic/pragmatic oddity.

utterance[5] under the scope of negation is a lower-order representation. If we follow Horn's definition of metalinguistic negation (Horn 1985), $[_{R1}$ *not* $[_{R2}$ *U*$]]$ corresponds to *I object that U*. As such, (30) is attributed the format in (32), and (10) the description in (33):

(32) $[_{R1}$ I object $[_{R2}$ that *U*$]]$
(33) $[_{R1}$ I object $[_{R2}$ that I managed to trap two mongeese$]]$

In this case, the COR clause (*I managed to trap two mongooses*) corresponds to what the speaker takes responsibility for saying.

However, the Hornian and Relevance-based interpretations of MN are not identical: in the Relevance-based interpretation of MN as metarepresentation, negation is semantically – as well as pragmatically – unambiguous. What makes the difference between DN and MN is a question of complexity: DN is a simple and single representation, where negation scopes over a sentence, whereas MN scopes over another representation, which is to say an utterance.

The question of the nature of the embedded representation (utterance, thought, sentence or proposition) is a question of context, as will be seen later.[6] From a formal point of view, metalinguistic negation can scope over a mental representation like a thought, when the context of use refers to an attributed thought – as, for instance, in the case of irony – or an abstract proposition, especially when some entailment relations hold. Below, I will mainly discuss cases where the embedded representation is a sentence whose semantic format is propositional. I will capitalize on formal and logical properties of propositions to differentiate straightforwardly between DN and MN.

Horn (1989: 384) has given several examples of MN which seem to have propositions or sentences as embedded representations. Here are the most classic examples:

(34)   He doesn't have three children, he has four.
(35)   You didn't eat some of the cookies, you ate all of them.
(36)   It isn't possible she'll win, it's downright certain she will.
(37)   John isn't patriotic or quixotic, he's both patriotic and quixotic.

Consider the classic example showcasing the Hornian scale $<$*all, some*$>$, where *some* implicates 'not all' and *all* entails 'some'. First, the embedding format can be represented with propositions, because what is at stake here are logical properties, which are not shared in the previous examples of MN. This can be seen in example (38):

(38)   Quelques étudiants n'   ont   pas   réussi l'   examen de pragmatique,
         some   students   NEG have   NEG   passed the   exam   of pragmatics
         tous   ont   réussi.
         all   have   passed
         'Some students didn't pass the pragmatics exam; all of them passed.'[7]

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[5] It is worth noting that what is under the scope of negation is an utterance – in this case, a public representation. The question of whether it should be a sentence, or an utterance, is open. In Horn's interpretation of MN, the embedded representation is an utterance. I will give a more abstract definition of MN, in which a sentence is embedded. The argument will be that some property of sentence meaning, such as an implicature or a presupposition, is in the scope of MN.

[6] One of the reviewers noticed that this is also a question of ontology. As I understand it, the nature of what is modified by a metalinguistic use of negation is crucial not only for theory of grammar, but also for theory of cognition. I suspect that, in a standard Relevance Theory perspective, DN would scope over sentences, and MN mainly over utterances. My suggestion is that there is something more abstract (such as propositions) in between these two solutions.

[7] There seems to be a major difference between French and English. The English translation of (38) makes the MN interpretation impossible, because *not* cannot scope over *some*. For Michael Israel (p.c.), "The

(39)   [$_{R1}$ it is not the case that [$_{R2}$ some students passed the exam]]

If R2 is a proposition, it must be explained why, while scoping over a positive particular, negation does not trigger the classical pragmatic interpretation – that is, the negative particular implicature. In other words, why does (38) not give rise to the classical DN interpretation, made explicit in (40)?

(40)   Quelques   étudiants   n'   ont   pas   réussi   l'   examen   de pragmatique,
         some   students   NEG have   NEG passed   the   exam   of apragmatics
         mais   quelques-uns   l'   ont   réussi.
         but   some   PRO-3PL have   passed
         'Some students didn't pass the pragmatic exam, but some of them passed.'

If the DN interpretation is not licensed in (38), other semantic scales should give the same type of result. However, this does not happen: the <*certain, possible*> scale gives rise to a contradiction, as does the <*and, or*> scale:

(41)   #It isn't possible she'll win, it's downright possible she will.
(42)   #John isn't patriotic or quixotic, he's patriotic or quixotic.

Why does this happen, though? *Some* and *some not* are compatible (they are subcontraries), but *possible P* and *not possible P* are not logically connected in a similar fashion:[8] what is logically connected is the pair *possible P* and *possible not P*. As far as the <*and, or*> scale is concerned, *not* (*P or Q*) and (*P or Q*) are contradictory.

  So, how is it possible that *some not* and *all* do not give rise to a contradiction? From a logical perspective, a *positive universal* (*all*) and a *negative particular* (*not all, some not*) are *contradictory*. So, what should be expected is that *some not* and *all* are incompatible (they are contradictories), as elucidated by the logical square in Figure 1:
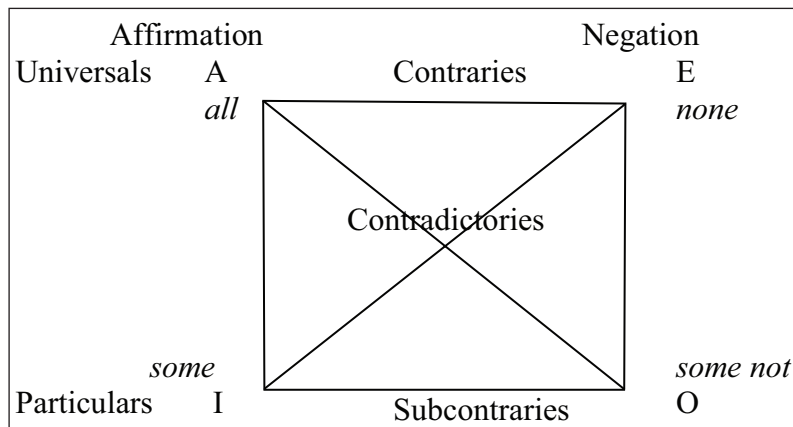
Figure 1: The logical square.

  metalinguistic reading is fine, if *some* is pronounced contrastively with a full vowel. It is, however, quite ungrammatical with a weak indefinite *sm* [unstressed *some*] NP as subject. And it is also impossible to have the DN reading with wide-scope negation – that is, *some students didn't pass* cannot mean 'no students pass'" (see Israel 1999) – exactly what happens in French. In French, the semantic scope is Neg-Q, whereas the syntactic order is Q-Neg. For instance, the usual interpretation of *tous les étudiants n'ont pas réussi* 'not all students passed' is ¬∀, and not ∀¬, even though the latter universal negation reading (*tous…pas* 'all not' meaning *aucun* 'no') is possible (with a stressed TOUS).

[8] From a logical perspective, *possible p* is equivalent to *not necessary not p*, whereas *not possible p* is equivalent to *necessary not p*. So, *possible p* and *not possible p* are contradictory.

So why can *some not* and *all* be compatible in MN? The evident answer is that negation is used not descriptively but metalinguistically. Hence, pragmatic analysis may provide an initial answer, either in terms of *metarepresentation* (Carston, Wilson), or in terms of *speech act* (Horn). In the metarepresentational analysis, negation scopes over the implicature of *some*, or 'not all', which makes the 'not all' and 'all' meanings compatible. In the speech act analysis, the contrast is between what the speaker can and cannot affirm:

(43) $[_{R1}$ it is not the case that $[_{R2}$ not all students passed the pragmatic exam]] ∧ [all students passed the pragmatic exam]

(44) $[_{R1}$ I object that $[_{R2}$ some students passed the pragmatic exam]] ∧ $[_{R1}$ I affirm that $[_{R2}$ all students passed the pragmatic exam]]

From a logical perspective, both (43) and (44) are consistent. So, it seems that MN receives a non-contradictory interpretation, on condition that MN is analyzed pragmatically. In spite of this, I propose a simpler analysis, which is neither metarepresentational nor speech act-based; I intend to show that MN also has *representational effects*, which can be made explicit by resorting to COR *entailments*, *scope of negation* and *connectives*. On this basis, a pragmatic analysis will be proposed.

3.2 Entailment relations

I will first examine entailment relations. Gazdar (1979) provided one of the first semantic and pragmatic analyses of *scalar implicature* and *presupposition*. The notion at stake is *potential* vs. *actual* inferences – that is, potential implicatures (*im-plicatures*) and potential presuppositions (*pre-suppositions*), as opposed to *actual* implicatures and presuppositions.

   The crucial point is that both generalized conversational implicature (as defined by Grice 1975)[9] and lexical presupposition, shown in (45) and (46) respectively, can be defeated:

(45)   Some of the students, in fact all, came to the party.

(46)   Abi does not regret having failed, because she passed.[10]

In Gazdar's terms, potential quantitative implicatures are "all the implicatures which the sentence could possibly have prior to contextual cancellation" (Gazdar 1979: 55). Similarly, potential presuppositions, or pre-suppositions, are "what the presupposition would be if there was no "projection problem," no "ambiguity" in negative sentences, and no context sensitivity" (Gazdar 1979: 124). In other words, the scalar implicature 'not all students' is a potential implicature of *some of the students*, cancelled by the parenthetical *in fact all*; equally, 'Abi failed' is a potential presupposition, cancelled by the corrective clause *she passed*. So, these cases are explained by the cancellation of a potential inference, valid before contextualization, and thus neither added to nor retrieved from the common ground.[11]

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[9] A *generalized* conversational implicature is the case when "the use of a certain form of words in an utterance would normally (in the ABSENCE of special circumstances) carry such-and-such an implicature or type of implicature" (Grice 1975: 56).

[10] As (45) and (46) show, a generalized conversational implicature (45) can be defeated without negation, whereas a presupposition needs a metalinguistic use of negation (46). The explanation is that conversational implicatures are associated with a non-truth-conditional interpretation. Presuppositions, however, are entailed by both the assertion and its negative counterpart, and only a metalinguistic use of negation can suppress them. This leaves open the status of presupposition as semantic or pragmatic (cf. Moeschler 2013b for a development of this idea).

[11] At this stage, it is worth making a crucial point: neither of these cases is a use of MN, so much as a cancellation of potential inferences. Negation is thus neither semantically nor pragmatically ambiguous here. In fact, one prediction made by Gazdar's analysis is that an implicature could be cancelled out

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Gazdar's proposal, while incomplete, has one substantial positive point: it shows that *entailments* are stronger than *implicatures* and *presuppositions*. In order words, semantic meaning is stronger than pragmatic meaning.[12] I will follow Gazdar's suggestion and make use of Moeschler's proposal (2013b) on the relation between semantic and pragmatic meanings.

First, I will draw a distinction between two types of MN: MN1 scoping over a potential scalar implicature, and MN2 scoping over a potential presupposition.

3.2.1 MN1 entailments

In MN1, COR entails POS, and negation scopes over POS scalar implicature. First consider the entailment relation:

(47)   a.   Abi is not beautiful, she is gorgeous.
          b.   Abi is gorgeous → Abi is beautiful

(48)   a.   Some students did not pass, all passed.
          b.   all students passed → some students passed

In these examples, COR contains an upper-bound predicate or quantifier entailing its lower-bound correlate, the relation being one of entailment. The reason is that scalar predicates and quantifiers belong to quantitative scales:[13] <*all, some*>, <*gorgeous, beautiful*>. In other words, there is a strong contrast between MN1 and DN: in DN, COR entails NEG, whereas in MN1, COR entails POS.

3.2.2 MN2 entailments

In MN2, COR entails NEG and the negation of the presupposition of POS (PP_{POS}), as (49) and (50) show:[14]

(49)   Abi does not regret having failed, since she passed.
          a. PP_{POS}: Abi failed
          b.   Abi passed → it is not the case that Abi failed and (therefore) it is not the case that Abi has regrets

(50)   The king of France is not bald, because there is no king of France.
          a. PP_{POS}: there is a king of France
          b.   there is no king of France → it is not the case that there is a king of France and (therefore) it is not the case the king of France is bald

So, the corrective clause COR entails both the negation of the implicature and the presupposition. In this regard, whether COR is necessary for such a cancellation is an

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without negation, because of the contradiction between the potential implicature and the corrective clause. However, as (i) and (ii) show, this is only the case for implicatures:
  (i) Some of the students, in fact all, came to the party.
  (ii) #Abi regrets having failed since she passed.

[12] It is worth noting that the difference between a potential and an actual presupposition leads to the pragmatic definition of presupposition put forward by Gazdar (1979: 103-108), on the basis of Stalnaker (1977).

[13] To simplify, semantic scales are defined as lexical here.

[14] The question of whether COR entails NEG is under discussion. In Moeschler (2013a), I defend this assumption. One objection might be that, when a presupposition is objected to and cancelled by COR, this entailment affects the truth of the matrix clause in (49) and the assertion in (50). A moderate version would predict that this is typically an implicature, not an entailment: it could be true or false. For instance, if Abi does not know that she passed, but believes that she failed, she might have regrets. In my analysis, the cancellation of POS is a consequence of the cancellation of its presupposition.

open question. For instance, Carston (1996) has given a counterexample to this, but the context and the intonation are not standard:

(51)   Context: A and B have an ongoing disagreement about the correct plural form of *mongoose,* A advocating *mongeese* and B *mongooses*:
         A: We saw two mongeese at the zoo.
         B: No, come on, you diDN'T see two monGEESE.

In cases where MN does not scope over a linguistic form but over pragmatic content (implicature or presupposition), the question remains open. In section 4.1, I will argue that the interpretation as metalinguistic is the result of a process of *assumption formation and confirmation,* not giving rise to a two-step process of MN. In other words, the wide scope reading for MN is anticipated, and COR is simply expected to be a confirmation of this move.

   However, what is striking is that MN1 and MN2 have different semantic effects: in MN1, POS is conserved, whereas MN2 cancels both POS and its presupposition (PP_{POS}). Table 1 makes these differences explicit in terms of the representational effects of DN, MN1 and MN2:

Table 1: DN and MN entailments.

Types of negation	Entailments
DN	COR → NEG
MN1 (scalar implicature)	COR → POS
MN2 (presupposition)	COR → ¬POS ∧ ¬PP_{POS}

As Table 1 shows, entailment is a good diagnostic tool for the distinction between DN and MN, and between two types of MN. The entailment test also provides a reason why examples of MN relating to form, such as (10), do not trigger any entailment relation. To make this point clearer, no entailment holds between COR, POS or NEG in (10), repeated in (52a) below:

(52)   a.   I didn't manage to trap two mongeese: I managed to trap two mongooses.
         b.   I managed to trap two mongooses ↛ it is not the case that I managed to trap two mongeese

Here, the pragmatic analysis, either by way of an echoic or a speech act interpretation, is the only relevant analysis, as shown in (53) and (54):

(53)   [$_{R1}$ it is not the case that [$_{R2}$ I managed to trap two mongeese]] ∧ [I managed to trap two mongooses]
(54)   [$_{R1}$ I object that [$_{R2}$ I managed to trap two mongeese]] ∧ [$_{R1}$ I affirm that [$_{R2}$ I managed to trap two mongooses]]

This explains why pragmatic approaches to MN were initially interested in those cases which had no specific meaning issues (either semantic or pragmatic). This is also the main reason why I will not propose any particular account of these examples.[15]

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[15] In Moeschler (1997), I proposed a general approach based on an *invited inference* process (Geis & Zwicky 1971), adding an enunciative operator *E* (for act of uttering – *acte d'énonciation*). In this template, the incorrect entailment (52) makes sense:
    (i) E [I managed to trap two mongooses] → ¬E [I manage to trap two mongeese]

3.3 Scope of MN1 and MN2

3.3.1 Scope of negation in MN2

The scope of negation in MN2 is a direct consequence of COR entailments. Traditionally, as in the Russellian logical analysis of the king of France example, an MN2 reading is *wide scope*. So, (55), in which there is no king of France, receives the logical form in (56) (see Moeschler 2010 for a more complete analysis):

(55)   The king of France is not bald.

(56) $\neg\exists x\ [King(x) \wedge \neg\exists y[King(y) \wedge (y \neq x)] \wedge bald(x)]$
         'It is not the case that there is an x such as x is a king and there is no y such that
         y is a king and y is different from x and x is bald'.

This wide scope reading explains why the assertion (POS) and its presupposition (PP_{POS}) are false, as the logical form (57), equivalent to (56), shows:

(57) $\forall x\ [\neg King(x) \vee \exists y[King(y) \wedge (y \neq x)] \vee \neg bald(x)]$
         'For all x, x is not a king or there is a y such that y is a king and y is different
         from x or x is not bald'.

What (57) shows is that, for every x, either there is no king of France – $\neg King(x)$ – or he is not unique – $[King(y) \wedge (y \neq x)]$ – or he is not bald – $\neg bald(x)$. Therefore, the negation of the presupposition $\exists x[King(x)]$ or the assertion $[bald(x)]$ is a consequence of the wide scope of negation.

3.3.2 Scope of negation in MN1

However, what about upward negation – that is, MN1? How can we predict that negation scopes over the POS scalar implicature (SI_{POS})? As we have seen, COR entails POS, which means that if negation were not present (as in the structure *POS, COR*), SI_{POS} would have been triggered by POS, even if defeated by COR, as in (58):

(58)   Abi is beautiful, and even more, gorgeous.
         a. SI_{POS}: Abi is beautiful $+>$ Abi is not gorgeous
         b.   COR entailment: Abi is gorgeous $\rightarrow$ it is not the case that Abi is not
             gorgeous

So, COR entails POS, and in the case of a positive utterance like (58), COR defeats SI_{POS} (58b). However, where MN1 occurs, COR also defeats SI_{POS} (47a). What, then, is the function of negation? At first glance, it seems unnecessary, since SI_{POS} is cancelled even in a structure such as *POS, COR*, where COR entails POS and the negation of SI_{POS}. This is a serious issue for Gazdar's analysis of MN1. As noted before, Gazdar's explanation needs no MN. An alternative explanation goes as follows.

    First, it is important to stress that MN1 applies without COR, as in (59), for instance, if spoken with the right intonation:

(59)   A: Ta   fille   est belle.
             your daughter is   beautiful
             'Your daughter is beautiful.'
         B: Voyons, Abi n'   est PAS BELLE!
             look   Abi NEG is   NEG beautiful
             'Come on, Abi is not beautiful!'

(59B) can certainly constitute a possible refutation of A's SI: if A compliments Abigaël's father, A may convey that she is *nothing but* beautiful. So, an answer such as (59B) is possible, but may be considered risky, mainly because it is difficult to interpret without a tone of aggressiveness or irony, as in (60):

(60)   B: Do you mean 'nothing but beautiful'?

In addition, how does one explain the scope of negation in MN1, as, for instance, in (61)?

(61)   Abi is not beautiful, she is gorgeous.

The main point of my analysis is that negation cannot be descriptive – that is, scoping over the proposition 'Abi is beautiful'. The reason for this is simple: if this is the case, the speaker would have produced a contradiction, saying both *P* and *not-P*, since *gorgeous* entails *beautiful*:

(62)   Abi is gorgeous → Abi is beautiful
(63)   It is not the case that Abi is beautiful, and Abi is beautiful.

However, note that this contradictory step is exactly what is predicted by a speech act analysis: first, negation is taken to be descriptive, and then it is reinterpreted as metalinguistic, since the ambiguity interpretation at the semantic level (Burton-Roberts 1989) first predicts a narrow scope (descriptive) interpretation, and it is only by way of a second step that a wide scope interpretation involving SI cancellation arises.[16] In my proposal, interpretation only includes a one-step wide scope, mainly because it is contextually accessible (see Blochowiak & Grisot 2018 for an experimental confirmation of this). Therefore, the one-step interpretation makes POS available in the context, which is confirmed by the entailment from COR to POS. In other words, the only possible target for negation is something beyond semantic content, as it must be defeasible: since POS implicates not-COR, negation scopes over SI_{POS} – that is, not-COR. The full process is described in (64) below:

(64)   a. Scope of negation: Abi is not more than beautiful
         b. COR entailments: i. Abi is gorgeous → Abi is more than beautiful
                                      ii. Abi is gorgeous → Abi is beautiful

It is possible to give a more precise explanation as to why COR is expected to be present – although not mandatory – in MN1. The explanation is a side effect of a weak constraint on DN: since scope and entailments are identical in DN, COR is not informative, and when it occurs, it allows for the specification of NEG at the level of the explicature. On the other hand, with MN1, scope and entailments are not identical. As far as quantitative scales are concerned, while negation *scopes* over a specific degree *d* of a property *P* – here *d*(*beautiful*) – with an 'only' or 'no more than' interpretation, *entailments* include all lower-bound degrees of *P*.

The complete division of labor between scope and entailments predicts how negation is processed in different contexts. In Moeschler (2013a), these semantic properties are confirmed by the contextual effects of negative utterances, in the sense of Relevance

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[16] This is different from Carston's approach, which predicts that the first step is wide scope, and the second one is narrow scope, or confirms the wide scope interpretation. See Carston (2006), Moeschler (2010).

Table 2: Scopes of DN, MN1 and MN2.

Types of negation	Scope of negation
DN	POS
MN1 (scalar implicature)	SI_{POS}
MN2 (presupposition)	$POS \wedge PP_{POS}$

Theory (Sperber & Wilson 1995; Wilson & Sperber 2012), like adding new information, and strengthening or suppressing old information.[17] Table 2 summarizes the different scopes of DN, MN1 and MN2:

3.4 Connectives in MN

What about connectives – that is, instances of explicit linguistic material introducing COR? I have shown that the prototypical connectives following DN in French are *au contraire* 'on the contrary' and *mais* 'but'. But what about MN1 and MN2? Metalinguistic negation is followed neither by the same type of corrective clause, nor by the same connective. Whereas the relation between NEG and COR is a *contrast* relation with MN1, it is an *explanation* relation with MN2. Contrast relations are typically introduced by *but* in English, and *mais* in French. So, based on the observation that *mais* introduces COR both in DN and in MN1, the question is how and why the same connective can be associated with different entailments and scope relations in DN and MN1, an issue which will be extensively discussed in section 5.

As regards MN2, the data clearly show that neither of the two connectives introducing COR in DN are acceptable in MN2, as (65) shows. The only possible connective is a causal one, having an explanation function, like *because* or *since* in (66):

(65)   Abi does not regret having failed, {# on the contrary, # but} she succeeded.
(66)   Abi does not regret having failed, {because, since} she succeeded.

In other words, since MN2 suppresses both an assertion and its presupposition, an *Explanation* discourse relation is required (Moeschler 2013a). This not the case when the order is not *NEG, connective COR* but *COR, connective NEG*, as illustrated by Carston (2002: 310):

(67)   There is no king of France: so, the king of France is not bald.
(68)   A: When did you give up smoking?
        B: I've never smoked in my life; so, I haven't given up smoking.

In (67) and (68), the relation between COR and NEG is a cause-consequence relation made explicit by *so,* which suggests that MN is not the result of a two-step process, since NEG can follow COR. Moreover, COR is here the cause of defeating PP_{POS}.

What, then, is the prototypical connective for MN1? As (69) shows, neither the DN nor the MN2 connectives are appropriate:

(69)   Abi is not beautiful, {# on the contrary, # because[18]} she is gorgeous.

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[17] These respective contextual effects are the suppression of POS for DN, the strengthening of POS for MN1, and the suppression of POS and PP_{POS} for MN2.
[18] See gloss (72) for a possible use of *because* in (69).

With *on the contrary*, the NEG-COR relation would mean that the discourse relation is *Correction*. But the speaker is not correcting – which implies a *single* speech act – as happens when POS is corrected by COR in DN. On the contrary, in MN1, there is a *Contrast* discourse relation, and the connective used can have different discourse functions. In particular, the NEG-COR relation in DN is a specification of the explicature of NEG, which is to say the degree of property *P* below the predicate under negation. For instance, being *not beautiful* could be an intermediate predicate between antonyms, or a full antonym, as (70) shows:

(70)   a.   Abi is not beautiful, but ordinary.
         b.   Abi is not beautiful, but ugly.

As regards causal connectives, such as *because* or *since*, their presence can be acceptable if the speaker aims to explain why she cannot assert POS, in which case the reading of (71) is upward, as in (72):

(71)   Abi is not beautiful, because she is gorgeous.
(72)   Abi is not beautiful, and the reason why I cannot affirm that she is beautiful is because she is more than beautiful – that is, gorgeous.

Moreover, *because* has a speech act use in (71) and not a content use, as with DN in (73) (Sweetser 1990):[19]

(73)   Abi is not beautiful because she has a very sad smile.

Apart from the possible explanation or causal connective with a speech act use in MN1, the most predictable connective is *but*, as shown in (74), and *mais* in the French example (75):

(74)   Abi is not beautiful, but gorgeous.
(75)   Abi   n'   est   pas   belle,   mais   extraordinaire.[20]
        Abi NEG   is   NEG   beautiful,   but   gorgeous
        'Abi is not beautiful, but gorgeous.'

As such, the principal question is why the same connective *mais* 'but' is possible for both DN and MN1. This is a question to which I will return in section 5. However, before giving an exhaustive summary of properties distinguishing DN and the two types of MN, I would like to clarify one point about the interpretation of connectives in the NEG-COR relation. First, and perhaps least importantly, it could be argued that the presence of the same connective in DN and MN1 shows a genuine ambiguity of negation, letting COR disambiguate it. Second, as will be seen in section 5, two connectives are at stake for each type of negation: *SN* for DN, and *PA* for MN1. In a nutshell, four connectives can introduce three discourse relations, one for each use of negation (Moeschler 2013a), as shown in Table 3:

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[19] It is worth recalling that Sweetser (1990) makes a seminal distinction in connective uses based on their domains: *content* (*because* connects two propositions causally related), *epistemic* (*because* connects an argument justifying a belief) and *speech act* (*because* introduces the reason why a speech act has been uttered), as in (i) to (iii) respectively:
    (i)   He came back because he loves her.
    (ii) He loves her, because he came back.
    (iii) Are you ready? Because we are late.
[20] As I will show, a complete clause following *mais* is grammatically infelicitous here, as noticed by Horn (1989). I will return to this property of *mais* later.

Table 3: Connectives for DN, MN1 and MN2.

Types of negation	Connectives	Discourse relation
DN	*au contraire, mais$_{SN}$*	Correction
MN1	*mais$_{PA}$, parce que*	Contrast
MN2	*parce que, puisque*	Explanation

4 Criteria for descriptive and metalinguistic negation

At this point, we have three robust semantic and pragmatic criteria for distinguishing DN, MN1 and MN2. Table 4 is a synthesis of Tables 1 to 3:

Table 4: 3 criteria for distinguishing DN from MN.

Types of negation	Entailments	Scope	Connectives	Discourse relations
DN	COR → NEG	POS	*au contraire, mais$_{SN}$*	Correction
MN1	COR → POS	SI$_{POS}$	*mais$_{PA}$, parce que*	Contrast
MN2	COR → ¬POS ∧ ¬PP$_{POS}$	POS ∧ PP$_{POS}$	*parce que, puisque*	Explanation

I intend to show that these criteria are not only compatible (a possible outcome), but practically inevitable (a necessary outcome).

4.1 Criteria for DN

First, if COR entails NEG in cases of DN, this implies that negation scopes over POS. These two criteria are therefore entrenched. So, what about connectives? *Au contraire* is the connective stating a contrary relation. COR and POS are not in a contradiction relation (which is signaled by *not* in English, *ne…pas* in French). On the contrary, following Horn (1989), the semantic relation between antonyms is a contrary relation, as illustrated by the logical square in Figure 2:
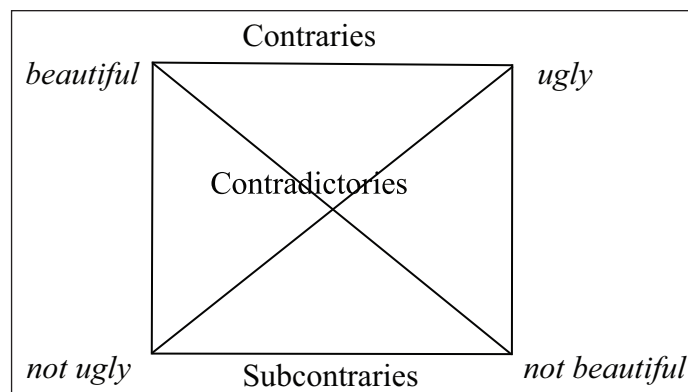
Figure 2: The logical square for antonyms.

So, by saying *Abi is not beautiful*, NEG contains a lower bound negative predicate, which is entailed by its upper bound correspondence (*she is ugly*) – that is, the contrary of *beautiful*. Note that this can be inferred by implicature, which is not scalar, but rather an R-implicature in Horn's (1984) terminology (R stands for the R-Principle, derived from the Gricean maxim of relation or relevance). By saying *Abi is not beautiful*, the speaker says what is necessary to allow a lower bound implicature to be inferable ('Abi is ugly'). This implicature is conversational, since it can be cancelled, as shown in (76):

(76)   Abi is not beautiful, but she is not ugly either.

The two negative predicates (*not beautiful, not ugly*) are compatible, as they are *subcontraries,* and subcontraries can be true together – unlike contraries, which can only be false together, but not true together.

4.2 Criteria for MN1

Turning to MN1, the prediction is that the possible semantic and pragmatic relations are different: since COR entails POS, and POS is true, negation cannot scope over POS, and the only possible candidate is one aspect of POS meaning, which is to say SI_{POS}. In this case, the logical square is again useful: the scale <*gorgeous, beautiful*> is a positive quantitative scale, and *gorgeous* and *not beautiful* are contrary, as shown in Figure 3:
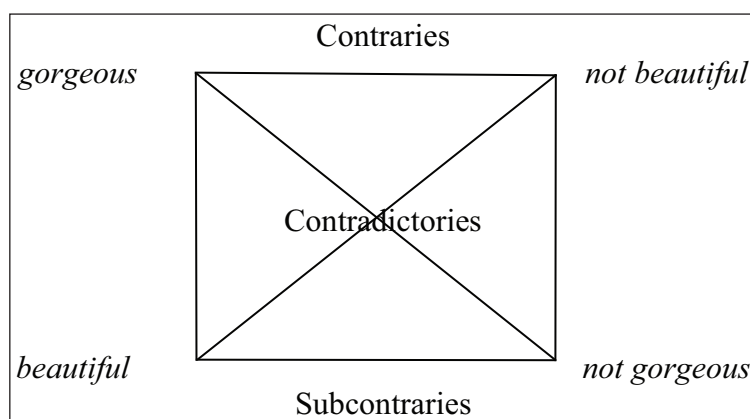
Figure 3: A logical square for positive scalar predicates.

So, saying *not beautiful*, from a purely semantic point of view, is saying something contrary to *gorgeous*. However, as *gorgeous* entails *beautiful,* to avoid contradiction, negation can only scope over its implicature, which is its subcontrary *not gorgeous*. As the implicature is defeated by MN1, a R-implicature from *not gorgeous* to *not beautiful* is not obtained. (77) summarizes this process (→ for 'entails', + > for 'implicates'):

(77)   a.   Abi is not beautiful → Abi is not gorgeous
         b.   Abi is gorgeous → Abi is beautiful
         c.   Abi is beautiful + > Abi is not gorgeous
         d.   Abi is gorgeous → it is not the case that Abi is not gorgeous

Still, (77) is the description not of a cognitive process, but only of a logical reconstruction. From a pragmatic cognitive perspective, what takes place is a process of assumption formation and confirmation. As stated by Sperber & Wilson, "the calculation of implicatures is a matter of non-demonstrative inference. It involves a partly non-logical process of assumption formation and confirmation" (Sperber & Wilson 1995: 201):[21]

(78)   a.   Assumption formation (from NEG):
                Abi is not beautiful + > it is not the case that Abi is not gorgeous
         b.   Assumption confirmation (from COR):
                Abi is gorgeous → it is not the case that Abi is not gorgeous

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[21] Recall that in the classic Gricean definition, an implicature is the result of reasoning based on the presumption of the speaker's cooperative behavior and her use or exploitation of the conversational maxims.

As we see, COR confirms what is expected by treating negation as wide scope in (78a) – that is, as negating POS implicature ('Abi is not gorgeous'). As entailments are stronger than implicatures, the assumption formed in (78a) is confirmed by COR in (78b).

This leads to a very important conclusion: COR is not defeating an initial comprehension process, where negation is descriptive; on the contrary, it confirms what is assumed, which is to say the cancellation of SI_{POS}. However, one can imagine a situation where the narrow scope interpretation of NEG is canceled. I hypothesize that this is what happens in *humor*. As an example of such a process, consider the famous joke by the French humorist Pierre Desproges:[22]

(79)　Marguerite Duras, qui n'　a　pas écrit　que　des conneries.
　　　 Marguerite Duras who NEG has NEG written just bulshitt
　　　 Elle　en　a　aussi　filmé.
　　　 she　PRO has also　filmed
　　　 'Marguerite Duras, who has not just written bullshit. She has filmed some, too.'

In (79), there is a real trap by Desproges. He wants the audience to infer (80), but his corrective clause defeats it, as shown in (81):

(80)　Marguerite Duras has not just written bullshit + > Marguerite Duras has written masterpieces too.

(81)　She has filmed bullshit too → Marguerite Duras has written bullshit

It is important to emphasize that the implicature (80) is highly expected in French, because of the syntactic construction *ne pas écrire que des conneries* 'not just writing bullshit', where the restrictor *ne…pas que* 'not just' gives rise to a set of alternatives (Alt) for *bullshit*:

(82)　Alt(bullshit) = {masterpiece, chef-d'oeuvre, novel, play, poem …}

As a result, the corrective clause *Elle en a aussi filmé* 'She has filmed some, too' is highly unexpected, because the set of alternatives has changed:

(83)　Alt(write) = {film, say, declare, answer, shout…}

The effect is a manipulation, since it is unexpected, and, of course, gives rise to non-propositional effects such as laughter.

The last point concerns the compatibility of connectives: what about the contrastive connective *mais* 'but' and *parce que* 'because'? The causal connective *explains* why the speaker cannot affirm POS, and so receives a speech act interpretation. In other words, when *parce que* occurs, as in (84), the only possible reading is a speech act reading:

(84)　Abi is not beautiful, because she is gorgeous.

So, the explanation (*because she is gorgeous*) looks like a justification for not saying *Abi is beautiful*. Indeed, the entailment between *gorgeous* and *beautiful* is sufficient. So, the processing of (84) is restricted to (85):

(85)　JUSTIFICATION [Abi is gorgeous, the speaker cannot say "Abi is beautiful"]

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[22] Marguerite Duras was a very active intellectual and famous writer (*nouveau roman*) during the eighties.

The story becomes more complex with *mais*, as in (86):

(86)　　Abi　n'　　est pas　belle,　　mais　extraordinaire.
　　　　Abi　NEG　is　NEG　beautiful　but　gorgeous
　　　　'Abi is not beautiful, but gorgeous.'

What is required here is that the connective *mais* 'but' be compatible with the set of entailments of COR and the scope of negation. As *mais* is a contrastive connective, the conclusion drawn from NEG and the conclusion drawn for COR should be contradictory. This is easily demonstrable. Suppose that Abi is applying for the role of Juliet in a theatre company. Speaker A claims that Abi is beautiful, which should be a positive argument for hiring her. However, speaker B thinks that this argument is not enough, and then he wants to use a stronger argument (Abi is gorgeous):

(87)　　a.　Abi is not beautiful $+ >$ Abi cannot play Juliet
　　　　b.　Abi is gorgeous $+ >$ Abi can play Juliet

From the contribution of *mais*, both entailments and scope can be explained. For one, as the second conjunct is stronger than the first, the entailment relation between COR and POS is explained on the grounds that *gorgeous* semantically entails 'beautiful'. Then, COR contradicts the POS scalar implicature, and, as COR is introduced by *mais*, it is stronger than NEG.

4.3 Criteria for MN2

I will now turn to the relations between COR entailments, the scope of negation and connectives in MN2. COR entails both NEG and POS presupposition, which means that negation scopes over POS and its presupposition. As regards the causal connective, what must be stressed is that a metalinguistic reading hardly be obtained alone. For instance, the reply in (88B) is highly implausible, because the presupposition belongs to the common ground, and cannot be removed without a negative utterance:

(88)　　A:　Abi does not regret having failed.
　　　　B:　#Do you mean she passed?

So, why do we have a causal or explanation connective introducing COR? As shown in 4.2, a causal connective introduces a *justification* of a negative utterance with a wide scope negation. As such, a wide scope interpretation means that what is proposed to belong to the common ground or expected already to be in the common ground must be rejected or retrieved. The simplest way to do so is to negate both the assertion and its presupposition (89). However, this move is not enough, simply because what NEG can do is refute the addition of POS to the common ground. So, the best way to do this is by either presenting it as *new* information, introduced by *parce que* 'because', or *old* information with *puisque* 'since', which contradicts what is believed to belong to the common ground (Zufferey 2012). This could *not* be accomplished by a corrective clause nor by a contrastive connective, such as *on the contrary* or *but*, because COR in MN2 introduces the negation of POS presupposition (89), while *mais* can either introduce the negation of POS implicature in MN1, or indirectly negate POS *via* its entailment (NEG) in DN (90):

(89)　　Entailments in MN2:
　　　　COR $\rightarrow \neg$POS $\land \neg$PP$_{POS}$

(90)   Entailments in DN:
    a.   COR → NEG
    b.   NEG → ¬POS[23]

4.4 The big picture

As a conclusion to this section, there are strong arguments for putting forward a semantic and pragmatic distinction between three types of negation: DN, MN1 and MN2. Table 5 gives a more precise picture of the different types of propositional effects involved in the three uses of negation:

Table 5: Meaning inference for DN, MN1, MN2, where *P* stand for the assertion content (POS), *not-P* for NEG, and *Q* for the entailment, presupposition or implicature of *P*.

Types of negation	Assertion	Entailment	Presupposition	Implicature
DN	not-P	Q or not-Q	Q	
MN1	~~not-P~~	P and not-Q		~~Q~~
MN2	not-P		~~Q~~	

However, some cells in Table 5 still require further comment. First, the entailment of *not-P* can be positive or negative: when there is a categorical relation between *P* and *Q* – as CHOW(x) → DOG(x) –, *Q* is not always the case:

(91)   a.   Nath did not buy a Chow, he bought a Labrador.
        not-P → Q
    b.   Nath did not buy a Chow, he bought a Siamese.
        not-P → not-Q

Second, in MN1, *not-P* is erased (~~not-P~~), because MN1 entails both *P* and the negation of its implicature (*not-Q*), while its implicature is also erased (~~Q~~). Third, the simplest case is MN2, where *not-P* erases its presupposition *Q* (~~Q~~).

   One key point, observed in Table 5, is that MN2 requires that COR equals the overt negation of POS presupposition. The presence of a positive clause in *Abi does not regret having failed, since she passed* is simply due to the entailment of COR: *Abi passed* entails *Abi did not fail*.

5 The *mais*-test

In Horn (1989), three criteria for distinguishing between DN and MN are proposed. The first two are uncontroversial, but, as I will show, the third one can be challenged. Since it relates to the French *mais* 'but', it is crucial for distinguishing between DN and MN1. However, the two uncontroversial criteria will be the first to be examined.

5.1 MN and incorporation

First, metalinguistic negation is not incorporated. This means that the morphological negator (negative prefix) *un-/in-* cannot be used for MN, as shown in (92) (Horn 1989: 392):

(92)   a.   #It is impossible for you to leave, it is necessary.
    b.   It is not possible for you to leave, it is necessary.

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[23] (90b) is a possible explanation of why NEG is processed with a longer reading time in DN with context than without context (see Blochowiak & Grisot 2018).

Note that when negation is lexically incorporated, the same impossibility occurs:

(93)　a.　#I hate you, I adore you.
　　　b.　I don't love you, I adore you.

This being highly uncontroversial, one legitimate question is to ask why it is the case. Remember that DN and MN are indicated by normal sentence negation, like (*do*) *not* in English, and *ne…pas* in French. The necessity of sentence negation shows why negation can trigger a wide scope reading. Being incorporated into a predicate makes the wide scope reading impossible. In other words, negation prefixes, as well as constituent negation constructions, cannot have MN uses because they cannot have wide scope. Moreover, the relation between a negative-marked predicate and its positive counterpart generally gives rise to a contrary relation, and not to a contradictory one. However, both DN and MN trigger contradiction relations, rather than contrary ones.

5.2　MN and NPIs

Second, metalinguistic negation is generally incompatible with NPIs (negative polarity items):[24]

(94)　Chris didn't manage to solve {some, *any of the problems} – he managed to solve all of them.

Again, what could be the explanation? Manifestly, without COR, we find the inverse distribution of quantifiers:

(95)　Chris didn't manage to solve {*some, any of the problems}.

Interestingly enough, if we invert the order between the negation and quantifier, the order *some not* can give rise to both descriptive and metalinguistic uses:

(96)　a.　Quelques　étudiants　n'　ont　pas　réussi, quelques-uns　ont　réussi.
　　　　　some　　　students　NEG have NEG passed some　　　　have　passed
　　　　　'Some students did not pass, some of them passed.'
　　　DN
　　　b.　Quelques　étudiants　n'　ont　pas　réussi, tous　ont　réussi.
　　　　　some　　　students　NEG have NEG passed all　have passed
　　　　　'Some of the students did not pass, all of them passed.'
　　　MN

So, apparently, the incompatibility with NPIs is more a syntactic constraint than a semantic one. This hypothesis can be tested with the French NPI *ne pas lever le petit doigt* 'not to lift a finger':

(97)　Max　n'　a　pas　levé　le　petit doigt　pour　soutenir ma　candidature,
　　　Max NEG has NEG lift　the little finger to　support my application
　　　il　m'　a　détruit　en séance.
　　　he PRO-1SG has demolished at　meeting　DN

---

[24] Michael Israel (p.c.) reminded me that "In English weak NPIs *any, ever,* and to a lesser extent *at all,* can occur with MN as long as they are not the focus of correction. Thus *I didn't **manage** to get any work done – it was easy*" (see Israel 2011: 181-2 for discussion).

'Max did not lift a finger to support my
application; he demolished me at the meeting.'

(98)   #Max n'   a   pas   levé le   petit doigt pour soutenir ma candidature,
        Max NEG has NEG lift the little finger to   support my application
        il   l'   a   portée à bout de bras.
        he PRO-3SG has carried at arm's length
        #MN
        'Max did not lift a finger to support my application; he let it carry at
        arm's length.'

The metalinguistic reading is bizarre, because of the improbable reading of the literal
(non-figurative) correlate in French:

(99)   #Max n'   a   rien   fait   pour soutenir ma   candidature,
        Max NEG has nothing done   to   support my   application
        il   l'   a   défendue fortement.
        he PRO-3SG has defended   strongly
        #MN
        'Max did nothing to support my application, he strongly defended it.'

In other words, these two tests (incorporation and NPI) are incompatible with MN. I
conjecture that this is because of the meaning of negation in the negative clauses being
either lexical or idiomatically descriptive.[25]

5.3 SN and PA, DN and MN

The *mais*-test is based on Anscombre & Ducrot's (1977) distinction between two *mais* in
French, labelled *mais$_{SN}$* (for Ger. *sondern* and Sp. *sino*), and *mais$_{PA}$* (for Ger. *aber* and Sp.
pero). Horn's position is that MN1 licenses *mais$_{SN}$*, whereas DN triggers *mais$_{PA}$*:

(100)   Il   n'   est pas   grand, mais$_{PA}$ petit.
        he NEG is NEG tall   but   small
        'He is not tall, but small.'

(101)   Il   n'   est pas   grand, mais$_{SN}$ très   grand.
        he NEG is NEG tall   but   very   tall
        'He is not tall, but very tall.'

His main argument is based on an observation by Anscombre & Ducrot (1977), according
to which *mais$_{SN}$* cannot be followed by *a full corrective clause*, as the contrast between
(102) and (103) shows:

(102)   Il   n'   est pas   grand, mais$_{PA}$ il   est   petit.
        he NEG is NEG tall   but   he is   small
        'He is not tall, but he is small.'

(103)   *Il   n'   est pas   grand, mais$_{SN}$ il   est très   grand.
        he NEG is NEG tall   but   he is very   tall
        'He is not tall, but he is very tall.'

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[25] For Michael Israel (p.c.), "NPIs are forms whose at-issue content (entailments) needs licensing (whether by
negation or some other operator), and so cannot be licensed by uses of NEG that target scalar implicatures
or presuppositions."

However, there are three issues with this analysis. The first issue is linked to a unproved assumption by Anscombre and Ducrot: "We have grounded our description of *PA* on the assumption that when it follows negation, it can only be a descriptive negation, and not a polemic one" (Anscombre & Ducrot 1977: 32).[26] However, no argument is provided to support this assumption. Then, if we use genuine examples where the first conjunct is negative, the function and the meaning of *mais* is not the same: $mais_{SN}$ is corrective, whereas $mais_{PA}$ is contrastive, allowing for an argumentative function. Finally, related to this, and confirming the initial analysis of these connectives here, $mais_{SN}$ is preferably followed by *au contraire* 'on the contrary', whereas $mais_{PA}$ prefers *pourtant* 'however' or *en revanche* 'rather'. (104) and (105) are illustrations of these two properties:

(104) Il   n'   est pas   français, $mais_{SN}$ au contraire   il   est   allemand.
       he   NEG is   NEG French   but   on the contrary   he   is   German
       'He is not French, but on the contrary he is German.'

(105) Il   n'   est pas   français, $mais_{PA}$ pourtant il   parle   très   bien français.
       he   NEG is   NEG French   but   however he   speaks very   well French
       'He is not French, however he speaks French very well.'

An application of the second connective criterion to our DN and MN1 examples confirms that *en revanche/pourtant* 'rather/however' cannot follow $mais_{SN}$, nor can *au contraire* 'on the contrary' follow $mais_{PA}$.

(106) a. Abi n'   est pas   belle, $mais_{SN}$ au contraire   quelconque.
           Abi NEG is   NEG beautiful but   on the contrary   ordinary
           'Abi is not beautiful, but on the contrary ordinary.'
       b. #Abi n'   est pas   belle, $mais_{SN}$ {en revanche, pourtant} quelconque.
           Abi NEG is   NEG beautiful but   rather   however ordinary
           'Abi is not beautiful, {rather, however} ordinary.'

(107) a. #Abi n'   est pas   belle, $mais_{PA}$ au contraire   extraordinaire.
           Abi NEG is   NEG beautiful but   on the contrary gorgeous
           'Abi is not beautiful, but on the contrary gorgeous.'
       b. Abi n'   est pas   belle, $mais_{PA}$ {en revanche, pourtant} extraordinaire.
           Abi NEG is   NEG beautiful, but   rather   however gorgeous
           'Abi is not beautiful, {rather, however} gorgeous.'

Remember that the test for DN is *au contraire* 'on the contrary'. So, my analysis, which is confirmed by (106) and (107), gives the opposite result of Horn's analysis: $mais_{SN}$ is associated with DN, and only $mais_{PA}$ can introduce COR in MN1. German, which makes a clear lexical distinction between *sondern* (*SN*) und *aber* (*PA*), further corroborates this point to a certain extent. Clearly, *sondern* is compatible with DN and MN1, as (108) shows:

(108) a. Abi ist nicht schön,   {sondern, *aber} gewöhnlich.
           Abi is NEG beautiful rather   but   ordinary
           'Abi is not beautiful, but ordinary.'

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[26] "Nous avons […] fondé notre description de *PA* sur l'hypothèse que, lorsqu'il suit une négation, il ne peut s'agir que d'une négation descriptive, et non pas polémique". Here, *polemic* stands for 'metalinguistic'.

    b.   Abi is nicht schön,   {sondern, aber} wunderbar.
          Abi is NEG beautiful rather   but   gorgeous
          'Abi is not beautiful, but gorgeous.'

So, it appears that DN licenses *SN*, and MN1 licenses *PA* in some languages and *SN* in others, as Table 6 shows:

Table 6: Two types of negation, two types of *mais*.

	SN	PA
DN	+	–
MN1	+ German	+
	– French	

In a nutshell, it seems that the *mais*-test is operative, but not in the sense predicted by Horn. That said, two points must be explained further: the first is linked to the syntactic constraint responsible for the difficulty of having a full COR clause following *mais*$_{PA}$; the other is the explanation of how and why *mais*$_{PA}$ can be compatible with MN1.

5.4 Syntactic or semantic constraint on PA?

How can it be explained that (109), unlike (110) and (111), is grammatically awkward?

(109)   *Abi n'   est   pas   belle,   mais   elle   est   extraordinaire.
            Abi NEG is   NEG   beautiful but   she   is   gorgeous
            'Abi is not beautiful, but she is gorgeous.'

(110)   Abi n'   est   pas   belle,   elle   est   extraordinaire.
            Abi NEG is   NEG   beautiful she   is   gorgeous
            'Abi is not beautiful, she is gorgeous.'

(111)   Abi n'   est   pas   belle,   mais   extraordinaire.
            Abi NEG is   NEG   beautiful but   gorgeous
            'Abi is not beautiful, but gorgeous.'

One could argue as follows: what is contrasted is *belle* 'beautiful' and *extraordinaire* 'gorgeous', and this contrast is obtained by what is under the scope of negation, that is, the scalar implicature of *belle* 'beautiful'. In other words, since the scalar implicature of *belle* 'beautiful' is 'no more than beautiful' or 'not gorgeous', the lexical contrast allows for a syntactic short-cut, i.e. a contrast which may or may not be made explicit, as in (110) or (111).

  How, then, can it be explained that this constraint is not applicable to *mais*$_{SN}$, as (112) to (114) show?

(112)   Abi n'   est   pas   belle,   mais   elle   est   laide.
            Abi NEG is   NEG   beautiful but   she   is   ugly
            'Abi is not beautiful, but she is ugly.'

(113)   Abi n'   est   pas   belle,   elle   est   laide.
            Abi NEG is   NEG   beautiful she   is   ugly
            'Abi is not beautiful, she is ugly.'

(114) Abi n'   est   pas   belle,   mais   laide.
       Abi NEG is   NEG beautiful but   ugly
       'Abi is not beautiful, but ugly.'

What the speaker is doing in (112) is a correction, which is somehow less acceptable when it does not target the contrary of POS but an intermediary predicate, such as *ordinaire* 'ordinary':

(115) ?Abi n'   est   pas   belle,   mais   elle   est   ordinaire.
        Abi NEG is   NEG beautiful but   she   is   ordinary
        'Abi is not beautiful, but she is ordinary.'

A correction is a two-place relation, but a single speech act. This is explicitly assumed by Anscombre & Ducrot (1977: 40), who argue that $mais_{SN}$ must follow the complex negation *non pas* 'not', as (116) shows:

(116) Pierre viendra   non   pas demain,   *(mais   après   demain).
       Pierre come-FUT NEG NEG tomorrow   but   after   tomorrow
       'Pierre is not coming tomorrow, but after tomorrow.'

       As they say,

       "It is therefore not surprising that [the correction] is introduced by *mais = SN*, if we admit that the utterance *p SN q* is the object of one unique act of enunciation. If *mais = PA* is, on the other hand, impossible in these conditions, it is because it would cause a succession of two acts of enunciation (which is blocked by *non*)." (Anscombre & Ducrot 1977: 40)[27]

Now, we have a clear-cut prediction: if *non pas* + ADJ 'not + ADJ' is followed by a lower-bound adjective, then DN licenses *SN*, and if *non pas* + ADJ cannot be followed by an upper-bound adjective, then it confirms that MN1 licenses *PA*. This exactly what we find:

(117) Abi est non   pas   belle,   mais   laide.
       Abi is NEG NEG beautiful but   ugly
       'Abi is not beautiful, but ugly.'

(118) *Abi est non   pas   belle,   mais   extraordinaire.
        Abi is NEG NEG beautiful but   gorgeous
        'Abi is not beautiful, but gorgeous.'

So, it seems that NEG + COR with DN realizes only *one* speech act, whereas NEG + COR with MN1 realizes *two* speech acts. The next section will provide evidence for this claim.

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[27] "Rien d'étonnant donc à ce qu'elle [la rectification] soit introduite par *mais = SN*, si on admet que l'énoncé *p SN q* fait l'objet d'un acte d'énonciation unique. Si un *mais = PA* est en revanche impossible dans ces conditions, c'est parce qu'il ferait intervenir une succession de deux actes d'énonciation (ce qui est empêché par *non*)."

5.5 Why and how is PA compatible with MN?

So far, I have essentially made two claims: a) MN1 is followed by $mais_{PA}$; b) the sequence $NEG, mais_{PA} COR$ realizes two speech acts. So, what are the arguments in favor of these two claims? First, as was shown in the previous section, this analysis of MN1 is neither metarepresentational, nor speech act-based, but *representational*, i.e. having truth-conditional effects. So, the kind of effect obtained should be compatible with a representational analysis and a speech act analysis. As COR entails POS and MN1 scopes over POS implicature, what is expected is that the inferences obtained are compatible with the procedural meaning of $mais_{PA}$. The semantics of this, given by Anscombre & Ducrot (1977: 28), is the following:

> "Let *p* and *q* two sentences: uttering *p PA q* is
> (1) Presenting *p* as a possible argument for a possible conclusion *r*.
> (2) Presenting *q* as an argument against that conclusion, i.e. […] as an argument for ¬*r*.
> (3) Attributing to *q* more argumentative strength in favour of ¬*r* than in favour of *r*. The sequence *p PA q*, as a whole, is thus argumentatively oriented in favour of ¬*r*."[28]

So, what could be the argumentative analysis of *Abi n'est pas belle, mais extraordinaire* 'Abi is not beautiful but gorgeous'? First, *p*, which corresponds to NEG, is opposed to *p' Abi est belle* 'Abi is beautiful' – that is, POS. As per my analysis, negation – having wide scope – would scope over *p'*s implicature, that is 'Abi is not gorgeous'. In other words, *p* content (NEG) can be translated as 'Abi is not gorgeous'. This content is an argument for a conclusion: for instance, 'Abi cannot play Juliet', because the speaker is looking for a gorgeous young lady for Juliet's character. *q* can be reconstructed as 'Abi is gorgeous', which allows for the conclusion that 'Abi can play Juliet'. And finally, the whole sequence of two utterances gives rise to the same conclusion: 'Abi can play Juliet'. In this respect, my description of MN1 is compatible with Anscombre & Ducrot's analysis of $mais_{PA}$.

The second point to clarify is why we can say that the speaker realizes not one but two speech acts with MN1 followed by $mais_{PA}$. The argumentative analysis provides an initial answer: *p* being an argument for *r* and *q* an argument for ¬*r* means that the speaker realizes two acts of argumentation. However, another argument, coming from truth-conditional pragmatics (Moeschler 2018a), is possible. As the complete utterance *Abi n'est pas belle, mais extraordinaire* gives rise to a conflict between two contradictory conclusions, these two conclusions cannot be assumed by the same speaker in the same speech act. Moreover, from an interpretative perspective, an inferential process of assumption formation and confirmation takes place, as shown in (78). This process is accomplished when the implicature 'it is not the case that Abi is not gorgeous', derived from *Abi is not beautiful*, is confirmed by the entailment of COR which has the same content representation. So, it makes sense to attribute to the process of assumption formation the status of one speech act, and to the process of assumption confirmation the status of a second speech act.

Finally, one might wonder what makes the difference in meaning between sequences with *mais* and without *mais*. This *with or without issue* (WWI) has recently been addressed

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[28] "Soient *p* et *q* deux phrases; énoncer *p PA q*, c'est
(1) Présenter *p* comme un argument possible pour une éventuelle conclusion *r*.
(2) Présenter *q* comme un argument contre cette conclusion, i.e. […] comme un argument pour ¬*r*.
(3) Attribuer à *q* plus de force argumentative en faveur de ¬*r* que l'on en attribue *p* en faveur de *r*. La suite *p PA q*, prise dans sa totalité, est donc argumentativement orientée en faveur de ¬*r*."

in Moeschler (2018b), as follows. In the case of MN1, it is assumed that "with upward negation, *mais* introduces a *contrastive focus*, and further implicatures, following POS strengthening, are linked to the implicatures accessible from COR". In other words, COR receives *via mais* a focal position, whereas without *mais*, COR is simply a specification of the entailment domain of POS. As an illustration, the upward reading with and without *mais*$_{PA}$ receives the following descriptions:

(119) Abi n'   est pas   belle,   mais   extraordinaire.
       Abi NEG is   NEG beautiful   but   gorgeous
       'Abi is not beautiful, but gorgeous.'

(120) a. Contrastive focus: *extraordinaire* is selected from a set of alternatives {belle,
           très belle, extraordinaire, magnifique…}.
       b. COR implicature: Abi is eligible for Juliet's character.

(121) Abi n'   est pas   belle,   elle est extraordinaire.
       Abi NEG is   NEG beautiful she   is   gorgeous
       'Abi is not beautiful, she is gorgeous.'

(122) a. Specification (explicature): the highest degree of beauty is 'gorgeous'.
       b. Implicature: It is not the case that Abi is only beautiful.

As expected, the same contrast is evident in DN cases, with or without a connective. The strategy *with* the connective is the following: "With downward negation, *mais* introduces a corrective focus, and all contextual implications are consequences of the suppressing effects of POS and the implicatures accessible from POS" (Moeschler 2018b). Consequently, the DN sequences with and without *mais*$_{SN}$ are as follows:

(123) Abi n'   est pas   belle,   mais ordinaire.
       Abi NEG is   NEG beautiful but   ordinary
       'Abi is not beautiful, but ordinary.'

(124) a. Corrective focus: *ordinaire* makes NEG true and gives the highest possible
           degree of beauty.
       b. COR implicature: Abi is not eligible for Juliet's character.

(125) Abi n'   est pas   belle,   elle est ordinaire.
       Abi NEG is   NEG beautiful she   is   ordinary
       'Abi is not beautiful, she is ordinary.'

(126) a. Specification (explicature): the right degree of beauty is below 'beautiful'.
       b. Implicature: it is not possible that Abi is at the lowest degree of beauty
           ('ugly').

Succinctly put, in *Abi n'est pas belle, mais ordinaire* 'Abi is not beautiful, but ordinary', the possible correction *via* an overt connective and a full clause can be explained by the same semantic status of both NEG and COR: COR simply replaces NEG. In MN1, COR does not replace NEG. So, there is no semantic equivalence, and *mais* 'but' cannot introduce a complete clause – see the unacceptability of (115).

6 Conclusion

In this paper, the challenges were multiple, and not without risks. First, I wanted to argue for a one-step process in the interpretation of metalinguistic negation, at least as regarding MN1, or upward negation. Second, I advocated a truth-conditional approach to both descriptive and metalinguistic negation. To do so, I established three criteria to disentangle descriptive negation from metalinguistic negation: entailment, scope and connectives. And finally, the greatest challenge of the paper was certainly to argue for a *mais*-test that distinguishes between descriptive and metalinguistic negation. I argued in favor of the assumption that DN licenses $mais_{SN}$, whereas MN1 (upward negation) licenses $mais_{PA}$. I also tried briefly to address the WWI (with or without issue) – that is, the explanation of the effect of the presence or the absence of a connective (*mais*) between NEG and COR. The main effect of the presence of a connective between NEG and COR is to introduce a *contrastive focus* and a *specific implicature* in the COR interpretation, whereas without a connective, the implicature is restricted to the suppression of the POS implicature, and COR triggers only a more specific interpretation of NEG. This is a real finding, because it clearly shows that the presence of a connective between NEG and COR triggers a much more precise interpretation than when a connective is absent.

The WWI issue is, for me, a linguistic opening which might allow one to explain what might seem to be superficial differences in forms, but which I believe reveal important differences in the underlying cognitive act. However, to demonstrate this would ultimately require something more elaborate than what is proposed in this paper. In brief, what we need is sound semantics for corrective and contrastive connectives, as well as uncontroversial analysis of pragmatic effects of negation. If my semantic and pragmatic intuitions are well-founded, these two types of semantic constraints should match. This is the next logical step for my future research.

List of Abbreviations

A = positive universal, ADJ = adjective, Alt = set of alternatives, COR = corrective clause, DN = descriptive negation, E = negative universal, FUT = future tense morpheme, I = positive particular, MN1 = metalinguistic negation 1 (upward negation), MN2 = metalinguistic negation 2 (presuppositional negation), NEG = negative clause, NEG = negative marker (*ne, pas, non*), NPI = negative polarity item, O = negative particular, PA = *mais* 'but' *pero/aber*, POS = positive clause, PP_{POS} = presupposition of POS, PRO-1SG = 1st person singular pronoun, PRO-3SG = 3rd person singular pronoun, PRO-3PL = 3rd person plural pronoun, PRO = pronoun, QUD = question under discussion, R_i = representation$_i$ with a propositional form, SI = scalar implicature, SI_{POS} = scalar implicature of the positive clause, SN = *mais* 'but' *sondern/sino*, U = utterance, WWI = the with or without (connective) issue.

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Competing Interests

The author has no competing interests to declare.

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