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**SEMANTICS AND PRAGMATICS OF  
NEGATION**

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## ABSTRACT

There are three types of ambiguity which have prompted me to write this paper; scope ambiguity, metarepresentational ambiguity, and presupposition preservation or cancellation. To better understand these ambiguities, I try to provide examples for each of them, along with my initial intuitions on how one can approach to avoiding them. However, to better understand why these ambiguities arise, one must delve deeper into the basic tenants of negation; its semantics and pragmatics. In this paper, I try to outline four approaches to the semantics and pragmatics of negation, based on Robyn Carston's *Thoughts and Utterances*. These approaches can be categorized as those of semantic ambiguity with pragmatic disambiguation, and those of semantic univocality with pragmatics still playing a major role in the understanding of negation. The scope distinction is highly relevant for the understanding of these approaches, as the ones of semantic univocality diverge precisely in this aspect; some of them take the narrow scope of negation to be pragmatically derived from the wide scope, while others propose that neither is derived from the other, but rather from a different starting point altogether.

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## 1. INTRODUCTION

In this paper, I will try to show the impact pragmatics have on the understanding of negation and what their role is as opposed to semantics. The majority of this paper will be based on Robyn Carston's *Thoughts and Utterances* in which she provides an overview of prominent linguistic and philosophical theories concerning negation and its understanding. Carston classifies the different views on negation based on their understanding of the semantics of 'not' (the natural language operator, as opposed to the logical operator), and the role of pragmatics in the disambiguation of this understanding.

After giving a short historical overview on the debate on negation and why it is important, I will attempt to outline three of the basic problems which have prompted many philosophers to deliberate about negation; the scope ambiguity, the metarrepresentational distinction, and the presupposition preserving or cancellation. After that, I will try to provide some of the solutions which seem intuitive when considering these problems, but also show that one has to dig deeper into the understanding of the semantics and pragmatics of negation to better understand the basis of these problems and to better understand negation overall. Following this, I will try to outline the basic understandings of 'not' given by different philosophers and explain the differences between them. They based these understandings on one or more of the problems I mentioned, so I will also try to see how their approaches reflect on these problems. Finally, I will try to give my own suggestion which I hope to prove better reflects how negation is understood in natural language and what this means for the approaches mentioned beforehand.

## 2. HISTORICAL CONTEXT

In this section, I am going to give a rather brief historical account of how the debate about negation developed from ancient times to the broad debate we have today. I will try to concentrate more on the problematic aspect of the debate instead of the historical one, but hopefully, this will show how the topic of this paper fits into the ongoing struggle to explain negation.

The first relatively comprehensive account on negation and how it behaves was given by Aristotle in his *Categories* (11b17) in which he divided what he called the genus of opposition into four categories: contrariety, contradiction, correlation, and privation.<sup>1</sup> He later developed these categories in more details which led to the conception of the logical square. These categories are still being thought in schools and logic courses to this day. These categories gave wake to many philosophers to theorize about negation, its rules and problems. Thus, the contemporary debate concerns much more specific parts of negation.

For the purposes of this paper, I will follow the example set by J.L. Speranza and Laurence R. Horn in their article titled *A brief history of negation*, and focus on Grice as a guideline to showcase the bigger ongoing debate.

In their article, Speranza and Horn explain that when thinking about negation, they share a starting point with Paul Grice, whom they take to be a catalyst in the debate between Modernism and Neo-Traditionalism in terms of negation; they claim that there often seem to be divergences between the formal devices and their counterparts in natural language ('not', 'and', 'or', 'if', 'all', 'some' (or 'at least one'), 'the').<sup>2</sup>

From this, it follows that one has to consider how the logical operator for negation reflects the use of the word 'not' in natural language. In order to formalize certain sentences, we have to consider the rules of logical connectives and how they interact with each other. It seems fairly intuitive that to provide an opposite truth value to a certain proposition, we have to employ the negation operator. However, as I will try to show in this paper, in some cases it is not clear what negation operates over. One could argue that this is due to a divergence between the logical operator for negation and the natural language negation on the other hand.

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<sup>1</sup> Speranza and Horn 2010: 279

<sup>2</sup> Speranza and Horn 2010: 278

It should also be noted that ‘formal’ can be understood in different ways when talking about negation. The narrow view of a ‘formal’ operator concerns only those cases in which the logical operator mirrors what can be formalized in the natural language in those instances where the word ‘not’ is present. Here, negation is viewed strictly as a logical form. The broad view, on the other hand, represents those cases where the word ‘not’ is understood as a result of formalization. In such cases, we can say that the word ‘not’ in the natural language is in some way formal.<sup>3</sup> This distinction can be better understood as what is formalized as opposed to what can be formalized.

Most of the modern debate on about negation is centered on the differences between the Modernist approach and the Neo-Traditionalist approach to language. Modernists are usually concerned with providing a set of rules for valid inferences and how formal devices behave in those inferences.<sup>4</sup>

In the modernist syntax for negation, Grice tries to compare the formation rules to chemical reactions where a negated formula is seen as a radical, created by adding the negation operator to the formula which itself was a radical beforehand. He compares this to atoms regarded as primary constituents for a certain compound, as they remain unchanged by any chemical reaction which may occur.<sup>5</sup> Negation behaves similarly in this matter to the chemical reactions in this analogy. The constituents retain their properties when the operator for negation is added, but the overall picture is changed.

On the other hand, the Neo-Traditionalists usually propose that there should be some contrast between what is affirmed and what is negated. Strawson claims that the role of the negation operator is one of exclusion and contradiction. He believes that negation should be used to correct assertions which do not mirror reality, be it ones of existence, suggestion, hopes, expectations, etc.<sup>6</sup> He goes on to explain that since the role of negation is one of contradiction, one should take the correct form of negation to be ‘It is not the case that...’.<sup>7</sup> This is because otherwise, the result would be one of contrariety instead of contradiction. Consider a sentence such as ‘Some unicorns are blue.’ If we were to negate this sentence using a narrower form of negation, we would get ‘Some unicorns aren’t blue.’ These two sentences are not contradictory, but contrary to each other (they can be true simultaneously).

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<sup>3</sup> Speranza and Horn 2010: 278

<sup>4</sup> Speranza and Horn 2010: 280-281

<sup>5</sup> Speranza and Horn 2010: 281-282

<sup>6</sup> Speranza and Horn 2010: 285

<sup>7</sup> Speranza and Horn 2010: 285

Furthermore, Strawson disagrees with the Modernist's approach to definite descriptions.<sup>8</sup> Modernists usually take that sentences such as 'The present king of France is not bald' are true if there is no present king of France. This is so because if the sentence is formalized in a Russelian fashion, it is a conjunction of three propositions (there is a king of France, there is only one, he is bald). If one of those conjuncts is false, the whole conjunction is by definition false, and the negation of the conjunction becomes true. Strawson claims that such a sentence is neither true nor false, but rather pointless because one can neither confirm the sentence to be true or false.<sup>9</sup>

On the other hand, Grice considers such instances where negating a proposition doesn't necessarily mean claiming its contradiction. He calls this "substantive disagreement" and describes it as instances where one is not contradicting a statement, but rather trying not to assert what the statement has originally asserted in favor of a more precise assertion in the given context.<sup>10</sup> For instance, let's say a famous singer is on tour and someone claims that:

- I. In a given moment, that singer will be at city X or city Y.

One can disagree with the statement if he is better acquainted with the possible tour dates and claim a different sentence such as:

- II. In a given moment, the singer will be at city X, city Y, or city Z.
- III. In a given moment, the singer will be at city X, city Y, or city Z.

In such cases, the claim of (I) is not contradicted by claiming (II), but rather made more precise for the given context. Grice claims that such assertions are not meant to question the truth-functionality of 'or', but they do give way to a more precise inspection of the truth-functionality of 'not'.<sup>11</sup>

From this, it follows that not all which falls under the scope of negation is the result of the logical form. Negating sentence (I) can be seen as an instance of metalinguistic negation. There should, therefore, be some rules as to how to deal with similar aspects in negated sentences. This is where one usually resorts to pragmatics.

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<sup>8</sup> Speranza and Horn 2010: 285

<sup>9</sup> Speranza and Horn 2010: 285

<sup>10</sup> Speranza and Horn 2010: 294-295

<sup>11</sup> Speranza and Horn 2010: 295

Grice proposes that these aspects can be covered by what he calls conversational implicatures. He claims that these implicatures deal with pragmatic inferences, and thus fall outside the domain of logic and semantics. Furthermore, he notes that implicatures do not impair the well-constructed system of Modernist logic, and that any pragmatic addition to this system only makes a trivial difference, which can in no way endanger the system as a whole.<sup>12</sup>

It is in this context that I will try to put my thoughts on the matter. Through this paper, I will try to see how rules of pragmatic inference interact with the semantics of negation, what the consequences are of proposing such rules, and if some rules should be replaced by more effective ones.

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<sup>12</sup> Speranza and Horn 2010: 287



### 3. AMBIGUITIES OF NEGATION

Let me start by considering the basics of negation. The following example describes, albeit more formally than one would usually try to explain it, how negation is understood by the majority, especially those who are not versed in classical (or any kind of formal) logic. The example is given by Johan Brandtler in his article named *On Aristotle and Baldness: Topic, Reference, Presupposition of Existence, and Negation*. He mentions that Aristotle thought that the relation the subject has with the predicate can be either one of affirmation or denial. This means that either the affirmation or the denial is true because they are contradictory terms; both affirmation and denial cannot be true at the same time.<sup>13</sup> He calls this the Law of Contradiction (LC):

“(5) Socrates is ill.

(6) Socrates is not ill.

If sentence (5) is true, (6) cannot be true simultaneously.”<sup>14</sup>

However intuitive this may seem at first, the more one ponders what problems could arise from negation, the more clear it becomes that natural-language negation deserves a more in-depth treatment than just the LC. There are many philosophers who have tackled some of the problems which have sprung up from analyzing negation and what it means for the rest of the natural language it is a part of. Some of these problems were a starting point for my bachelor’s thesis, along with many a discussion I’ve had with my colleagues. In my bachelor’s thesis, I talked about three general problems often encountered when trying to analyze what ‘not’ means when incorporated in more complicated propositions; the scope ambiguity, the metarepresentational ambiguity, and the preserving or denying of presuppositions when talking about negation. I will try to explain these problems in short, but I will mainly concentrate on the third problem (presuppositions). I believe that by giving presuppositions in negation a closer look, we may find an underlying basis for not only the other two problems, but the understanding of negation in general. This is so because to understand presuppositions and how they behave in examples containing negations, one must first tackle the semantics and pragmatics of negation, which are the main aspects I will try to tackle in this paper.

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<sup>13</sup> Brandtler 2006: 179

<sup>14</sup> Brandtler 2006: 179

To better understand the problematic scope when talking about negation, I shall revisit Robyn Carston's *Thoughts and Utterances* which provides an in-depth overview of many problems in natural language:

It is well known that the sentence in (1a) may be understood in the two distinct ways given in (1b) and (1c):

- (1) a. All the children haven't passed the exam.
- b. Not all the children have passed the exam.
- c. None of the children have passed the exam. (Carston 2002: 266)

As we can see, the difference in these interpretations consists in whether it is possible for at least some children having passed the exam as it is the case in (1b), or not, as it is the case in (1c).<sup>15</sup> Carston also provides a standard formalization for the two interpretations:

- (2)  $\neg(\forall x[Cx \rightarrow Px])$   
or:  $\neg[\text{every } x: x \text{ child}] (x \text{ passed the exam})$
- (3)  $\forall x [Cx \rightarrow \neg Px]$   
or:  $[\text{every } x: x \text{ child}] - (x \text{ passed the exam})$  (Carston 2002: 266)

Carston explains that the two interpretations differ on how 'not' is understood in each of them; in the first it has a wide scope which means that it operates over the whole sentence, while in the second interpretation it operates only over the verb phrase and, thus, has a narrow scope.<sup>16</sup>

When I presented this article at a conference in Belgrade, an interesting discussion arose about the interpretation of (1a). This discussion mainly concerned the truth conditions in which (1a) would be considered true, and if those conditions are the only aspect relevant to differentiate between (1b) and (1c). From the formalization (and the natural language interpretation provided in (1b) and (1c)) one can conclude that the truth conditions for the two interpretations fairly obviously seem different; in (1b) there should be at least one child who did not pass the exam, while in (1c) this should stand for all the children who took the exam. But if we have a case that none of the children who took the exam actually passed it, one can also claim it is true that some of them did not pass it (provided the set of children is not an

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<sup>15</sup> Carston 2002: 266

<sup>16</sup> Carston 2002: 266

empty one – meaning at least some children did actually take the exam). This brings us to a possible conclusion that if we can claim with some certainty that when interpreting the sentence (1a) that it is true that ‘Not all the children have passed the exam’, then we should take this interpretation as the more secure one, and thus the correct one. But, as I will try to show later on with some more examples, this is not always the case. For now, let us consider what happens if we take that the truth conditions of the proposed interpretations actually are the same:

- I. We are trying to differentiate between (1b) and (1c).
- II. We are doing so on the basis of semantics.
- III. This incorporates considering the truth conditions of the sentence.
- IV. The truth conditions of the sentences (1b) and (1c) are the same, so we cannot differentiate between the two.

My colleague believed that the (IV) could be discarded if we consider the following example:

- V. Keep in mind **I also** am a doctor.
- VI. Keep in mind I also am **a doctor**.

This sentence, when differently accented (as indicated by the bolded text) can have different truth conditions. For sentence (V) to be true, at least two (or more) doctors have to exist. The reason for this is that the sentence is accented in such a way as to emphasize that the subject of the sentence is a doctor, same as another doctor probably mentioned in the context the sentence is given. However, for sentence (VI) to be true, only one doctor has to exist. This is because the subject in that sentence is probably listing his professions (hobbies, interests, etc.) and emphasizing that among the professions listed, he or she is also a doctor. While these two sentences look exactly the same when taking into consideration only the way they are written, they can be differentiated by truth conditions. This shows not only that truth conditions could help us differentiate between sentences like (1b) and (1c), but also that other aspects like highlighting or emphasizing should be taken into account when considering such sentences. In other words, the truth conditions could present a necessary but not a sufficient condition to differentiate between such sentences. The question now arises as to which other conditions we can (and should) consider while attempting to interpret negated sentences such as (1a).

First of all, let us look back at the formalization of the sentence (1a) provided by Carston. We can see that by applying the negation to different parts of the sentence, we are

presented with two very different meanings. The question now is which of these meanings (or interpretations) is the correct one. These examples serve just to illustrate one of the possible obstacles when tackling negation – the scope distinction. Let us consider a further possible obstacle, again exemplified by Brandtler. He states that there is more to Aristotle’s example mentioned before. If we are to speak of a subject that doesn’t exist in the ‘real’ world, the sentence ‘Socrates is ill’ must be perceived as false, while the sentence ‘Socrates is not ill’ must be perceived as true. This seems to hold because one cannot say that something that doesn’t exist can have a property of being ill. On the other hand, it seems that if a thing doesn’t exist, it is true that it doesn’t have any properties (in this case ‘being ill’) so it is true that Socrates is not ill.<sup>17</sup>

Again, to claim that a sentence such as ‘Socrates is ill.’ is true, we turn to its truth conditions. For this sentence to be true there must exist a man named Socrates, and this man should possess the characteristic of being ill. However, when trying to describe the truth conditions of the negated sentence, again we encounter two possibilities. One could say that for the negated sentence to be true, there must, again, exist a man named Socrates, but this man (as opposed to the previous interpretation) does not possess the characteristic of being sick. However, an altogether different interpretation may be given. If we say that it is not the case that there exists such a man that is named Socrates and that he possesses a characteristic of being sick, one could argue that the sufficient truth condition for this sentence is that there is no such man. This would make the sentence true even if there is no one to be characterized as sick. To illustrate this point further, Carston paraphrases a famous example by Bertrand Russell:

- (4) The present king of France is not bald.

This may be understood in two different ways, apparently depending, again, on the breadth of the scope of the ‘not’:

- (5) a. The present king of France is non-bald (he has an excellent crop of curls).  
b. It’s not the case that the king of France is bald (since there is no king of France).

In (5a) the ‘presupposition’ that there is a present king of France is preserved, while in (5b) it is cancelled. In logical notation these are, respectively:

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<sup>17</sup> Brandtler 2006: 179

- (6) a.  $(\exists x Kx) - Bx$   
 or: [the  $x$ :  $x$  king of France] - ( $x$  is bald)  
 b.  $\neg[(\exists x Kx) Bx]$   
 or:  $\neg$ [the  $x$ :  $x$  king of France] ( $x$  is bald) (Carston 2002: 266-267)

Carston claims that the first interpretation is much more neutral because it doesn't require additional explanations which would provide the context for a better understanding, while this is not the case with the second interpretation. She believes that the second interpretation does not come across as easily as the first.<sup>18</sup>

There are a lot of debates whether we can truthfully say that the 'present king of France' is bald if we know that it is not the case that such a person actually exists (since France is not a kingdom). If we follow a Russellian way of argumentation, there is no problem with sentences like these because when formalized, one could argue that this is just a three-part conjunction (there is a king of France, every other king of France is the same person as the first one, that person is bald), and that one of the conjuncts is false, which makes the whole conjunction false, and thus its negation true by default. However, this doesn't explain how two different interpretations of the given negation are possible. Both of these possibilities look logically acceptable, yet some may argue that it seems we have to opt for one or the other. In one of the interpretations the negation operates over just the predicate of the sentence, while in the other, the scope of the negation covers the whole sentence. As Carston puts it, the interpretation (a) seems much more 'normal' than (b), so naturally, we need to ask ourselves why it is so. This is just one of the ambiguities that prompt our contemplation on negation, the other two being what philosophers of language call the metalinguistic (mention) distinction, and the preserving or canceling of presuppositions.

Let us now turn to the metalinguistic distinction and see why some argue that it is relevant for the debate about negation. The following sentences, although same in form, can be interpreted in two different ways:

- I. a) I didn't pay with pennies. I paid with dollars.  
 b) I didn't pay with pennies. I paid with pence.
- II. a) I wasn't angry when you hit me. I was happy it didn't hurt.  
 b) I wasn't angry when you hit me. I was furious.

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<sup>18</sup> Carston 2002: 266-267

We can see that the sentences in the follow-up greatly affect how we perceive the negation in the given cases. For the (a) sentences, it seems the predicate is taken to describe something in the world, and falsely so since it's negated. Hence the follow-up sentences which also describe something in the world, only this time the (near) opposite of what the predicate in the original sentences is describing. However, if we understand the predicates in the (b) sentences as descriptive such as in the (a) sentences, they would contradict the predicates in their follow-ups. While I claim not to have paid with a certain currency in the sentence (Ib), in its follow-up it seems that I claim the exact opposite; having paid with that exact currency. In (IIb) I claim not to have possessed a certain property (being angry) under certain circumstances. On the other hand, in the follow-up sentence, I claim to have another property (being furious) which entails the property I claimed not to have. In the (b) sentences, there is obviously something non-descriptive being negated. In (Ib) we are negating the incorrect grammar of the predicate, while in (IIb) we are referring to the wrong degree of the property ascribed to the subject.<sup>19</sup>

Even when we don't focus on the logical form of the given sentences, we find that the way we understand negation isn't without problems. Clearly, when considering the differences between the (a) and (b) sentences in this example, we can see that negation is not understood in the same way in every interpretation. This is because negation does not fulfill the same role in sentences (a) as it does in sentences (b). Usually, when correcting grammar or the level of quality (such as those given in sentences (b)), we do not resort to uttering full sentences, but only correct the word or phrase we disagree with. However, this doesn't mean negation can't be used in such a way to express this disagreement. When used in such a way, we do not place the focus of negation on the linguistic aspect of the word, or phrase used in the sentence, but rather the metalinguistic aspect; we focus on how the word or phrase is used in the sentence. Thus, when using negation in the metalinguistic context, we have to consider some further aspects other than just scope and primary meaning. Along with the scope distinction, for now, this gives us no less than four logical possibilities:

Since we have here two two-way distinctions, there are, in principle at least, four ways in which a given negated sentence may be understood:

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<sup>19</sup> Carston 2002: 267-268

- (a) narrow-scope descriptive
- (b) narrow-scope metarepresentational (mention)
- (c) wide-scope descriptive
- (d) wide-scope metarepresentational (mention)

The following examples, all involving the sentence ‘All of the kids didn’t pass the exam’ (though sometimes with quite marked accentuation), with different sorts of follow-up clause, are intended to instantiate the four possible interpretations, (a)–(d), respectively:

- (9) a. All of the kids didn’t pass the exam. They will all have to resit it. (...)
- b. All of the kids didn’t PASS the exam. They all got A GRADES. (...)
- c. All of the kids didn’t pass the exam. Some of them failed quite badly. (...)
- d. All of the KIDS didn’t pass the exam. All the CHILDREN passed the exam. (Carston 2002: 268)

In sentence (9a) the whole set of children lacks the property of having passed the exam. In (9b) we can see that Carston used caps to show the accented syllables. Here the informativeness or relevance of the original predicate is brought into question. However, the entailment remains that the children have passed since they got A grades. In (9c) it is denied that the whole set of children has the property of having passed the exam because at least one of the children failed. Finally, in (9d) the use of the word ‘kids’ is brought into question as the inappropriate term, ‘children’ being the more appropriate one.<sup>20</sup>

We can now consider again what this would mean for the argument I provided above regarding truth-values. In each of these examples, the truth values which we should take into account to tackle the sentence ‘All of the kids didn’t pass the exam.’ seem to be different. For (a), there should exist some number of kids who have taken the exam, but every child from this set would have to fail that exam. For the same sentence, it is sufficient that some children fail the exam if we opt for interpretation (c). This clearly illustrates the difference the scope of negation can have on the interpretation of a negated sentence. Additionally, when metalinguistic representation is taken into account, additional problems arise when trying to

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<sup>20</sup> Carston 2002: 268

consider truth-values. It seems that both for examples (b) and (d) there is a set of children who passed the exam, but the interpretation of the sentence (and its negation) is still different. As stated before, this is because the focus is not on what is said in the sentence, but rather how it is said; in example (b) one negates the sufficiency of saying just that the kids passed the exam, while in example (d) the appropriateness of the word ‘kids’ is negated. For each of these examples, however, we know that if one were to turn to truth-values for the interpretation of the given sentence, they would have to inquire whether the members of a set of children did have the quality of having passed the exam. But what if the set of children was empty? As Carston illustrates it in a further example:

“e. All of the KIDS didn’t pass the exam; there weren’t any KIDS taking it; it was just for the mature students.”<sup>21</sup>

Here, negation is used to correct the wrong assumption the set of children who have taken the exam was not empty; there indeed were some children at a certain time and place taking the exam. It seems that what is expressed by the sentence is closely related to the presupposition that some children exist who have taken the exam.<sup>22</sup>

In this case, the sentence seems to be true because there are no children who can satisfy the condition of having passed the exam because not a single child had taken the exam. Again, when reverting to a Russelian way of reasoning, we may say that if the sentence is understood as a number of conjunctions and one of them is false (in this case that at least one child has taken the exam), then the negation of the sentence would automatically be true. However, in natural language, this is a peculiar use of negation. The problem here is that there is no referent to the subject (children) and still we use negation to operate over something in a seemingly normal fashion. Suppose that there is no explanation given in the second sentence for the same context. The question arises how someone would interpret this sentence with regards to the presupposition that some children sat the exam. Normally, one would presuppose that some number of kids did indeed take the exam, and only then would we be able to determine if the exam takers passed or not.

There is a continuing debate whether a presupposition is preserved or canceled when using negation in sentences such as these, or as illustrated above, sentences such as ‘The present king of France is not bald.’ Does a present king of France actually have to exist in

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<sup>21</sup> Carston 2002: 269

<sup>22</sup> Carston 2002: 269



order for us to determine whether the sentence is true or not, or do we even have the right to assert such a sentence?

I have tried to outline the three basic uncertainties which have prompted me to take a closer look at negation and how we use it. In the next section, I will go over some possible solutions which I have tried to provide for these problems directly. These “solutions” only represent my initial intuitions towards the three ambiguities I have mentioned, and later on, I will try to show how these intuitions led me to ponder negation and its basis much deeper and try to come to an overall solution and understanding which would encompass all of the ambiguities.

#### 4. POSSIBLE SOLUTIONS

To tackle the problem of scope, we must first consider what each of the interpretations entails. It seems that the narrow-scope interpretation is the more natural one, and when faced with a negated sentence, it is the first one that comes to mind. This could mean that one first considers the conditions in which the sentence can be true or false, and after defining them, places the negation to operate over the predicate of the sentence. In the ‘king of France’ example, this would mean that one first takes that there exists a king of France, he is the only king of France, and he is bald. To negate the sentence, in this line of reasoning, it would suffice to say that there exists a king of France, he is the only king of France, and he is not bald. This, however, entails that the whole proposition (the non-negated sentence) is false as well, so one could argue, as Carston explains, that the narrow-scope interpretation actually entails the wide-scope interpretation:

As is often pointed out, there is a relation of privative opposition between the two scope interpretations:

- (18) a. [Every  $x$ :  $x$  a child] - ( $x$  pass the exam) entails:  
-[Every  $x$ :  $x$  a child] ( $x$  pass the exam)  
b. [The  $x$ :  $x$  king of France] - ( $x$  bald) entails:  
-[The  $x$ :  $x$  king of France] ( $x$  bald) (Carston 2002: 276)

A similar explanation can be provided for the sentence ‘All of the kids didn’t pass the exam.’ If we know that there is at least one child who has taken the exam and failed, we can derive that it is not the case that all of the children who have taken the exam have passed it.

My initial intuition on how to tackle the scope distinction was to turn to pragmatics. This view is shared by most philosophers trying to disambiguate the use of ‘not’ in natural language. But if the entailment from the narrow-scope interpretation to the wide-scope is taken as a sufficient form of disambiguation, it seems that no pragmatic task is needed to interpret these sentences. However, if one takes the narrow-scope interpretation as a starting point, they are still left with the burden of presupposition preserving. It is here we have to turn to pragmatics to try to explain if a presupposition should be preserved or canceled with regards to the scope distinction. One could argue that this means that the problem stems from multiple possible meanings of ‘not’ instead of just different interpretations of the same

meaning. I shall look into this kind of approach in the next chapter, but for now, I will focus on what I initially thought could be a way to avoid the problem of scope distinction.

My first intuition was that ‘not’ does indeed have a univocal semantics that does not depend upon its scope, but the other way around. A good argument to support this claim is provided by Paul Grice and he calls it the Modified Occam’s Razor. Carston explains this argument as follows:

(...) if we can give a pragmatic account of what is going on, that is, if we can derive the understandings of negative sentences by pragmatic inference from a single semantics, then that is preferable to positing two or more senses. (Carston 2002: 277)

I strongly agree with this claim. If we take that negation is more than two-valued, there are countless logical consequences we have to give an explanation for as well. Some authors have tried to tackle this debate in such a way, but I believe that their theories leave much room for debate as I will try to show in an example later on. This is why I believe it is much more preferable to accept one sense of the word ‘not’ and start from there. Still, the question remains how one does come from a strong semantic starting point to a pragmatic disambiguation of the scope distinction. What I believed to be the best course of action is to consult the Relevance theory by Deirdre Wilson and Dan Sperber.

They claim that there can be different degrees of relevance as opposed to something being either fully relevant or not relevant at all. Despite there being a lot of inputs which could make something relevant for a certain context, one cannot take all of them into account. According to their theory, the crucial aspect of an input being picked out from other similar inputs is that this input surpasses the degree of relevance from every other available input. They also define what they call the ‘processing effort’ for inputs we deem relevant. They believe that if the processing effort is greater, the input will be less relevant.<sup>23</sup>

In other words, when we think about negation and its possible interpretations, we have to consider which interpretation is the most relevant to the context the negated sentence is in. As explained by Wilson and Sperber, relevance is a matter of degree. Thus, a narrow scope interpretation may be more relevant in some cases, while the wide-scope interpretation may be relevant in others. This doesn’t mean that if we pick one, the other is not relevant at all, but just less relevant than the one we picked. This way, one is prompted to make a final choice of

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<sup>23</sup> Wilson and Sperber 2004: 252

interpretation and, if this theory is to be believed, assume it is the correct one for the given context. If this is true for the scope distinction, I believe it could be extended to the metarepresentational distinction as well. According to the context at hand, we may opt for a metalinguistic interpretation of negation which is more relevant for that context. Intuitively, if the rest of the context calls for a metalinguistic interpretation in a way that it regards how or why the sentence is negated, it seems very odd to opt for a descriptive interpretation for just that sentence.

However, these solutions aren't without fault. As stated before, the narrow-scope interpretation seems to be the more intuitive one and, thus, requires less processing effort. This would mean that one should always take it as the more relevant one even though it is often less precise than the wide-scope interpretation. This leads me to believe that processing effort alone cannot be a measure of relevance, but the context in which the sentence is uttered has a much bigger role. For example, a logician may find the wide-scope interpretation much more relevant in certain contexts even though it is a less intuitive interpretation.

As far as presuppositions are concerned, my first intuition was to turn to Carnap's linguistic frameworks. He believed that in order to speak of a certain set of entities, one must create a new linguistic framework for this set of entities. For example, if one would wish to speak of the set of 'things' they would use the linguistic framework of 'things'. Furthermore, he claimed there are two types of existential questions one can ask when a certain framework has been established: internal and external questions of existence. Internal questions are concerned with whether an entity exists in the framework, while external questions are concerned with whether the framework can exist as a whole.<sup>24</sup>

At first, I didn't take presuppositions to be more than an internal aspect of the linguistic framework used for everyday communication. As such, this framework can be said to have a high degree of success (otherwise we wouldn't understand each other in most instances), so external questions can be ruled out. The question of presuppositions should, therefore, be an internal one. Carnap believed that if we accept something as real, we do nothing more than accept the rules of how whatever we are talking about behaves in its linguistic framework. In other words, when we talk about 'things' and accept them as real, we

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<sup>24</sup> Carnap 1956: 2

do nothing more than accepting the rules of giving true or false statements about those ‘things’ and ways to test the truth of those statements.<sup>25</sup>

When trying to incorporate Carnap’s view to the present debate on presuppositions, it seemed that we can indeed speak of kings, France, kids, exams, etc. without much trouble. Those terms would fall under the set of ‘things’ and we would have no problem incorporating them into everyday sentences such as ‘The present king of France is not bald.’ In other words, when talking about the present king of France, we would know exactly how to incorporate such an entity into our framework, and how to check if the statements about such an entity are true or false.

However, this leads to a different kind of ambiguity; the ambiguity of whether some existential questions are internal or external. We could ask a question such as “Do unicorns really exist?” If we take this to be an internal question, we are left with no answer because there are no clear rules of how we can check if the statements about unicorns are true or false. On the other hand, this cannot be an external question since we take that ‘unicorn’ is a term we can use in our linguistic framework with a relatively high rate of success from our interlocutors. Carnap believes that such questions can also regard our experience with the term and whether the use of such terms proves adequate, but this leads to a matter of subjective degree, and thus cannot be a definitive answer to the given question.<sup>26</sup>

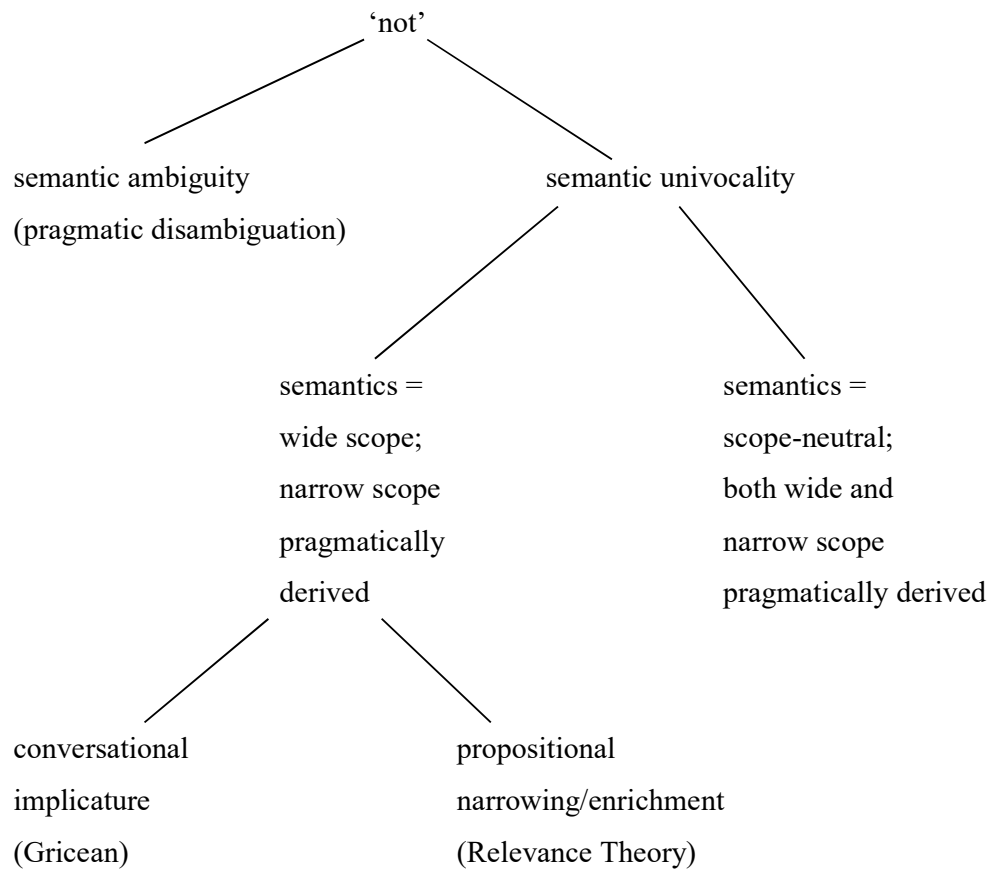
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<sup>25</sup> Carnap 1956: 4

<sup>26</sup> Carnap 1956: 8

## 5. SEMANTICS AND PRAGMATICS OF ‘NOT’

Robyn Carston provides an overview of different positions regarding the roles of the semantics and pragmatics in the understanding of the natural-language word ‘not’ and how it mirrors the logical operator of negation. For this purpose, she created a table to graphically show what the relation is between the semantic understanding of ‘not’ and its pragmatic disambiguation as viewed by different authors. In this chapter, I will try to provide an explanation for each of these positions, what the crucial points in which they differ are, and I will try to give a comment on whether or not I agree with what they entail. First, here is Carston’s summary:



(Carston 2002: 290)

## 5.1. Semantic ambiguity + pragmatic disambiguation

The first position I will try to comment is one of semantic ambiguity. This regards those who believe something to be wrong with the classical, two-valued meaning of the word ‘not’. This is usually heavily related to sentences for which presuppositions are not fulfilled, such as the case is with the ‘present king of France’ examples. According to Carston, these authors usually resort to three-valued logic, and say that these kinds of sentences are neither true nor false. It should be noted that these approaches also come with their own specific negation operators, multi-valued truth tables for those operators which often behave differently when the presuppositions are preserved or canceled.<sup>27</sup>

For this approach, I will concentrate on the position taken by Noel Burton-Roberts and its critique by Pieter Seuren. In his article *Burton-Roberts on presupposition and negation*, Seuren shows the basic tenants of Burton-Roberts’s program and explains that it starts with three key points:

- (1) Presuppositional semantics is not compatible with a semantically ambiguous negation operator because this makes the theory trivial and empirically meaningless. This follows from what he calls the standard logical definition on presupposition.
- (2) What follows from this, according to Burton-Roberts, is that one should differentiate between two negation operators: one presupposition canceling which should be viewed as a pragmatic phenomenon such as Horn’s metalinguistic negation, while the other is presupposition preserving and unambiguous.
- (3) Successfully analyzing metalinguistic negation is only possible through presuppositional semantics which defines it as ‘a presuppositional theory of truth-value gaps’.<sup>28</sup>

From the onset, we can see that Burton-Roberts incorporates two distinct types of negation into his framework. As I will try to show later on, this could complicate the interpretation of negation because what follows is a completely different logical system needed to appropriately map the truth values for the different negations. Burton-Roberts tries to clarify what he means by presuppositional semantics and he does so by explaining how it is based on what he calls the ‘logical definition of presuppositions’ with the following properties<sup>29</sup>:

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<sup>27</sup> Carston 2002: 272

<sup>28</sup> Seuren 1990: 425

<sup>29</sup> Seuren 1990: 426

- (1) A PRESUPPOSES B iff A entails B and *Not-A* entails B.

This, Burton-Roberts then asserts, has the consequences that:

'(i) A and *Not-A* share their presuppositions, and (ii) where A presupposes B, presupposition-failure (in the form of the non-truth of B) results inevitably in A's having a third logical status other than true or false. Indeed, the definition in (i) is equivalent to that in (2) and to that in (3):

- (2) A presupposes B iff *Not-A* presupposes B.  
(3) A presupposes B iff B is true in every state of affairs in which A is true, and A has a third logical status (other than true or false) when B is not true.' (Seuren 1990: 426)

As Seuren tries to show, these assumptions don't seem to be justifiable from the point of propositional logic. He finds the biggest issue to be (2) because if the logic were two-valued, it would follow that B is a necessary truth since *Not-B* would lead to a contradiction by the rule of contraposition (A and *Not-A*). However, if one adds to (2) that B is not a necessary truth, we are left with a system which is non-classical; it has to have more than two values for negation.<sup>30</sup>

This is an interesting approach to the ambiguity of negation, but I don't believe it is particularly successful to try to solve one ambiguity by trying to give a theory which entails even more ambiguities. Burton-Roberts has indeed tried to justify his theory by claiming that negation must not be ambiguous and it should be presupposition preserving. He does so by positing that the truth system is not three-valued as one would conclude, but rather two-valued with gaps instead of truth-values. Seuren claims that this is similar to the Strawsonian analysis of presuppositions and that Burton-Roberts takes this to be true even though there are plenty of other possible solutions and evidence for those solutions being more plausible.<sup>31</sup>

In my opinion, one should again consider Grice's Modified Occam's Razor. If we can explain (albeit pragmatically) why classical, two-valued negation behaves in such a way that it sometimes preserves and sometimes cancels presuppositions, we should do so instead of trying to create a completely different system which is burdened with a lot of ambiguities on its own.

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<sup>30</sup> Seuren 1990: 426

<sup>31</sup> Seuren 1990: 432



To show that negation is not always presupposition preserving we can use different ‘tests’ of ambiguity. One such test is to consider sentences like:

- I. Brad has not stopped smoking, and neither has David.

Intuitively, to understand this kind of predicates, we usually consider the presupposition that the subject is or has been smoking. To see whether the sentence is true, in this case, we should check whether Brad and David are still smoking. On the other hand, we could also check whether they have ever smoked. However, it would be odd to use such a sentence in an instance where Brad indeed hasn’t stopped smoking after years of being an addict, while David never smoked a cigarette in his life. It would indeed be true in both cases (which would, in turn, make the sentence itself true), but it would be ambiguous nonetheless. This shows that presuppositions still carry the burden of ambiguity which is not as intuitive as Burton-Roberts would like to believe. Since his negation is always presupposition-preserving, such sentences (at least with this kind of interpretation) wouldn’t be possible in his system.

There are many more examples of sentences in which ‘not’ is presupposition-canceling such as the ‘king of France’ example mentioned above. If we take that ‘not’ has the potential to cancel presuppositions in all cases (even if these cases are marked and interpreted pragmatically) this does not bode well for Burton-Roberts’s theory. This would mean that Not-A doesn’t necessarily entail the presupposition which A would entail, which means that these presuppositions fall under the same category as the entailments Burton-Roberts bases his theory on; both can be explained under the rules of classical, bivalent logic. From this, it follows that Burton-Roberts has yet to reorganize his theory on presuppositions as a special category, different from entailments from certain sentences, and I believe that he wouldn’t need a non-classical logic to do so. This is similar to Seuren’s claim that presuppositions should be viewed more as suggestions rather than entailments when speaking about negated sentences. Since suggestions fall outside the domain of logic, he believes (and I agree) that we should not change the classical, two-valued logic because there is no reason to do so only based on presuppositions.<sup>32</sup>

Burton-Roberts does try to provide a pragmatic account that would serve as disambiguation for his ambiguous semantic starting point, but the focus here is on why such a semantics wouldn’t, in my opinion, be successful.

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<sup>32</sup> Seuren 1990:438

## 5.2. Semantic univocality + narrow scope derived from wide scope (Gricean approach)

Once we have established that the semantics of ‘not’ is indeed univocal (based on classical, two-valued logic), we can move forward with trying to explain away the ambiguities mentioned above in several different ways.

One of the approaches one can take at this moment is the Gricean approach as presented by Carston. In this view, the semantic interpretation of a negated sentence entails the existential presupposition by means of conversational implicature. This means that it is not interpreted as a predicate negation (narrow-scope) right away since that would make the presupposition an entailment by itself. This is further explained by Carston as she provides a function by Jay Atlas which illustrates how one pragmatically (using implicatures, as well as other given contexts) arrives at a narrow-scope or wide-scope interpretation.<sup>33</sup> If we take R- to stand for wide-scope (negation of the whole sentence), R+ for narrow-scope (negation of the verb phrase), PRAG for the inference conducted in the Gricean spirit, and K for a given context, we can outline the Gricean approach with the following:

$$\text{PRAG (K}^*, \text{R-)} = \text{R}^+$$

$$\text{PRAG (K}^{**}, \text{R-)} = \text{R}^-<sup>34</sup>$$

If we take into consideration the example of the ‘king of France’ mentioned above, then we get the following result according to Carston:

The Gricean analysis of the internal negation understanding that he assumes is as follows:

- (22) what is said:  $\neg([\text{ix: } x \text{ king of France}] (x \text{ bald}))$   
what is conversationally implicated:  $[\text{ix: } x \text{ king of France}] - (x \text{ bald})$   
(Carston 2002: 278)

She claims that in this case, the presupposition that there is a king of France is preserved by the conversational implicature rather than entailment. On the other hand, when only the semantics of the given sentence is taken into account, the presupposition is canceled.<sup>35</sup>

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<sup>33</sup> Carston 2002: 278

<sup>34</sup> Carston 2002: 278

<sup>35</sup> Carston 2002: 278

Carston continues to explain several different takes on this account of presuppositions and how one derives the different scopes of negation in different interpretations, but all of these approaches share several key features:

- (a) The operator for negation is semantically univocal
- (b) The semantics for negation is wide-scope at the onset
- (c) The presuppositions are canceled when talking about semantics (the negated sentence by itself doesn't entail anything)
- (d) The more intuitive narrow-scope interpretation can be reached by pragmatic inference, using the Gricean maxims. In doing so, presuppositions and other aspects of the sentence which are not under the scope of negation are resolved by conversational implicature.<sup>36</sup>

I agree with the first feature, as I have tried to show in the previous section. However, I'm not sure if I would agree with the second assumption and what it entails. I will give my reasons for this later on, but for now, let us see if this account of negation can prevail over the previous one when tackling the proposed ambiguities.

Since this approach is based on classical, bivalent logic, it avoids the problems of introducing special new truth tables and truth conditions as the previous model did. This is in accordance with Grice's Modified Occam's Razor. The scope ambiguity is approached by analyzing the sentence as if having a wide-scope negation at the start, and later coming to a narrow-scope interpretation if needed for the given context. This kind of wide-scope interpretation also deals with presuppositions, specifically by canceling them. If an argument arises that the presuppositions are not really canceled, one can infer that they indeed remain preserved not by the semantics of the sentence, but rather by the conversational implicatures which are part of the pragmatical sphere of the utterance. The pragmatics would then also be able to account for the scope ambiguity and metarepresentational ambiguity (since the choice of interpreting negation as metarepresentational or descriptive would also fall under the given context).

If this all holds, then my previous intuitions about using pragmatics to tackle the proposed ambiguities would be correct. However, it may prove difficult to show exactly which of the Gricean maxims are relevant for which context or interpretation, and which

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<sup>36</sup> Carston 2002: 281

processes could be used to determine those maxims. I will try to explain this in more detail in the next section. It would be easier if these processes were more specifically defined or, better yet, subsumed under one process, which leads us to the next approach, fairly similar to this one, but different in respect to how one derives the narrow-scope from the wide-scope starting point.

### **5.3. Semantic univocality + narrow scope derived from wide scope (Relevance theory)**

This approach shares the first three assumptions with the previous one; the semantics is univocal, the starting interpretation is one of wide-scope negation, the presuppositions are canceled. However, when deriving the preferred narrow-scope interpretation, Deirdre Wilson and Dan Sperber resort to their Relevance theory.

They discuss negated sentences which are usually interpreted as having a narrow-scope negation which preserves the presuppositions<sup>37</sup> such as the following pair:

- I. Martha's brother didn't run the marathon
- II. Martha has a brother.

They suppose that (i) is interpreted as a sentence with a wide-scope negation:

- III. 'It is not the case that Martha has a brother who ran the marathon).

However, this is entailed by the specific narrow-scope interpretation:

- IV. Martha has a brother who didn't run the marathon.

According to Carston, they claim that if one is to follow a properly construed maxim of informativeness, they would interpret (I) as (IV) rather than (III). The presupposition that 'Martha has a brother' is neither the result of entailment or implicature from (I); they believe it to be a part of the speaker's proposition, but semantic rules are not enough to determine it.<sup>38</sup>

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<sup>37</sup> Carston 2002: 288

<sup>38</sup> Carston 2002: 288

Again, we turn to pragmatics for the disambiguation of the wide-scope interpretation. However, this account could avoid some problems one could encounter in the previous, Gricean approach. One could argue that some of Grice's maxims can be vague when interpreting certain negated sentences. For example, as Speranza and Horn put it, the maxim of Quantity;

“Make your contribution as informative as is required (for the current purpose of the exchange)”, “Do not make your contribution more informative than is required” (Speranza and Horn 2010: 286)

When we wish to tackle the inference from the wide-scope to the narrow-scope such as in (IV), it is not clear how much informativeness is required. As Carston explains, there are two quantity maxims in Neo-Gricean accounts; the Q-principle (speakers should be fully informative) and the I-principle (speakers should not be unnecessarily informative). Both of these principles use different implicatures to interpret a given sentence, depending on which principle we are using.<sup>39</sup>

However, this is not a problem for the Relevance theory and its approach to negation because it only uses one principle; optimal relevance should be presupposed for every utterance. This follows from what Wilson and Sperber define as the processing effort; the speakers should not be as informative as possible, but only convey what their co-speakers cannot infer by themselves.<sup>40</sup>

As I have mentioned before, one of my first intuitions when pondering upon the scope distinction was to turn to the Relevance-theoretic approach. In my opinion, it is more precise than the Gricean approach (at least as defined by Carston). However, none of these two approaches explain why we take the wide-scope interpretation as a starting point even though the narrow-scope interpretation seems to be the more intuitive one, and one we come to using whatever pragmatic means possible. For this reason, we should turn to the following account, which posits that both the narrow-scope and wide-scope are interpretatively neutral.

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<sup>39</sup> Carston 2002: 289

<sup>40</sup> Carston 2002: 289

#### 5.4. Semantic univocality + scope neutrality

This approach is held by Jay Atlas and even though it is highly pragmatic (or as he dubs it, ‘radically radical pragmatics’), it differs from Grice and his followers in several key features:

- I. The semantics we take as a starting point is neither wide-scope or narrow-scope, but rather it is neutral between different interpretations.
- II. Pragmatic processes are what lead us to the expressed proposition; they are essential for the truth-conditions of the uttered sentence.
- III. Some of what was previously described as conversational implicature is now a part of the truth-conditional content.
- IV. Because of this, the use of pragmatics is crucial for the interpretation of the given sentence, not only for what it implicates.
- V. This means that we can no longer make a clear contrast between what is said and what is (con conversationally) implicated.<sup>41</sup>

This approach, like the ones described in the previous two sections, is based on the assumption that the semantics of ‘not’ is unambiguous and univocal. However, it does not assume that one should take the wide-scope interpretation as a starting point in interpreting a given sentence, but rather it treats both the wide-scope and narrow-scope interpretation to be on an equal level in the interpretation of a sentence. If it can explain how we interpret a negated sentence before taking into account the scope of negation, I believe this approach should be taken to be true instead of the two previous ones which were relying on the intuition that the narrow-scope interpretation is derived from the wide-scope.

It should be noted that this approach has a different formal outline than the Gricean one given above because different processes are involved. The main difference is that Atlas claims that pragmatics is used to understand both the wide-scope and narrow-scope interpretation, while the Gricean accounts posit that the wide-scope interpretation is part of the univocal semantics and only after it is taken to be true can we pragmatically infer the narrow-scope.<sup>42</sup>

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<sup>41</sup> Carston 2002: 284-285

<sup>42</sup> Carston 2002: 285

If we take R- to stand for wide-scope negation, R+ for narrow-scope negation,  $K_{i,j,k,\dots}$  as different contexts, Nrep as semantic representation with an unspecified scope for negation, and PRAG for a function which takes the semantic input and provides an understanding through pragmatics, here is how Carston describes the difference between Atlas's and the Gricean approach:

I. The Gricean position:

$\text{PRAG}(K_i, R-) = R+$

$\text{PRAG}(K_j, R-) = R-$

II. Atlas's position:

$\text{PRAG}(K_i, \text{Nrep}) = R+$

$\text{PRAG}(K_j, \text{Nrep}) = R-$

(Carston 2002: 285)

Atlas claims that this approach is preferable to the Gricean approach for several reasons. For one, both the wide-scope and the narrow-scope interpretations of the negated sentence have an equal phenomenological status. Since the Gricean approach treats these interpretations asymmetrically, there are cases in which by using the PRAG function one comes from the R- (the wide-scope) to the exact same proposition; the result of the function directly reflects the starting point (the wide-scope interpretation), whereas in Atlas's case, the function performs the same process of interpretation in both cases and neither result is a direct reflection of the starting point. This phenomenological equality, as Atlas calls it, is the reason why one should prefer this account over the Gricean approach.<sup>43</sup>

An argument can be made that the phenomenological status of the two interpretations of negation is irrelevant for this discussion, as it borders with continental philosophy, but I don't believe this is what Atlas meant by it. I am under the impression that this mainly concerns our intuitions about which of the interpretations is the preferred one in which context. Most philosophers believe that the narrow-scope interpretation is the more intuitive one which is why they set it as a sort of 'goal' which is achieved through pragmatic processes which start from the less intuitive, wide-scope interpretation. As Atlas puts it, for a competent

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<sup>43</sup> Carston 2002: 285-286

speaker, none of the two understandings is “less a function of the meaning of the sentence than the other.”<sup>44</sup> In other words, any of the two meanings may come to mind when interpreting a given sentence with negation.

Carston seems to disagree with this assumption and claims that the narrow-scope interpretation indeed seems to be the more intuitive one. Furthermore, she believes that the asymmetry in the phenomenological level of the two interpretations is what keeps the debate on presuppositions alive, and what prompted it to begin in the first place.<sup>45</sup>

In the next section, I will try to show why I disagree with this argument, and how one can begin to approach the pragmatic system which is crucial in Atlas’s approach.

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<sup>44</sup> Carston 2002: 286

<sup>45</sup> Carston 2002: 286



## 6. SCOPE NEUTRALITY REVISED

When we think about the two interpretations of negation, it does seem that we come across the narrow-scope interpretation much more often than the wide-scope. However, in my opinion, this doesn't make it a more natural one. I'd like to make a comparison with some of the rules of logical inference here. When teaching logic, or more specifically modus tollendo tollens, my students found it very counter-intuitive that by negating the consequent one can negate the antecedent. I tried my best to explain it to them by tackling conditionals in different ways, but however I explained it, modus ponendo ponens always seemed to be the more intuitive of the two. This doesn't mean, however, that one of these rules of inference should be preferred over the other. Both of them serve a different purpose in different arguments. I believe it is similar to the two interpretations of negation. As a logician, the wide-scope interpretation is as intuitive to me as it is the narrow-scope. In some cases, the wide-scope interpretation can even be more intuitive to me than the narrow-scope one. Let's suppose that we have a sentence such as:

I. Some unicorns are blue.

If we are tasked to negate such a sentence, a more intuitive response (at least to me) would be to say:

II. It's not the case that some unicorns are blue.

instead of

III. Some unicorns aren't blue.

We can ascribe this to the fact that we don't know anything about unicorns and how to check whether some of them are indeed blue, but this is not the point at the moment. These examples are just to show that, in language, if something seems intuitive or frequent, it is not always the best way to go.

Since intuition and frequency don't seem to be enough to determine the starting point in the interpretation of a negated sentence, I believe a wiser bet is to side with Atlas in regards to the (in)equality of the two interpretations. However, the question remains what input is pragmatically processed if not the wide-scope representation itself.

Natural language negation behaves first and foremost as a logical operator which it mirrors. Thus, as in logic, we should consider what it operates upon. Not only it makes certain parts of the sentence change their truth-value, but it seems that it also operates over some parts of the sentence which are not a written part of it; presuppositions being a prime example. If this is true, we can say that negation operates over some parts of the context as well as the given sentence (or parts of it) in that context.

What we know is that some kind of semantic representation should be present if we want a univocal semantics of negation. What we don't know is when and how this representation takes form. We have to find some sort of reference for 'not' which is rather difficult as we cannot interpret 'not' by itself; we can only do so in a certain context where it stands to negate a certain aspect of the context.

Let us see what we are left with if we take that Atlas's position is true, and that the wide-scope interpretation cannot be assumed as a starting point of understanding negation. We still have the rules of syntax; we know how to use negation (in theory, not yet for the specific case), and we have the context surrounding the sentence. Atlas also claims we have some kind of semantic representation, albeit scope neutral. While necessary for a univocal account of semantics, this semantic representation is what could prove to be the most problematic aspect of Atlas's approach, since it is not clear what exactly falls under this category. I believe that here we should take a look at negation from a different perspective: one of 'sense' and 'reference', in lack of better terms. Note that this is not the same as Frege's account of sense and reference, but only my intuitions on negation which could perhaps be similar. In this view, I would call the semantic representation without scope a 'sense' of negation, while the final product (interpreted negation with wide or narrow scope) would be the specific 'reference'. This 'sense' would incorporate our knowledge of how negation works theoretically and, combined with a given context, I believe we could come to a specific understanding using Atlas's formula.

We also need to consider exactly what the role of the function PRAG is in this picture; which rules or pragmatic processes take us from this ‘sense’ to the final understanding in a given context. In my opinion, here is where, again, we need to turn to Relevance theory. However, this is where my intuitions start to differ from Atlas’s.

### **6.1. Rigorous account of relevance**

We start by considering whether the semantics of the negation operator is indeed univocal. I believe that the monotony of classical logic and its rules of inference shows just that. The rules of natural deduction ensure that when using negation we will either interpret a proposition as true or false. This places us on the right side of Carston’s chart.

Once we have taken the univocality of ‘not’ to be the starting point, the next step is to check whether a certain interpretation of negation supervenes over the other. It seems that we do not have enough evidence to claim that either the wide-scope or the narrow-scope could show prominence over the other. The only clue would be our intuitions about the preferability of the narrow-scope negation (meaning that we take the wide-scope as a starting point and try to achieve the narrow-scope interpretation), but I don’t believe this is enough for a serious epistemological claim. It is for this reason that I disagree with the accounts described above before Atlas’s. Only Atlas takes the epistemologically neutral stance and this is what I claim as well. He describes this as a phenomenological neutrality, but from Carston’s explanation, I believe that the epistemological aspect is what the focus should be on.

This places us at the rightmost position on Carston’s chart, right where Atlas’s position is placed. However, this is where I would like to try and give my own account of how negation is understood.

The first step we have to take to understand negation is to address the syntax of ‘not’. Having considered the syntax, we know that negation can be situated in specific positions of the proposition; wide-scope (if it operates over the whole proposition) or narrow-scope (if it operates over the predicate).

The second step is of epistemic nature. We try to establish whether we know exactly where in the proposition the negation is placed. Since we took that neither wide nor narrow-scope interpretation has any supervenience over the other, we must conclude that we don't know the exact placement right at the onset.

In order to ultimately ensure the certainty of our placement of 'not', we must turn to relevance. Wilson and Sperber claim that relevance raises certain expectations and according to these expectations we are guided to the meaning of the proposition uttered by the speaker; they are indeed precise and predictable enough to make this inference.<sup>46</sup> They also claim that the search for relevance in our interlocutors' claims is one of the basic principles of human cognition and the reason why we understand each other, as opposed by the expectations of conforming to a kind of co-operative principle.<sup>47</sup> In my opinion, this means that the search for relevance is directly related to rationality. If the interlocutor did not interpret the proposition as it was intended, we must conclude that either the interlocutor didn't understand that proposition, or that he is irrational in this particular instance. It is important to note that one should understand the presupposition when it is not negated in order to make this step.

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<sup>46</sup> Wilson and Sperber 2004: 249

<sup>47</sup> Wilson and Sperber 2004: 251

## 7. CONCLUSION

I have tried to elaborate upon the roles of semantics and pragmatics in the understanding of negated utterances. There are a number of ambiguities which could make a final theory of negation problematic, but I believe that the account I've proposed in the final section represents a good starting point in a further discussion on some of the ambiguities. I have tried to show what the position of this debate is in the historical context, and what motivated me to ponder upon certain problems of negation and how to solve them. My initial intuitions have led me to consider the basic aspects of negation, and I have tried to compare my position to some of the other prominent approaches to these problems.

## 8. LIST OF REFERENCES

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