

# A new look at scalar implicatures under negation<sup>1</sup>

Laura Devlesschouwer  
*Universiteit Antwerpen*  
*Université Libre de Bruxelles*<sup>2</sup>

## Abstract

In this paper, I give a novel analysis of negated scalar adjectives. Particular attention is devoted to three types: (1) ordinary negation with a ‘less than’-meaning (e.g. “It is not warm” meaning ‘It is less than warm’), (2) negation with negative strengthening (e.g. “It is not good” meaning ‘It is bad’), and (3) so-called ‘metalinguistic negation’ (e.g. “It is not good; it is excellent!”). I argue that the meanings of (1) and (2) are *constructional*, and that they are grounded in Ducrot’s (1980b: 31) principle called ‘the lowering law’. On the basis of this analysis, I give an alternative explanation of why metalinguistic negations are intuitively exceptional: they violate principles of ‘argumentation in language’ (Anscombe & Ducrot 1983), rather than that they violate principles of logic, as on the pragmatic account (cf. Horn 1989). This finding is crucial for the theory of scalar implicature, according to which “It is good” is said to *implicate* rather than entail ‘It is not excellent’. On my account, the exceptional character of ‘metalinguistic’ negations and the default ‘less than’-meaning of negated scalar adjectives can no longer be used as arguments for viewing scalar implicatures as pragmatic rather than semantic.

---

<sup>1</sup> Thanks to Philippe De Brabanter, Walter De Mulder, and an anonymous referee for reviewing this paper.

<sup>2</sup> FWO fellowship

## 1. Introduction

The inference from “Some of her friends are Dutch” to ‘Not all of her friends are Dutch’ is called *scalar implicature (SI)*. In (neo- and post-)Gricean theories (e.g. Carston 2002, Horn 1989, Levinson 2000), this inference is a proper pragmatic (i.e. context-dependent and defeasible) inference, not a semantic entailment. “Some” is regarded as a *scalar* term because it can be viewed as part of an entailment scale  $\langle all, most, many, some \rangle$  whereby items on the left entail the items on their right (cf. Horn 1972). Indeed, if it is true that *all* of my friends are Dutch, it is necessarily true that *some/many/most* of my friends are Dutch, since what is true of the *all* elements of a superset is true of all elements of any of its subsets. In other words, “some” logically means ‘at least some’, because what is true of “some x” may also be true of “all x”. ‘Not all’ cannot be part of the meaning of “some”, it is argued, since on some occasions this inference cannot be drawn (i.e. it is ‘canceled’). For example, in “I will be happy if I win some of the games”, the speaker will probably be happy even if she wins *all* of the games. Thus, it is argued, “some” here cannot mean ‘not all’.

SIs are usually canceled under negation. For example, “It is not warm” is generally interpreted as ‘It is less than warm’ rather than as ‘It is not warm-but-not-hot’ (i.e. ‘It is cold, lukewarm, or hot’, see Figure 1). This is considered by pragmaticists to be an argument in favor of their view (cf. Geurts 2010: 139). Note that negated scalars sometimes receive a more specific meaning. For example, “It’s not good” will normally be interpreted as ‘It’s bad’ rather than ‘It’s either bad or neither-bad-nor-good’. This exclusion of the middle ground (“neither bad nor good”) in the negation of scalars is called *negative strengthening* (Levinson 2000: 117), a phenomenon which Levinson (ibid.) views as yielding (generalized) implicatures, just like SIs. Thus, ‘It’s bad’ is considered the default, pragmatic interpretation of “It’s not good”, an implicature which can be (explicitly) canceled, e.g. in “It’s not good, but it’s not bad either”.

Conventionalists, i.e. theorists who (unlike pragmaticists) believe that SIs are part of the conventional meaning of the expressions in question, can use the existence of the following type of negations in favor of their view: “It is not *permitted* to wash your hands; it is obligatory”. Here, the SI ‘not obligatory’ is not canceled, but rather part of the negated content. However, pragmaticists (e.g. Geurts 2010: 138-142) counterargue that such negations are exceptional. Indeed, at the logical-semantic level, ‘metalinguistic’ negations such as “It is not warm; it is hot” and “She’s not beautiful; she’s gorgeous” are contradictions, because something that is hot *is* warm and someone who is gorgeous *is* beautiful. Arguably, language users have a sense of this contradiction, which is why the negations are intuitively felt as ‘special’ (cf. Geurts 2010: 140) and are often accompanied by a specific intonation, the so-called “contradiction contour” or “fall-rise” (cf. Liberman & Sag 1974, Ladd 1980, cited in Horn 1989: 374). In 2.2, I will argue that so-called metalinguistic negations are indeed exceptional, but for a different reason than assumed by pragmaticists. In so doing, I will argue against the pragmatic view of SIs in favor of a conventionalist alternative.

	cold	lukewarm	warm (but not hot)	hot
<i>without SI</i> (‘normal’ neg.)				
<i>with SI</i> (‘metalinguistic’ neg.)				

Figure 1. Interpretations of “not warm”

## 2. Existing accounts of metalinguistic negation

### 2.1 Horn's (1989) pragmatic ambiguity view

Horn (1989: 363) distinguishes two types of negation: descriptive and metalinguistic. Descriptive negations are negations of truth-conditional content. Thus, “it is not warm” taken descriptively means ‘it is less than warm’, as in its ‘logical’ interpretation. On Horn’s definition, metalinguistic negations are negations of any aspect of the utterance: not only content,<sup>3</sup> but also implicatures, presuppositions, style/register, pronunciation, etc. (ibid.). “It is not warm” in “It is not warm, but hot” is thus a metalinguistic negation, because it negates not the descriptive (‘logical’) content of “warm”, but its scalar implicature ‘not hot’. An example of presupposition-negation is “The king of France is not bald, since there is no king of France” (cf. Russell 1905, cited in Horn 1989: 362). According to Horn (1989: 363), it is not the proposition “The king of France is bald” which is negated, but rather the *assertability*<sup>4</sup> of this sentence. Other properties of utterances, such as pronunciation, can be rejected in the same way, e.g. “He didn’t call the [ˈpɒlɪs], he called the [pɒˈlɪs]” (Horn 1989: 371).

Horn’s (1989: 377) view on negation is that it is *pragmatically* ambiguous. His reasoning seems to be the following: the interpretation of a negation such as “It is not warm” depends on whether or not “warm” is interpreted with a scalar implicature. ‘Implicature’ being an essentially pragmatic notion, the ambiguity must therefore be pragmatic rather than semantic.

---

<sup>3</sup> As has been noted by e.g. Davis (2011: 2558), the fact that “content” is also mentioned is problematic, because negation of content is normally descriptive negation.

<sup>4</sup> In fact, “utterability” would be a better term, since pronunciation (see next example) is an aspect of an *utterance*, not of an *assertion*.

## 2.2 Carston's (1996) 'echoicity' view<sup>5</sup>

Carston (1996) rejects Horn's (1989) pragmatic ambiguity view. She insists that the negative operator "not" is always truth-conditional, but that it can operate on different types of content: semantic vs. linguistic content (cf. Carston 1996: 339). Carston (1996: 324, 332) proposes taking *echoicity* as the unique defining property of MNs. A use of words is 'echoic'<sup>6</sup> if it "reports what someone else has said or thought and expresses an attitude to it" (Carston 1996: 332). This is for instance the case in ironic sentences, where a (virtual or real) speaker is implicitly quoted, and the utterer expresses a rejection of this speaker's utterance. Similarly, in "I didn't eat a /tə'mɑ:təʊ/, but a /tə'meɪtəʊ/", the string "/tə'mɑ:təʊ/" is an echo of a part of a previously uttered sentence.

MNs are *implicitly* echoic (Carston 1996: 333). An explicit echo or quote is given in the following utterance: "It's not correct to say that you saw two 'mongeese'; you should say 'mongooses'" (Carston 1996: 333) –in contrast with its metalinguistic variant "You didn't see two mongeese; you saw two mongooses". Carston (ibid.) notes that ironic utterances are implicitly echoic as well. The problem is that *all* negations could be considered implicitly echoic.<sup>7</sup> For example, Carston (1996: 335) notes that the statement on a birthday card saying "This birthday card is not from one of your admirers" (arguably) echoes the general expectation that birthday cards come from admirers. Inside the birthday card in question was written "It is from TWO of your admirers", making the negative utterance metalinguistic. However, if the negative sentence had been followed by "It is from one of your haters", the negation would have been descriptive, but it would be as echoic as the previous example.

<sup>5</sup> Note that this notion is comparable to Ducrot's (1984) notion of 'polyphony'. In his theory, however, echoic negations ('*négations polémiques*') are not necessarily metalinguistic.

<sup>6</sup> Carston (1996: 332) uses "echoic" in the sense of Wilson & Sperber (1992).

<sup>7</sup> As is for instance the case in Ducrot's (1980a: 50) account of 'polyphony'.

Finally, let us look at the cases which are at the center of the present paper: MNs containing scalars. For Carston (1996: 328), negations like “It is not warm, but hot” are not necessarily metalinguistic, since they are not necessarily echoic. However, it is not always clearly determinable whether or not a use of words is echoic: in the end, only the speaker can know what she meant, and only context can give an indication of whether or not a given use of words is echoic (cf. Carston 1996: 337). Thus, as Carston (1996: 332) explicitly indicates, there is no natural class of MNs which contains all SI-canceling and presupposition-canceling negations. While this account may be an adequate account of proper ‘metalinguistic’ negation, it gives no account of why some negations are intuitively felt as exceptional (because of their contradictory character, special intonation, etc.), such as SI-canceling negations. For Horn (1989), what is exceptional is the fact that an implicature rather than semantic content is negated. In 3.3, I will provide an alternative explanation.

### 3. An alternative account of SIs and metalinguistic negation

#### 3.1 Anscombe and Ducrot’s (1983) theory of ‘Argumentation in Language’<sup>8</sup>

Anscombe and Ducrot’s (1983) theory of ‘Argumentation in Language’ (henceforth: *AL*) gives an alternative account of SIs. For Anscombe and Ducrot (1983), natural language sentences are essentially *argumentative*, which means that they are oriented towards a certain type of conclusions. The meaning of a sentence depends on the set of conclusions that can be drawn from it. These conclusions are usually of an evaluative type. For example, from “She almost dropped the vase”, we can draw the conclusion that

---

<sup>8</sup> Note that the term ‘metalinguistic negation’ originally comes from Ducrot (1984), whose view used to be compatible with the Gricean one.

“She is clumsy”. The same conclusion can be drawn, with greater strength, from “She dropped the vase”. Thus, “She almost dropped the vase” and “She dropped the vase” are oriented towards the same type of conclusions, the latter sentence being *argumentatively stronger* than the former. Abstracting away from specific sentences, “almost p” and “p” can be viewed as forming an *argumentative scale*, whereby sentences with “almost p” will always be argumentatively weaker, though oriented towards the same argumentative conclusions as “p”.

In this framework, scalar terms are viewed not as forming entailment scales but argumentative scales. For instance, “some” is argumentatively weaker than “all”, since it belongs to a scale which is oriented towards “all”. The crucial distinction between entailment scales and argumentative scales is that on the former, the (non-final) scalars are lower-bounded (i.e. meaning ‘at least some’, ‘at least many’, etc.), whereas on the latter they are lower- and upper-bounded (i.e. meaning ‘some and not more’, ‘many and not more’, etc.). This makes sense: the reason why “All...” constitutes a stronger argument in favor of a certain conclusion than “Some...” is that “all” denotes a *larger quantity* than “some”, and this is only the case if “some” is upper-bounded. (Indeed, if “some” meant ‘at least some’, the quantity denoted by it would not necessarily be smaller than that denoted by “all”.) In other words, on Anscombe and Ducrot’s (1983) account, SIs are not pragmatically inferred, but are part of the semantic, conventional meaning of scalars. Thus, this is a conventionalist rather than a pragmatic account of SIs.

### 3.2 ‘Negative strengthening’ constructions

I hypothesize that the exceptional character of ‘metalinguistic’ negations is to be sought in the default character of negative strengthening constructions. The strengthening from contradictories (“good” vs. “neither good nor bad” and “bad”) to contraries (“good” vs. “bad”) occurs with a definite set of scalars, e.g. “good” and “to

like”. “It is not good” is usually interpreted as ‘It is bad’, and “I don’t like it” as ‘I dislike it’ (instead of ‘I neither like nor dislike it’). For Levinson (2000: 117), this interpretation is an ‘I-implicature’, a kind of default implicature which yields stereotypical interpretations. Similarly, for Horn (1989: 360, 361) it is a “short-circuited” implicature resulting from the so-called ‘R-principle’ (which also yields stereotypical interpretations). Neither of these authors gives explicit reasons for regarding the meaning of these constructions as pragmatic rather than conventional, but the determining test should be cancelability.

The only cases in which the ‘It is bad’-interpretation of “It is not good” seems to be canceled are the following: (i) “It’s not good, but it’s not bad either”, and (ii) “It is not good; it’s excellent!”. However, in both cases the intonation of “It’s not good” will typically be different than when “It’s not good” is intended to mean ‘It is bad’, the latter interpretation being triggered by a typical (sentence-final) falling intonation.<sup>9</sup> Thus, “It is not good” uttered with falling intonation could be considered as a *construction* (much as in Construction Grammar, e.g. Goldberg 2006) with a fixed, conventional meaning (‘It is bad’). In other words, the form of words “(it is) not good” is semantically ambiguous, and the alleged instances of implicature-canceling are cases in which the form of words “(it is) not good” has a different meaning. The special intonation of ‘metalinguistic’ negations<sup>10</sup> (and of sentences such as (i)) is then attributable to the need for disambiguation between a

---

<sup>9</sup> When this condition is not satisfied (i.e. when there seems to be a cancelation but with falling intonation), the speaker is being contradictory: first asserting that the thing is bad, then asserting that it is not bad. This is possible for instance when the speaker, after asserting that the thing is bad, sees the disappointed reaction of her interlocutor and then changes her mind (or pretends to). There can also be a misleading falling intonation merely for humorous purposes, but then there is a play on words, violating normal speech conventions.

<sup>10</sup> An objection which would probably be raised by some (e.g. Carston 1996) to my intonation-based account of MN is the fact that MNs can occur *without* special intonation. However, these MNs are intentionally misleading and are often used for humorous purposes. As mentioned by Carston (1996: 324) herself, MNs are sometimes ‘disguised’ as descriptive negations, precisely to bring about a garden-path effect by violating the conventional intonation pattern of MNs.

constructional meaning (“not good” with the meaning ‘bad’) and a compositional meaning (“not” + “good”-with upper bound-). Note that this compositional meaning occurs in a specific contrastive construction: “not X, (but) Y”. Hence, this meaning can also be considered constructional (see 3.3.1).<sup>11</sup>

Possibly the constructional meaning (‘It is bad’) is the ‘default’, because negative sentences (such as “It is not good”) are usually used to argue in favor of the opposite conclusion than the corresponding positive sentence (“It is good”). This is an illustration of what is called the ‘law of negation’ in AL (“loi de negation”, cf. Anscombe & Ducrot 1983: 101). Also, negative strengthening falls under Ducrot’s (1980b: 31) ‘lowering law’, according to which negated scalars have a ‘less than’-meaning. Now, if one of multiple meanings is default, the cases where a non-default meaning arises can be viewed as instances of implicature cancelation. However, there are intuitive reasons for considering the default meaning as conventional.

One piece of evidence in favor of the constructional account of “It is not good” is the fact that negative strengthening only occurs with a restricted set of scalars. Indeed, negative strengthening does not occur in “It is not warm” or “It is not big”. In fact, the usual meanings of these negations (‘It is less than warm’ and ‘It is less than big’) can also be viewed as default and conventional. They are subject to AL’s ‘lowering law’, but in a less extreme way than negative strengthening constructions (see Figure 2).

In sum, my account of negated scalars is that they are systematically ambiguous between a default (a) and a non-default (b) meaning:

(a) a *constructional* meaning, in accord with Anscombe and Ducrot’s (1983) ‘lowering law’, whereby the construction “not good” conventionally means ‘bad’ and the construction “not warm” conventionally means ‘less than warm’;

---

<sup>11</sup> Thanks to an anonymous reviewer for evoking this possibility.

(b) a compositional meaning (“not” + “good”), whereby the SI ‘not excellent’ is included in the conventional meaning of “good”.

This account thus argues that negation is ambiguous, without this meaning that the *word* “not” is ambiguous. Indeed, Horn (1989: 364) specified that the question whether negation is ambiguous can be interpreted in two ways: (i) whether negative *sentences* are (semantically) ambiguous, and (ii) whether the *word* “not” is (semantically) ambiguous. Carston (1996: 323) and Horn (1989: 370) have argued against (ii), but not against (i). It seems that they have taken for granted that (i) implies (ii). On my view, it does not: a string (e.g. “not warm”) can have a holistic meaning, whereby the meaning of the whole is not a mere addition of the meaning of the parts.

	cold/ bad	lukewarm/ neither-good-nor- bad	warm (but not hot)/ good (but not excellent)	hot/ excellent
<i>not warm</i>				
<i>not good</i>				

Figure 2. Descriptive negation of “good” and “warm”.

### 3.3 Summary: constructions with negated adjectives

In the above, I have only spoken of the negation of (either neutral or positive) ‘basic level’ adjectives such as “warm” and “good”.<sup>12</sup> In the following, I will give a tentative overview of the meanings negated adjectives can take on, depending on the construction in which they occur. The constructions are mutually exclusive and can easily be identified on the basis of formal characteristics (type of adjective used, words in the construction, intonation). Effective ambiguity is minimal.

#### 3.3.1 Basic level positive adjectives

A negation of a basic level positive adjective such as “good” can occur in three types of construction. The first is the negative strengthening construction, whereby “not  $x$ ” means ‘opposite of  $x$ ’, e.g. “not good” meaning ‘bad’. As mentioned above, serious uses of this construction are accompanied by a falling intonation. Other positive adjectives subject to negative strengthening are: *happy*, *intelligent*, and *beautiful*.<sup>13</sup> It is unclear whether the class of positive adjectives coincides with the class of adjectives subject to negative strengthening. This is a matter for future investigation.

A second construction positive adjectives can enter into is “... not  $x$ , but ... not non- $x$  (either)”, e.g. “It’s not good, but it’s not bad either”. This construction explicitly annuls potential negative strengthening.

Finally, positive adjectives can enter into contrastive constructions (of the form “...not  $x$ ; ... $y$ !”), which may be ‘metalinguistic’ (i.e. scalar implicature preserving), as in “It’s not good; it’s excellent!”, or not, as in “It’s not good; it’s horrible!”. Contrastive constructions may be considered as belonging to one

---

<sup>12</sup> ‘Higher level’ adjectives would be “hot” and “excellent”. “Warm” and “cold” are neutral adjectives, “good” is positive, “bad” is negative”.

<sup>13</sup> For “beautiful”, opinions are divided, though.

class of constructions with the meaning ‘less than  $x$  or more than  $x$ ’, or they may be split into ‘metalinguistic’ constructions (with the meaning ‘more than  $x$ ’) and non-metalinguistic constructions (with the meaning ‘less than  $x$ ’). For the time being, I will consider them as two separate constructions, because the ‘metalinguistic’ construction<sup>14</sup> respects argumentative orientation, while the non-metalinguistic one does not. What these two constructions have in common, however, is that there is a correction clause which explicitly indicates how to interpret the negated adjective. This was also the case with the “... not  $x$ , but ... not non- $x$  (either)” construction. So, when faced with a negated basic level positive adjective, the disambiguation strategy listeners use may be something like: interpret as ‘opposite of  $x$ ’ unless there is a special intonation and a following correction clause. (Without special intonation, backtracking may be necessary.)

### 3.3.2 Basic level neutral adjectives

The constructions neutral adjectives can enter into are almost identical to that of positive adjectives, except that instead of a negative strengthening construction, there is a ‘lowering’ construction: “not  $X$ ” means ‘less  $x$  than just- $X$ ’ rather than ‘opposite of  $X$ ’. For example, “not warm” means ‘less warm than just-warm’, “not big” ‘less big than just-big’, “not cold” ‘less cold than just-cold’, “not small” ‘less small than just-small’. Sometimes, there may be an additional implicature “but more  $x$  than non- $X$ ”. For instance, if I describe a person as “not tall”, it may be to indicate that she is less tall than “tall”, but taller than “small”.

---

<sup>14</sup> Note that the meaning of “not  $x$ ” is compositional, as mentioned above. Thus, compositional meanings can occur within constructions, as in recent versions of Construction Grammar (thanks to an anonymous referee for bringing this to my attention).

### 3.3.3 Basic level negative adjectives

The “not Y” construction, with “Y” referring to a basic level negative adjective, means ‘relatively  $x$ ’. An example is “not bad” meaning ‘relatively good’. There are ironic/understated versions of this construction, with the meaning ‘very  $x$ ’, e.g. “not bad” with the meaning “very good”. This would be a case where what is meant is something different from the constructional meaning, i.e. where ‘what is meant’ is different from ‘what is said’.

### 3.3.4 Higher level adjectives

If “Z” is the higher level adjective, then the meaning of the “not Z” construction may be characterized as “less  $x$  than Z, but still relatively  $x$ ”. Examples are “not great” meaning ‘less good than great, but still relatively good’ and “not terrible” meaning ‘less bad than “terrible”, but still relatively bad’. An explicit specification with “but” is typical, e.g. “It’s not great, but it’s not bad either”. Note that the “not Z” construction may be used ironically or as an understatement (as a hedge for politeness reasons). Again, these would be cases where what is said is different from what is meant.

### 3.3.5 Morphologically negative adjectives

If “W” is the morphologically negative adjective, the meaning of the “not W” construction may be characterized as ‘less  $x$  than just-X, but still more  $x$  than W’. An example is “It’s not uninteresting” meaning ‘It’s less interesting than just-interesting, but more interesting than “uninteresting”’ (see Levinson 2000: 145).

## 4. Conclusion

In the present paper, I have argued that so-called ‘metalinguistic negations’ (MNs) such as “He’s not big; he’s huge” are exceptional not because they negate a scalar implicature (‘not huge’ implicated

by “big”) rather than semantic content (‘at least big’), as on Horn’s (1989) account, but because negated scalar adjectives form *constructions* which have a ‘less than...’ meaning. Whereas in Gricean theory, this ‘less than...’ meaning obtains because of *logic*, on my account it is due to a convention originating in *argumentative* principles (Anscombe & Ducrot 1983). In MNs, the negated adjective has a compositional rather than a constructional meaning. The special intonation of MNs helps disambiguation.

The exceptional character of MNs has sometimes been used as an argument for the pragmatic account of scalar implicatures (e.g. Geurts 2010: 138). My alternative account refutes this argument and thereby reintroduces the possibility that SIs are part of the semantics of scalars.

I have identified eleven constructions negated adjectives can enter into. This does not mean that a given negation, e.g. “not big”, is ambiguous between 11 meanings, though. For morphologically negative adjectives (e.g. “uninteresting”), higher level adjectives (e.g. “excellent”, “huge”), and basic level negative adjectives (e.g. “bad”, “ugly”), only one constructional meaning obtains. For basic level positive (e.g. “good”) and neutral adjectives (e.g. “warm”, “cold”), four constructions are available. Disambiguation is easy because of formal characteristics of the constructions (intonation, follow-up clause).

It is important to note that defending a constructional account of adjective negation as opposed to a pragmatic (Gricean) one is not about having ‘less pragmatics’ (and more convention). I view constructions as *shortcuts* for pragmatic reasoning, as clues to speed up disambiguation. A disambiguation view instead of a Gricean view does not minimize the role of pragmatics; it merely gives an alternative explanation of the interaction between convention and pragmatics.

## References

- Anscombre, J.-C. and Ducrot, O. (1983) *L'Argumentation dans la Langue*. Mardaga, Collection 'Philosophie et Langage'.
- Carston, R. (1996) 'Metalinguistic Negation and Echoic Use'. *Journal of Pragmatics* 25 (3), 309-330.
- Carston, R. (2002) *Thoughts and Utterances: The Pragmatics of Explicit Communication*. Oxford, Blackwell.
- Geurts, B. (2010) *Quantity Implicatures*. Cambridge, Cambridge University Press.
- Goldberg, A. (2006) *Constructions at Work: The Nature of Generalization in Language*. Oxford, Oxford University Press.
- Davis, W.A. (2011) 'Metalinguistic Negations, Denial, and Idioms'. *Journal of Pragmatics* 43 (10), 2548-2577.
- Ducrot, O. (1980a) 'Analyse de Textes et Linguistique de l'Énonciation'. In O. Ducrot, ed., *Les Mots du Discours*. Paris, Les Éditions de Minuit.
- Ducrot, O. (1980b) *Les Échelles Argumentatives*. Paris, Les Éditions de Minuit.
- Ducrot, O. (1984) *Le Dire et le Dit*. Paris, Les Éditions de Minuit.
- Horn, L. (1972) *On the Semantic Properties of Logical Operators in English*. Mimeo, Indiana University Linguistics Club, Bloomington, IN.
- Horn, L. (1989) *A Natural History of Negation*. Chicago, University of Chicago Press.
- Ladd, D. (1980) *The Structure of Intonational Meaning*. Bloomington, Indiana University Press.
- Levinson, S. (2000) *Presumptive Meanings: The Theory of Generalized Conversational Implicature*. Massachusetts, The MIT Press.
- Lieberman, M. and Sag, I. (1974) 'Prosodic Form and Discourse Function'. *Chicago Linguistics Society* 10, 402-415.
- Russel, B. (1905) 'On Denoting'. *Mind* 14, 479-493.
- Wilson, D. and Sperber, D. (1992) 'On Verbal Irony'. *Lingua* 87, 53-76.