

**Evaluating Generics**  
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This paper deals with the question of whether one can successfully represent the meanings of generic sentences by a process of circumscribing the domain in some principled way so as to eliminate all exceptions. One such suggestion from the semantics literature is examined in some detail, and does not appear to result in a successfully circumscribed domain.

### **1. Preliminary comments.**

One of the more difficult semantic problems one might undertake is to formally describe the truth-conditions of generic sentences. My present intention is not to provide or even sketch a solution to this knotty problem, but rather to discuss the overall structure of the problem in the form of a consideration of one potentially attractive strategy for evaluating generics: what I will call "reduction to the universal." In the end I will cast some doubt on the viability of this strategy.

This basic idea, at least in a number of limited domains, is quite familiar--what one tries to do is to set aside contrary or exceptional instances so that once the domain of applicability is correctly defined, application will universally hold of the domain. So, to take a simple example, if one has a generalization such as "birds fly", one wishes to first somehow set aside all the non-flying things as not being covered by the generalization, leaving flying birds alone as the basis of the generalization. Then, with respect to that chosen domain, the inference from "Birds fly" and "Tweety is a bird" to the conclusion "Tweety flies" will hold monotonically so long as Tweety is in the domain. The difficult part of this strategy is to accomplish this goal in some principled, non-circular manner.

### **2. Domain restriction.**

I take it that a generic sentence expresses a generalization or law which "holds" of a certain domain of the real world (or, more generally, some world of evaluation). I cannot at present be much more specific about what "holds" means, but perhaps slightly more technically we might say that "holds" means "is true with respect to." But I wish to be more specific about what a "domain" of generalization is.

Generic sentences are, in the typical case, true (or false) with respect to a given domain. Such a domain might be temporally restricted, as illustrated in the examples of (1):

1. a. In Roman times, workers were often paid with salt.
- b. In the 1950's, women never wore blue jeans.

- c. During the Dark Ages, few people read books.
- d. In the not-so-distant future, loan applications will be processed in a matter of minutes.

However, the domain of generalization may be restricted in any number of other ways, such as spatially rather than temporally, or in more abstract ways, as evidenced by examples such as those in (2).

- 2. a. In the upper Midwest, people still wear polyester leisure suits (but not in California)
- b. In small families, children play alone much of the time (but not in large families).
- c. In English, syllable-initial voiceless stops are aspirated (but not in Spanish).
- d. In the Rochester schools, teachers are paid better than most places (but not in Syracuse).
- e. In contract bridge, bidding begins with the dealer and proceeds clockwise around the table.

In each of these cases, a change in the domain-adverbial may result in a corresponding change in the truth-conditions of the sentence. The limiting case of this domain-sensitivity would be that of universal truths conditions which do not appear to vary with time or space or any other definable domain variation. Candidates include certain truths of science, mathematics, logic, and so forth.

One of the central problems of generics, perhaps the central problem, is how to treat the exceptions to the generics that typically arise. What I would like to do in this paper is to discuss the extent to which the phenomenon of domain restriction may be used as a device to set aside exceptional cases to such an extent that only the non-exceptional cases remain. So, to make our first simple observation, take Jacques, who is speaking French at the moment (and hence not aspirating voiceless stops). We certainly do not take Jacques as then being an exception to the generalization expressed in (2c) because, at least when speaking French, he does not fall within the domain specified by the phrase "In English." Or, take the poorly paid teacher Mr. Smith, who works at a high school in Boston--we do not take him to be an exception to (1d), since it only applies to Rochester teachers.

This illustrates how domains are expressed in natural language, but it is not an analysis. In abbreviated form, here is the beginnings of an analysis. From the perspective I take, sentences come in two basic varieties: (1) generic sentences, which are true or false by virtue of the generalizations or laws they express, and (2) episodic sentences, which are true or false by virtue of their correspondence (or lack thereof) to the particulars that constitute our world. I take these particulars to be things like token events and actions (though not the types), particular times and places (e.g. last Sunday, but not Sundays), and manifestations of individuals and kinds (though not the kinds and individuals themselves). However, things will be somewhat easier to illustrate if we make the simplifying assumption that times and places are the sole particulars--the "locations" as expressed, for instance, in situation semantics (e.g. Barwise and Perry 1983).

A domain of generalization is, then, any phenomenon describable in solely episodic terms (this, then, includes things like *Fido barked yesterday* and *Bob ate a light breakfast*

*this morning*, but excludes things like *Fido barks*"and *Bob eats a light breakfast on weekends*). Translating to locations, a domain is any space-time location (the portion of space-time where the episodics are instantiated, or find their 'direct support'); these locations may of course be temporally and spatially discontinuous, as in (2b,c,e) above.

If one regards generic sentences as inductively-based generalizations, then a given domain will include just those types of instances from which the generalization is derived. However, this is, I believe, an incorrect, or at least far too narrow a view of what a generic generalization is. Rather, I prefer the perspective that takes generics to be much more fundamentally like laws and rules (indeed, these are expressed as generics). Let us take an example of a descriptive rule of a game, for instance; say, in the card game of contract bridge, tens win over nines (i.e. are higher-ranked than nines, higher-ranking cards "winning" when played at the same time as a lower-ranking card). Now, let us consider the status of this rule under three different circumstances:

- 1) A ten is played, a nine is also played (same suit, following suit lead, in turn, etc.).
- 2) A six wins over a five played at the same time (no tens or nines are laid on the table at the same time).
- 3) The bridge participants take a break and are playing a game of tennis.

I will assume that the situation in (1) is clearly in the domain, and that situation (3) is clearly outside the domain. The question then arises about (2). Is this situation within the domain or not? One could answer this both ways, I imagine. I prefer to answer it in the affirmative (at least in principle), applying the following reasoning.

The entire body of the rules of a game determine how play may proceed, not just a given rule in isolation. For instance, in chess it might well be that Queens (unlike, e.g. Knights) take enemy pieces placed beside them, and that is why I don't move my bishop into such a location. Thus, the (potential) applicability of a rule can have a hand, intensionally, in determining play. If the domain of applicability were determined purely extensionally, and were identical to the domain of application, then the rule should be as irrelevant to a situation where I move my bishop to a location beyond the queen's reach, as the rules of professional golf are to playing baseball. On this line of reasoning, (2) describes a situation that falls within the domain of applicability by virtue of the fact that the participants are playing bridge, and the rule's presence intensionally affects play.

I don't assume this settles the issue once and for all, but it does provide us with a potential distinction: the domain of applicability vs. the domain of application. I take the latter to be just those instances in which the rule (extensionally) comes into play, and there is an episodic event of the type specified positively determining outcome (that is, when a generic sentence has an episodic counterpart, the episodic 'holds'). It is another matter how to deal with mistakes and true exceptions--I assume any play in bridge with a ten and a nine in it falls within the domain of application, even if the participants (so long as they are playing bridge) fail to take note of a misplay; cases involving 'trumping' tens with nines, and so forth, fall under 'exceptions'. Thus, to characterize the strategy of reduction to the universal in somewhat different terms from those above, reduction to the universal requires that the domain of application be identical to the domain of applicability less exceptions.

### **3. Structure of the generic problem.**

Above, I noted the use of explicit domain-restricting adverbs. But domain adverbs are not the only way that the applicability of a generic is restricted. A restriction of sorts in fact appears to be part and parcel of the analysis of generic sentences. Let us examine an approach that outlined in Krifka *et al* 1995, based on work in Carlson 1988, Krifka 1995, and Wilkinson 1991. The basic observation is that a generic sentence consists of a relation that holds between the denotations of two different parts of a sentence. In typical cases, these two parts are the subject and the predicate of the sentence, as in (3), but in a wide variety of other cases, the two parts expressing the denotations to be generically related may be other constituents, as illustrated in (4).

3.
  - a. Cats/eat meat.
  - b. John/smokes a pipe
  - c. Everyone who eats at this restaurant/ returns for another meal soon.
  
4.
  - a. A bell goes off/ when you step on this floor mat.
  - b. Typhoons arise/ in this part of the Pacific.
  - c. A computer computes/ the daily weather forecast.
  - d. Coffee and muffins are served/ at 9 AM.

Many sentences, such as all those in (4), can have more than one plausible reading corresponding to different divisions of the sentence.

Though the sentences are thus divisible into two components, the relation is not symmetrical, since the components have different syntactic and semantic properties. Syntactically, one component is a constituent (e.g. an NP, PP, adverbial phrase), and the other is whatever remains of the sentence once that constituent is removed, reminiscent of quantificational representations with generalized quantifiers binding variables. Thus, we could enrich our representations in (3) and (4) not only to reflect the fact that a generic relation is being asserted of the denotations of the two constituents, but also to reflect this syntactic asymmetry. So, a 'logical form' for (3b) and, say, (4c), would be approximately as follows:

3b.' GEN (John(x)) (x smoke a pipe)

4c.' GEN (the daily weather forecast(y)) (a computer computes y)

(A short note of interpretation: the sentence-like portion containing the variables are to be interpreted episodically, though intensionally; things would be semantically clearer if a little inaccurate to render these portions in the progressive, 'x is smoking a pipe' etc.). So this, then, is the sort of representation arrived at in Carlson 1989. It does not say much about the semantics of GEN; in particular, the corresponding asymmetries in the semantic interpretation remain uncharacterized.

Manfred Krifka managed to take this general analysis at least two steps further. The first step consists of characterizing the roles of the two constituents within a DRT framework, which was then extended to a situation semantics-inspired form of representation. Consider the following recipe for representing generics taken from Krifka *et al* 1995, though here represented in a slightly different form:

**GEN[x<sub>1</sub>...x<sub>j</sub>; x<sub>k</sub>...x<sub>l</sub>] (Restrictor; Matrix) is true** relative to ....

B[...{x<sub>i</sub>}...{x<sub>j</sub>}] if and only if there is an anchor f for the parameters of B such that for every situation s which is of type B(f) it holds that if Restrictor(f) is true, then f can be extended to f' such that Matrix(f') is true.

I will talk some about the 'background' B shortly; here, the GEN operator is assumed to be a 'default quantifier,' whatever that cashes out to be in the end. However, note the asymmetrical roles of the restrictor and matrix, in that the restrictor clause specifies the type of situation that must be 'extended' by anchoring additional parameters so that the matrix also holds. Let's look at a brief example to illustrate.

5. Hungry bears are attracted to beehives

5'. GEN[x,s; y](bear(x) & hungry(x) in s; x is attracted to y in s & beehive(y))

The Krifka-style truth conditions here say that, with exceptions, any situation where the variables x and s are anchored by f to entities verifying bear(x) and hungry(x) in s, then there is some function f' which extends f such that the matrix will also be verified. What this boils down to, in this case, is that there must be some entity anchorable to the parameter y which is a beehive that the hungry bear is attracted to. So (5') is equivalent then to a formula in which existential quantification over y is explicitly represented in the logical form itself, as in (5'').

5.'' GEN[x,s](bear(x) & hungry(x) in s; ∃y [beehive(y) & x is attracted to y in s])

This, then, is one proposal which semantically characterizes the asymmetry between the two constituents of a generic. In subsequent work, Krifka takes the additional step of trying to integrate the analysis of generics with a general theory of focus, making use of the type of framework originally developed in Rooth 1985. This step is significant, I believe, since it is a principled attempt to motivate the use of such representations on independent grounds. But let us return to a fuller consideration of the structure of the recipe proposed above.

The restrictor clause, in this analysis, serves to limit the domain under consideration in much the same way overt domain adverbs appear to. There is, in fact, some suggestive evidence pointing to the idea that both cases, indeed, serve the same type of function. In many cases a domain adverb can be syntactically converted into a noun-modifying phrase, though the result is synonymous with the original. The examples of (6) are almost exact paraphrases of those of (2).

6. a. People in the upper Midwest still wear polyester leisure suits.
- b. Children in small families play alone much of the time.
- c. Syllable-initial voiceless stops in English are aspirated.
- d. Teachers in the Rochester schools are paid better than most places.
- e. Bidding in contract bridge begins with the dealer and proceeds clockwise around the table.

This observation, then, lends *prima facie* credibility to the analysis. I cannot go into an extended evaluation of this issue here. However, if the Krifka-style analysis presented above

is correct, then a notion of domain restriction is a fundamental part of the analysis of generics, and not something occasionally layered on top.

If we think of domain restriction as the setting aside of contrary or possibly even irrelevant cases, the Krifka-type analysis actually encodes three layers of such restriction in the analysis--two besides the presence of the restrictor clause. The first is the character of the GEN operator itself, which is characterized as 'default quantification.' I have misgivings about the 'quantification' part (a purely extensional notion), but the idea of defaults that can be overridden with more specific information as basic to the analysis of generics is an extremely persistent one; indeed, it would never occur to a person to invent defaults if one only dealt with episodic sentences, which are relentlessly monotonic. There are of course numerous proposals about how to model this phenomenon using non-monotonic devices (e.g. Asher and Morreau, 1995), and quite differing conceptualizations of it, but what seems to be common to all is that of more specific information overriding conflicting more general information. In this way, the GEN operator sets aside exceptions not already excluded from the domain, 'from the inside' instead of 'from the outside,' as a restrictor clause might.

Then there is the third restrictive mechanism aside from GEN and restrictor clauses corresponding to sentential constituents: the "background" situation-type B. This is intended to be a conversational background of the type proposed by Kratzer 1981 for the analysis of modals, and little more is said about it. Here is an example drawn from Krifka of how it is to operate. Take a sentence like (7):

7. Pheasants lay speckled eggs.

The restrictor clause here only contains the information that the situation has pheasants in it. To say that any such situation is extendable to one where each pheasant in that situation is laying a speckled egg is clearly wrong. But a background type of situation B, in which the domain is restricted to just those cases where something is giving birth, will combine to achieve near-universality in this case, leaving the default nature of GEN to get rid of weird pheasants laying albino eggs and whatnot; this is all very plausible, but badly underspecified.

Summarizing the strategy, then, what one does is to attempt eliminate exceptions in three steps: first, by finding a focused portion of the sentence which expresses the content of the restrictor and limiting consideration to just those types of situations; next, you invoke a general background to remove a lot of further cases; and finally the default character of the GEN operator will dispose of the residue. What remains is a domain where universal closure holds. We can summarize this process graphically in Figure 1.

#### **4. Some possible sources of background restriction.**

The success or failure of this strategy has yet to be seen, but it also leaves very serious questions about its viability in all aspects. But I am most concerned with the use of B. Unless this is somehow constrained, so that one does not posit whatever one wishes at any given time, the consequence would appear to be that nearly any generic would come out true on a given reading. I don't think this is the result we want. Nevertheless, it is clear that a number of other covert restrictive phenomena occur, and what I'd like to do is briefly survey some instances and then come around to a reconsideration of B.

I've already noted the appearance of domain adverbs. However, it is evident that implicit domain restrictions are even more pervasive, fixed by the context under which an utterance takes place. Consider example sentence (8):

8. Coffee and muffins are served around 9 AM.

Such examples as this contrast with sentences like 'The sun rises in the East.' One would readily agree that the sun does in fact rise in the East. But if asked to evaluate the truth or falsity of sentence (8), it seems that one would seek to know the circumstances of the utterance of sentence (8) in order to answer. In a given context, such as in discussing the local customs, or receiving information from a hotel clerk when checking in, the domain of generalization is implicitly restricted by our understanding of the discourse, to (e.g.) activities located in the culture under discussion, or those located in that hotel.

Let us call this 'implicit pragmatic restriction.' Such restrictions may be imposed indexically, such as by the time and place of utterance. The generic utterance 'Oh, it usually snows heavily during the winter,' for example, is most often understood as restricted to the general area where the utterance is made (though of course other restrictions are possible). Or, the discourse itself might explicitly introduce domain restrictions in one sentence that are understood as carrying through in subsequent discourse. Consider the interpretation of the last sentence in this short discourse:

9. In Latin, /z/ between vowels is pronounced as [r]. But [z] never occurs word-finally.

Clearly, the last statement is understood as restricted to Latin, in light of the previous sentence. I do not even wish to suppose that implicit pragmatic restriction is a unified phenomenon; it could quite easily arise in a number of distinct ways.

Probably of more linguistic interest are those cases of implicit restrictions that arise from the meanings and implicatures associated with expressions that overtly appear in the sentence itself. Conversational Implicatures can, it would appear, give rise to implicit domain restrictions. Consider the following example suggested to me by Rich Thomason.

10. People have a hard time finding CMU (=Carnegie Mellon University).

Let us assume, as seems correct, that the restrictor is merely the subject NP *people*. Now, by far and away, most people have never had, or ever will have, a hard time finding CMU. Or, if we implicitly restrict our attention just to those instances when people are going to CMU, we see that in nearly all those instances people find it with ease (e.g. most trips are by students, faculty, staff, nearby residents, etc.). From this perspective, it leaves one wondering what on earth (10) is a generalization over. However, if we take into account the conversational implicatures associated with the locution 'have a hard time x-ing,' then this appears to be a much more normal type of generalization. Let us take two examples. First, I approach my neighbor Jim, who has never been to CMU and has no intention of ever going there; I ask, 'Did you have a hard time find CMU?' The result is infelicity because it implicates that he at some time was trying to find CMU. This infelicity then rules Jim out of the domain. Next, I approach Bob Carpenter, who used to work at CMU, and knowing this and knowing he went there today I ask him, 'Did you have a hard time finding CMU?'

Again, the result is infelicity, this time because it appears to implicate that I had some reason to believe Bob has managed to forget where CMU is, and Bob is much sharper than that.

Under what circumstances is the locution used felicitously, then? Clearly, in those cases where (a) the person was in fact trying to find CMU, and (b) where the speaker has reason to think that the hearer is not familiar with the area. If one restricts the generalization, then, to just those circumstances, sentence (10) appears to be a much more normal type of generalization. The source of the implicit restriction (if this account is correct) is not the truth-conditional semantics of the utterance, but rather implicatures associated with the utterance in context.

Presuppositions of lexical items may also drive implicit restrictions. Consider the following example, from Schubert and Pelletier 1987:

11. Cats land on their feet.

The lexical semantics of the verb "land" requires that immediately before the landing, the subject is airborne (and traveling in the direction of the ground, perhaps). This restricts the cats under consideration to those that are airborne, and not those sitting on my kitchen counter, etc.

Implicit restrictions may also arise from other semantic sources in the sentence. Consider the following sentence also taken from Schubert and Pelletier 1987, of a type considered in greater detail in von Stechow (1994) and elsewhere.

12. Bullfighters are often injured.

The issue here is the implicit restriction on the range of the adverbial *often*, on the more salient interpretation where it appears to mean that bullfighters are often injured when bullfighting. There is a much more wide-ranging possibility compatible with no bullring injuries, but a lot of motorcycle accidents involving bullfighters. But on the more salient reading, the introduction of the 'when bullfighting' restriction comes from the fact that *bullfighters* is in the sentence, and bullfighting is the fundamental activity one must engage in in order to be a bullfighter. If the sentence instead read, 'Policemen are often injured,' obviously there would be no inclination whatsoever, out of context, to implicitly restrict this to just those cases of policemen engaged in bullfighting, but rather to activities connected to police work instead.

Another case of implicit restriction derived from the meaning of the constituents of proposition expressed is exemplified in (13).

13. Bishops move diagonally.

If one observes all the cases of real-world motion of chess bishops, one would find their movements approximate that of nearly any other chess piece--being carted about in cars, carried in boxes to the park, sent flying to the ground in self-indulgent fits of frustration, etc. However, all such movements of this type would appear to be outside the implicit domain. What this means, of course, is that these chess pieces move diagonally, as 'move,' 'diagonally,' and indeed 'bishop' are defined in chess. Although each of these words has a more general 'real-world' sense, the particular senses taken on here are those derived from

the constitutive rules of chess, so that the only activities that count as within the implicit domain here are those instances of bona fide chess-playing. Thus, a body of constitutive rules (see Searle 1969) defining the senses of terms used in the sentence can be used to form another implicit domain. As with example (12) above, this implicit restriction may or may not take place in a given instance. Imagine, for instance, someone only vaguely familiar with the game of chess is told the following:

14. Bishops are made of wood, metal, ivory, or plastic.

One might not know whether this is a 'real-world' generalization (which at least I think it is), or whether this is implicitly restricted to the game of chess (and as such would take on a definitional air, as it seems to when the explicit domain adverb 'in chess' is added).

So, it seems clear that a number of different sources of implicit domain restrictions on the applicability of generics can be proposed with considerable initial plausibility. However, in the absence of a reasonable understanding of how these restrictions are identified and intergrated with the interpretation of the sentence, we cannot evaluate the hypothesis that the domains can be so narrowly restricted as to result in universality of application as the final result. Put otherwise, the goal of reduction to the universal drives the very plausibility of these explanations. But which (if any) are correct?

The all-too-handy nature of these constraints to the working semanticist must at some point meet with some empirical motivation. One plausible assumption to make is we take Krifka's background set of information B as a part of that set of information that is incremented by utterances in a discourse, in line with Stalnaker 1978, taking B, among other things, also to restrict pronoun reference and the domain of quantification. Thus, B by definition carries over from sentence to sentence in a discourse in the same way as presuppositions may, being a property of discourse and not sentences (this does not mean that it cannot be cancelled, of course).

In sum, what is being proposed is that 'background information' accounts of restrictions on the domain of generics must withstand the test of reference restrictions and domain of quantification restrictions; if one cannot find evidence of such restrictions, then one's theory of genericity cannot posit a putative property (set of circumstances, or whatever) as a restriction on the domain of applicability.

We are not here going to complete the forbidding exercise of evaluating all the conceivable proposals based on these empirical assumptions. However, let us examine a couple of contrasting examples. Consider a sentence such as the following:

15. Pheasants lay speckled eggs.

Here, on one story, we decide we're really only talking about (normal adult) female pheasants engaged in birthing.

Now, consider example (16)

16. Pheasants lay speckled eggs. Once rare, they now number in the millions.

The question is whether they in (16) can be understood as referring exclusively to (birthing) female pheasants or whether it can be understood as only ranging over all pheasants. It appears the latter is correct: they must be understood as referring to the kind pheasants, unrestricted by gender. Or, consider (17)

17. Pheasants lay speckled eggs; every pheasant is illegal to hunt.

The question here is whether every pheasant can be understood as quantifying over females only. On the assumption that males alone are legal prey for hunters (females being off limits), the second sentence in (17) ought to be understood as stating something true. But it does not, because every pheasant seems to have to range overall members of that type, not some restricted portion of them.

This situation should be contrasted with the case of indexical or pragmatic restrictions of the sort illustrated in (8) repeated here:

8. Coffee and muffins are served around 9 AM.

Let us imagine the context is where a hotel clerk is giving a guest information about dining opportunities. The continuations in (19) are all easily interpretable as having reference restricted to coffee and muffins in the context.

19. a. Every muffin comes with a cherry on top. (=muffins served here)
- b. Every cup of coffee is made by a special method. (=cups of coffee served here)
- c. It is generally Colombian coffee.(=coffee served here)
- d. They are baked in our own ovens. (=muffins served here)

If this is correct, and if intuition bears up, it shows that pragmatic restrictions of the sort noted in (8) can be part of B, but that a 'female pheasant' or 'pheasant giving birth' restriction must take place through other mechanisms if it is to take place at all: using B for this purpose cannot be sustained.

It is of course quite possible that there can be a fourth type of restriction added to the three that are motivated, on independent grounds, by Krifka. But until adequate motivation for yet another mechanism is introduced, one must conclude that the strategy of reduction-to-the-universal has yet to prove itself an attainable goal.

## References

- Asher, Nicholas, and Michael Morreau. 1995. What some generic sentences mean. *The generic book*, ed. by Greg Carlson & F. J. Pelletier. 300-338. Chicago: University of Chicago .
- Barwise, Jon, & John Perry. 1983. *Situations and attitudes*. Cambridge: MIT Press.
- Carlson, Greg. 1989. On the semantic composition of English generic sentences. *Properties, types, and meaning, Vol. 2: semantic issues*, ed. by G. Chierchia, B. Partee, & R. Turner. 167-92. Dordrecht: Kluwer.

- von Fintel, Kai. 1994. Restrictions on quantifier domains. Massachusetts Institute of Technology. Ph. D. dissertation in Linguistics.
- Kratzer, Angelika. 1981. On the notional category of modality. *Words, worlds, and contexts.*, ed. by H. Eikmeyer & H. Reiser. Berlin: de Gruyter.
- Krifka, Manfred. 1995. Focus and the interpretation of generic sentences. *The generic book*, ed. by Greg Carlson & F. J. Pelletier. 238-64. Chicago: University of Chicago.
- Krifka, Manfred, F. J. Pelletier, G. Carlson, A. ter Meulen, G. Chierchia, & G. Link. 1995. Genericity: an introduction. *The generic book*, ed. by Greg Carlson & F. J. Pelletier. 1-124. Chicago: University of Chicago.
- Rooth, Mats. 1985. Association with focus. University of Massachusetts/Amherst, Ph. D. dissertation in Linguistics.
- Schubert, Lenhart, and F. J. Pelletier. 1987. Problems in the representation of the logical form of generics, plurals, and mass nouns. *New Directions in semantics*, ed. by E. LePore. 385-451. London: Academic Press.
- Searle, John. 1969. *Speech acts*. Cambridge: Cambridge University Press.
- Stalnaker, Robert. 1978. Assertion. *Syntax and semantics, Vo. 9: pragmatics*, ed. by Peter Cole. 315-332. New York: Academic Press.