

Philosophical Speculation and Cognitive Science

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Lycan's book *Logical Form in Natural Language* raises important general issues, issues that transcend the specific issues discussed in the book, which are now in many cases 20 years out of date. For me, the most important issue is the proper relationship between philosophy and cognitive science. How does a priori philosophical speculation about language and mind affect research in cognitive science? And should results from cognitive science change the way philosophers go about their business?

Discussing Lycan's book is a useful a way of addressing such questions. I will spend most of this discussion on the book itself, and return to the general issues at the end of the paper.

Let me say at the outset that there is a major thing I like and admire about Lycan's book: Lycan has actually read a lot of the relevant linguistics and thought about it carefully. It is something one cannot say about many other philosophers who write about language. The critical comments I have about Lycan's book are made from the standpoint of a sincere appreciation for the author's efforts.

There are a myriad of small problems with Lycan's book, but they are arise from one major one: Lycan simply never addresses the concerns of the papers by the linguists that he is criticizing. Let me explain. I and other linguists within the generative semantics tradition (which Lycan mostly discusses) have abided by a criterion of adequacy that we take as essential to the study of linguistics as a scientific endeavor, namely:

The Generalization Criterion: linguistics is primarily concerned with the statement of general principles governing linguistic elements and structures at all levels.

The Generalization Criterion comes with characterizations of syntax, semantics, and pragmatics.

—Syntax concerns the statement of general principles governing the occurrence of grammatical morphemes (like *-ing*), grammatical categories (like preposition), and grammatical constructions (like the imperative construction).

—Semantics concerns generalizations governing semantic elements and struc-

tures (e.g. the meaning of lexical items, grammatical morphemes, and grammatical constructions), as well as generalizations over inferential relations.

—Pragmatics concerns generalizations governing speech acts, presuppositions, conversational implicatures and other forms of indirectly conveyed meaning, connected discourse, social relations and interactions among speakers, and other aspects of language use in context.

In this way, the Generalization Criterion gives phenomena-based characterizations of syntax, semantics, and pragmatics. As such, the Generalization Criterion makes no a priori theoretical claims as to the nature of such principles. It hence makes no a priori claims about whether syntax is independent of semantics, whether semantics is independent of pragmatics, whether syntax is independent of pragmatics, and so on.

The Generalization Criterion does two things. As a phenomenological criterion, it spells out the phenomena one is concerned with (e.g. the occurrence of grammatical morphemes and constructions) and it commits one to looking for generalizations in such phenomenological areas. To abide by the Generalization Criterion is to accept the commitment of being engaged in linguistics as an empirical scientific enterprise. This is no different than when a physicist accepts the primary commitment of stating general laws governing such physical notions as matter, energy, force, and so on.

When linguists accept the Generalization Criterion as primary, they necessarily make other commitments secondary, among them, philosophical and mathematical commitments. Here are other examples of secondary commitments that one might make:

—The Chomskyan Commitment. The commitment to try to understand syntax as a branch of recursive function theory, that is, as the study of the algorithmic manipulation of abstract symbols without regard to their interpretation, outside of real time, and not taking general cognitive mechanisms into account.

—The Objectivist Commitment. The commitment to the view that reality is made up, objectively, of determinate entities with properties and relations holding among those entities at each instant. This is a commitment to a view that reality comes with a preferred description, and it is a commitment as to what reality is like.

—The Fregean Commitment. The commitment to understand meaning in terms of reference and truth, given the objectivist commitment. Semantics is taken as consisting in the relationship between symbols and the objectivist world, independent of the minds of any beings. An example would be to define meaning in terms of Tarski's truth convention *T*, which in turn defines the truth of logical forms in terms of what their elements refer to in a set-theoretical model of the world. This is Lycan's approach.

The Fregean commitment entails not taking psychological considerations into account in characterizing semantics. In other words, semantics is autonomous relative to psychology. The Fregean commitment does not entail the converse; that is, it allows for the possibility that semantics might happen additionally to have

psychological reality. Indeed, Lycan considers this possibility toward the end of his book.

The Fregean commitment also places constraints on the relationship between syntax, semantics, and pragmatics. Syntax is seen as providing well-formedness conditions on the strings of symbols. Semantics is seen as taking well-formed strings of symbols, which have no meaning in themselves, and 'giving them meaning' by associating them with things in the world (actually, set-theoretical models of the world as construed by the objectivist commitment). Syntax is thus taken as independent of semantics, and semantics as dependent on syntax. In this way, the Fregean commitment is highly compatible with the Chomskyan commitment. In addition, the Fregean commitment takes semantics as independent of pragmatics. This is, semantics (the relationship between symbols and things in the world) is defined so as not to take into account how those symbols and their interpretations might be used by a human being. Since the Fregean commitment requires that syntax be independent of semantics and that semantics be independent of pragmatics, it further requires that syntax be independent of pragmatics. It is important to bear in mind that these are all entailments that arise from accepting an a priori philosophical commitment. They are not empirical results.

When the Generalization Criterion takes precedence over all other commitments, one looks for linguistic generalizations and lets the chips fall where they may. If the empirical generalizations contradict other commitments, you stick by the generalizations and give up the other commitments. That's what it means to be committed to linguistics as empirical science, not philosophical speculation.

One may of course choose to put a philosophical commitment ahead of the generalization criterion. If one does, one is engaging in a program of philosophical speculation, what Chomsky has called 'speculative grammar', or what philosophers have referred to as a 'philosophical project'. This appears to be what Lycan is doing in this book, placing a commitment to logical form, characterized in terms of the Fregean commitment, above a commitment to the Generalization Criterion.

Originally, in proposing generative semantics in 1963, I accepted the Generalization Criterion, and accepted all of the above three secondary commitments as well. Applying these commitments in analyzing a certain range of data led to the following conclusions.

(I) Aspects of the traditional philosophical notion of logical form can be justified for natural language on empirical grounds.

The aspects of logical form for which empirical evidence was provided included: scope of logical operators, the notion of predicate-argument structure, the use of variables for indicating coreference, the binding of variables, the idea of propositional functions.

(II) All these aspects of logical form must be represented in the grammar of a language.

These ideas were new to generative linguistics in 1963, and was seen as highly

controversial. These conclusions were strongly rejected at the time by Noam Chomsky, Jerry Katz, and Jerry Fodor. These scholars, as well as the overwhelming majority of syntactic theorists, have since then accepted some version or other of these conclusions.

My 1963 proposal for achieving (I) and (II) was to have the underlying structure of a sentence in a transformational grammar be its logical form. This was possible because, technically, logical forms are purely syntactic objects. But since logical forms came with standard model-theoretic interpretations, we were essentially sneaking the standard interpretation of the symbols in a logical form into the grammar without any discussion. While assuming we were accepting the Chomskyan Commitment, we were breaking with it in an important sense by implicitly allowing rules of grammar to take the interpretation of symbols into account. We naively thought that this did not matter and saw ourselves as clinging to the Chomskyan commitment.

Generative semantics assumed that the Generalization Criterion was consistent with the secondary Chomskyan, Objectivist, and Fregean commitments. As an empirical enterprise, generative semantics studied hundreds of linguistic phenomena. What happened over and over was that we discovered that the Generalization Criterion was empirically inconsistent with all of those secondary commitments.

—The Generalization Criterion is inconsistent with the Chomskyan Commitment, since there are a great many generalizations governing the distribution of grammatical morphemes, categories and constructions that can only be stated in fully general terms using semantic and pragmatic information.

—The Generalization Criterion is inconsistent with the Fregean Commitment since there are linguistic generalizations that require the unification of semantics and pragmatics, as well as a non-truth-conditional semantics.

The generative semantics literature abounds with examples. The typical article on generative semantics assumes the Generalization Criterion without mentioning it (it did not have to be mentioned since it was part of what defined the discipline) and argued to some conclusion on the basis of generalizations over that data. The generative semantics literature is about linguistic generalizations and their consequences.

One would not know this from reading Lycan's account of this literature. Lycan is a philosopher. Philosophers on the whole do not accept the Generalization Criterion as primary. That is, they are not primarily concerned with empirically established general principles governing such linguistic phenomena as grammatical morphemes and constructions. Their primary concern with language is not as empirical scientists trying to discover general principles at all levels of linguistic structure. Instead, philosophers on the whole have certain a priori commitments that take precedence over the Generalization Criterion. It is common for Anglo-American philosophers to accept the Objectivist and Fregean commitments a priori, and to give them precedence over the Generalization Criterion. Indeed, they rarely discuss empirically-based linguistic generalizations at all. A philosopher would

hardly take it as an accusation that he was engaged in philosophical speculation; that, after all, is his profession.

Lycan, as a philosopher, is in this tradition. He begins his book with a priori commitments to what syntax, semantics, and pragmatics are (pages 3 and 4), rather than with a commitment to the Generalization Criterion and a phenomenologically based characterization of the field. He then proceeds to read the generative semantics literature out of context. Much of his book is addressed to papers of mine, yet I do not recognize my work or the work of my colleagues in his descriptions because our primary concerns in those papers—the linguistic generalizations—are not even described.

Perhaps the most outrageous form of this comes when he incorrectly attributes to me what he calls “The Argument from Generative Semantics”, which in effect claims that I take the correctness of generative semantics as premise and argue from that to a conclusion that some generative semantics analysis is correct. What Lycan leaves out of the story is all of the arguments in paper after paper that are based on empirical generalizations found in a very large range of data.

When Lycan discusses papers on generative semantics, he typically takes an analysis which was proposed to account for certain linguistic generalizations, fails to mention the generalizations, assumes that the analysis comes out of thin air, and then argues (often correctly) that on his assumptions (taking the Chomskyan, Objectivist, and Fregean commitments as primary), that our analysis must be incorrect. You will not find Lycan arguing that the linguistic generalizations that we have found can be accounted for by his alternative proposals. The linguistic generalizations are simply not discussed.

Thus, Lycan and I can be seen to be in agreement: the Generalization Criterion is inconsistent with the Chomskyan and Fregean commitments. What one believes about language is thus a function of what one's primary commitments are. I have a primary commitment to the Generalization Criterion; on the basis of empirical study, I have therefore given up the Chomskyan and Fregean commitments. Lycan seems to accept the Chomskyan and Fregean commitments *a priori*, rather than the Generalization Criterion. It is no surprise that we reach different conclusions about the nature of language.

I will go on to give examples from Lycan's book shortly, but before I do, I should mention the issue of cognition. From the beginning of my work, I have implicitly adopted another criterion:

The Cognitive Criterion: one's analysis of natural language should be consistent with what is known about the mind and the brain generally.

For example, take categorization, which enters into every aspect of language. Empirical results from cognitive psychology and cognitive anthropology, as well as linguistics, have shown that human categories are structured very differently from classical categories. If one accepts the Cognitive Criterion, then one changes one's theory of language to fit those results about categorization. This is just what I did in my recent book, *Women, Fire and Dangerous Things* (Lakoff, 1987). For me, the Cognitive Criterion, like the Generalization Criterion, is primary and other commit-

ments are secondary. On the other hand, if one takes the Chomskyan or Fregean Criteria as primary, then no results from cognitive psychology or anthropology can make you give up the Chomskyan or Fregean paradigms.

As a cognitive linguist, I accept the Generalization and Cognitive Criteria as primary; Lycan, as a philosopher, has other primary commitments that are, given the empirical data, inconsistent with these two criteria. In short, Lycan and I have a fundamental difference in values, from which many other differences flow. The way I see it, accepting the Generalization and Cognitive Criteria as primary is committing oneself to the study of language and mind as empirical scientific enterprises; while accepting the Chomskyan, Objectivist, and Fregean Commitments as primary is committing oneself to an a priori philosophical enterprise. I see myself as doing the former and Lycan as doing the latter, and I happen to value the former over the latter.

Incidentally, not all linguists share my values. There are many linguists who do not accept the Cognitive Criterion as primary. Distinguished linguists as different from each other as Paul Postal and Barbara Partee both reject that criterion, and see linguistics as a purely formal, abstract mathematical enterprise, not constrained by human cognition. So far as I have been able to tell, Noam Chomsky and many of his followers accept the Chomskyan Commitment as primary and do not accept either the Generalization or Cognitive Criteria as primary. Thus, the difference in commitments between Lycan and myself is not just a difference between two professions. There are distinguished linguists who share Lycan's commitments. Thus, I am by no means claiming that my values are right and Lycan's are wrong (though I greatly prefer mine to his). I am rather trying to set the record straight, to reveal the source of our differences, and to show why equally rational human beings can reach opposite conclusions.

One more thing should be noted before we get on to some details. By 1975, it had become clear to me that there were literally hundreds of linguistic phenomena that required one to choose between the Generalization and Cognitive Criteria on the one hand and the Chomskyan, Objectivist, and Fregean Commitments on the other. I chose the former, which meant giving up on the theoretical framework in which generative semantics had been formulated: generative grammar and model theory. In its place, I and other cognitive linguists (such as Ron Langacker, Gilles Fauconnier, Eve Sweetser, and Charles Fillmore) have developed alternative, cognitively-based frameworks. By the time Lycan's book appeared in 1984, I had long abandoned the analyses he criticized in the book, and I and others had, for the most part, replaced them with analyses within a cognitive linguistics framework. For this reason, I am not going to defend the old generative semantics analyses that Lycan has criticized, though I feel that Lycan's criticisms are irrelevant to them all, since he does not address the primary issue of linguistic generalizations. Instead, I will say a bit about the generalization issue for a number of cases and describe in general terms where things stand now within cognitive linguistics. Lycan, incidentally, has to my knowledge said nothing about the more recent work, reference to which can be found in the bibliographies of *Women, Fire and Dangerous Things* and Langacker's (1987) *Foundations of Cognitive Grammar*.

Let us begin with the work Lycan is best known for, his Chapter 6 called 'The Performadox'. In that chapter, he discusses what he calls 'The Performative Analysis', which he attributes to me. Actually, there have been three very different performative analyses, only one of which I am responsible for. But the account Lycan gives is none of those. Indeed, I don't know anyone who has proposed what Lycan describes as 'The Performative Analysis'. Because of this I will refer to it as 'Lycan's Performative Analysis'. As we shall see, the paradox that Lycan refers to as 'The Performadox' applies only to Lycan's own Performative Analysis, not to the real ones that have been proposed.

To get the history straight, the original performative analysis was not due to me at all, but to Paul Postal, who inserted a celebrated footnote in his 1964 book with Jerry Katz called *An Integrated Theory of Linguistic Descriptions*. As I understand it, it was at Katz's insistence that they analyzed the deep structures of imperatives and questions as containing unanalyzed illocutionary force operators IMP and Q. These did not appear in the deep structures of performative sentences with declarative form (like *I order you to leave*) and the deep structures of descriptions of performatives (*I ordered you to leave*). This is very much like what Lycan himself winds up suggesting in his book.

Postal observed in that footnote that the analysis with IMP's and Q's was inadequate because it missed two generalizations: (1) the class of predicates that can occur in imperative sentences is the same as the class of predicates that can occur in the complements of verbs of ordering; (2) in English, both imperative sentences and the complements of unmarked verbs of ordering are subjectless and non-finite.

Postal observed that both generalizations would be stated naturally if the deep structure of imperative sentences contained not an arbitrary marker IMP, but rather a verb of ordering, complete with subject (the speaker), indirect object (the addressee), and tense, with the propositional content represented as the embedded complement clause. Then the constraints on which predicates can occur in verbs of ordering would be generalized to imperative sentences, the normal equi rule would account for the lack of subjects in both cases, and the normal complementizer rule for unmarked members of that class would account for nonfiniteness.

Three years later, in her dissertation on Latin syntax, Robin Tolmach Lakoff offered the second argument for a performative analysis. Latin has two negative morphemes, *nōn* and *nē*. *Nē* has what appears initially to be a skewed distribution. In embedded clauses, it occurs only in subjunctive object complements. Thus, *Vōlo nē venias* 'I want you not to come' and *Impero nē venias* 'I order you not to come', but in subject complements, only *non* is possible, as in *Potest fieri nōn venias* 'It is possible that you won't come', but never **Potest fieri ne venias*. In main clauses, *nē* occurs only in certain special cases, the main clause subjunctives, and when *nē* does occur in such cases, the meaning of the main clause subjunctives is restricted. Thus, *Nē venias*, can be either an imperative ('Don't come') or an expression of desire ('May you not come'), but if the main clause subjunctive is to be used for an expression of possibility, then one must say *Nōn venias* ('You might not come').

Tolmach Lakoff observed that if the deep structures of main clause subjunctives contained abstract verbs expressing the appropriate meaning, then one can

state a general principle governing all occurrences of *ne*, as well as accounting for the meaning restrictions on main clause subjunctives:

Ne expresses the negative in deep structure subjunctive object complements.

Ne occurs in main clause subjunctives with imperative and volitional meaning for the same reason that it can occur in the subjunctive object complements of verbs like *impero* and *volo*. *Ne* cannot have a possibility reading in main clause subjunctives because a predicate meaning 'possible' (like *potest fieri*) has only a subject and not an object complement. This amounts, in the case of imperative readings of main clause subjunctives, to a performative analysis.

Before we go on to discuss other cases, it is important to understand the logic of these analyses. Both Postal and Tolmach Lakoff, at the time, accepted both the Generalization Criterion (with its phenomena-based characterization of syntax) and the Chomskyan Commitment (with its algorithmic symbol-manipulation characterization of syntax). That is, it was assumed that transformational grammar was the correct theory in which to state generalizations governing the occurrence of syntactic phenomena, for example, generalizations governing the occurrence of grammatical morphemes (like *ne* in Latin) or grammatical constructions (like the English imperative). The Generalization Criterion and the Chomskyan Commitment were taken as jointly entailing that any general principle governing the occurrence of syntactic elements had to be stated by a rule of generative grammar, that is, an algorithmic rule manipulating symbols. If the generalization was to be stated, then the Chomskyan Commitment entailed that it be stated ENTIRELY by a rule of formal syntax—and if that meant building a representation of speech act force into the grammar, then so be it.

Those of us who have maintained the Generalization Criterion but abandoned the Chomskyan Commitment would, of course, no longer reach such a conclusion. But those were the commitments of generative semanticists in the mid-1960s and those commitments led us to such syntactic performative analyses. Of course, those who did not take the Generalization Criterion as primary would have found our arguments quite absurd, as they should have. Without the Generalization Criterion as a premise, the argument does not go through. It is not surprising that a philosopher like Lycan did not discern the real structure of the argument form we most commonly employed.

Generative semantics papers of that era commonly contained arguments of the following form, which I will refer to as:

The Basic Generative Semantics Argument

—Assume (without mention) both the Generalization Criterion and the Chomskyan Commitment.

—Consider a syntactic element, say, a grammatical morpheme or a syntactic construction and study in detail where it can and cannot occur.

—Show that one or more generalizations governing the occurrence of that syntactic element involves some aspect of semantics and/or pragmatics.

—Recall that the Generalization Criterion and the Chomskyan Commitment jointly entail that general principles governing the occurrence of syntactic elements be stated entirely with rules of formal syntax.

—Conclude, on the basis of (1) the Generalization Criterion, (2) the Chomskyan Commitment, and (3) the linguistic evidence, that the given aspect of semantics and/or pragmatics must be represented in formal syntax within an adequate grammar of English.

—Since that aspect of semantics and/or pragmatics does not occur overtly in the surface structure, it must occur elsewhere in a derivation. Assume (following Chomsky (1965) in *Aspects of the Theory of Syntax*) that it occurs in the underlying structure.

—Propose a way of representing that aspect of semantics and pragmatics within formal syntax so that the general principle can be stated as a rule of formal syntax.

—Suggest that, in the absence of another equally adequate or better analysis that characterizes the given generalization, one should accept the analysis given.

—Conclude that the given aspect of semantics and/or pragmatics is to be represented in formal syntax in the fashion suggested.

This argument form was, of course, not just conjured up out of thin air. It was constructed in response to the adoption of the Chomskyan commitment by a group of young linguists who started noticing the myriad ways in which generalizations governing grammatical morphemes and constructions involve aspects of semantics and pragmatics. It was this argument form that, given certain data, led us initially to the conclusion that deep structures were logical forms of the fairly traditional sort that Lycan likes. And it was the same argument form, applied to a wide range of additional data, that led us to conclusions that Lycan does not like.

Having made clear the argument form involved, let us now return to the history of performative analyses. The next major development was Haj Ross' celebrated paper 'On Declarative Sentences', where Ross extended performative analyses to declarative sentences. What he did was apply The Basic Generative Semantics Argument to a very impressive array of syntactic phenomena. As a linguist writing for peers who were assumed to share his assumptions, Ross did not make all of his reasoning explicit. What I will do is reconstruct his reasoning as I now understand it. Each of Ross' arguments, applied to a given syntactic phenomenon, led to the following conclusions about that phenomenon:

(1) For the phenomenon under discussion, there is a single general rule of grammar that treats descriptions of speech acts in the same way as performances of speech acts.

(2) To state this general rule within a generative grammar, it is necessary to represent descriptions of speech acts as having the same structure as performances of speech acts. Such a representation must be neutral between performed and described speech acts, and must have the properties common to both.

Conclusion (1) follows from an application of the Generalization Criterion to the data. The occurrence of Latin *ne* is an example of such a phenomenon. Thus, *ne* occurs in the description of an order like *Impero ne venias* or in the performance of an order, like *Ne venias!*. Conclusion 2 follows from Conclusion (1) plus the Chomskyan Commitment.

Putting together such conclusions on the basis of more than a dozen analyses of cases of declarative speech acts, both performed and described, Ross proposed the following syntactic performative analysis.

The deep structures of sentences of the sort investigated, which can be used both to make and describe statements, contain a verb of stating, with the speaker as subject, the addressee as indirect object, the content of the proposition as direct object, and the present tense.

The analysis was based on conclusions (1) and (2), plus the application of the Basic Generative Semantics Argument Form to more than a dozen phenomena. In each argument, the analysis was needed in order to state a generalization governing the occurrence of some syntactic element. Let us consider two examples. The first concerns a construction of English in which the object of the passive *by*-phrase contains a noun phrase conjunction with a reflexive conjunct:

—The book was written by John and myself.

This is an unusual reflexive, in that it does not have an antecedent in the sentence. Typical reflexives require antecedents in the same clause. In addition, the reflexive in such main clauses can be first or second person, but not third person.

—The book was written by John and yourself.

—*The book was written by John and herself.

Third person reflexives can, however, occur in this construction, but only in clauses that are embedded as objects of verbs of saying or thinking, where the subject or indirect object of the verb is coreferential with the reflexive pronoun.

—Sarah told me that the book was written by John and herself.

—*You told me that the book was written by John and herself.

Ross observed a generalization governing the behavior of this construction in main and subordinate clauses could be stated given the performative analysis cited above. The general principle is the one that works for subordinate clauses: The reflexive pronoun in this construction must be coreferential to either the subject or indirect object of a verb of saying or thinking that commands it. Given this condition for subordinate clauses, Ross' performative analysis for declaratives explains why the construction must have either a first or second person in a main clause. The reason is that the only verb of saying or thinking that commands a main clause is a performative, whose subject is first person and whose indirect object is second person, and these are the only noun phrases that the reflexive pronoun could be coreferential to.

A second case involves adverbs like *frankly* which can either function as manner adverbs in

—I told him *frankly* that I didn't like his book.

or as sentence adverbs in

—Frankly, I don't like your book.

Ross observed that under the performative analysis, these two uses of *frankly* become the same use: the sentence adverb is a manner adverb modifying the performative verb. The generalization is (1) in the lexicon (there is only one *frankly*, not two); in the grammar (this class of sentence adverbs is eliminated by being reduced to manner adverbs), and in the semantics (the type of modification needed for sentence adverbs is reduced to the type needed for manner adverbs).

Ross' arguments, with those given in Jerry Sadock's dissertation (1974), provided impressive evidence for his performative analysis for such declarative sentences. Indeed, constructing such arguments based on syntactic generalizations soon became a cottage industry. From reading Lycan's book, one would not guess at the degree of empirical support that such analyses had, since he does not discuss the syntactic generalizations at all. Indeed, Lycan does not even discuss the work of Ross, Tolmach Lakoff, and Postal.

Ross' analysis was not limited to the version I cited above. He made other claims as well.

—Every declarative sentence has such a performative clause in deep structure.

—The performative clause is the highest clause in the deep structure of the sentence.

—The representation of speech act force is given by this purely syntactic analysis.

I argued with Ross not to make the latter claims. I disagreed strongly with such a purely syntactic analysis, for reasons that will become clear below. But Ross insisted on sticking to The Basic Generative Semantics Argument, with a strong Chomskyan Commitment. By that time (1968), my own Chomskyan commitment had weakened considerably.

By 1968, it had become clear to me that logical forms, which were syntactic objects, simply could not always provide representations of meaning that permitted the statement of syntactic generalizations. Even that early, examples had been discovered that indicated that properties of the models that satisfied logical forms, rather than the forms themselves, were sometimes needed to account for some generalizations. The first such example was brought to my attention by Jim McCawley:

—I dreamt that I was Brigitte Bardot and that I kissed me.

—*I dreamt that I was Brigitte Bardot and that I kissed myself.

I kissed me, by itself, is not a well-formed sentence of English, both because of real-world knowledge about kissing and because of grammar, which requires that a direct

object pronoun coreferential with the subject be reflexive. What was needed to comprehend such a sentence, I reasoned, was something akin to Kripke's possible world semantics, perhaps a version like David Lewis' counterpart theory.

In my paper, 'Counterparts' (Lakoff, 1968), I suggested that what was needed was two possible worlds, the real world and the world of the dream. McCawley and Bardot appeared in both worlds. In addition, there were counterparts of both mind and body. The dream-Bardot's mind was the counterpart of the real McCawley's mind, while the dream-McCawley's body was the counterpart of the real McCawley's body. In the dream world, Bardot kisses McCawley, a bodily action. There is no coreference between the subject and object of *kiss* and so no reflexive pronoun occurs. But the rule of person-agreement applies not only to coreferents but to counterparts. Since both the subject and object of *kiss* are counterparts (though different kinds) of the speaker of the sentence (McCawley), both are first person. Hence, *I kissed me* occurs in this context, when it would never occur normally.

The analysis makes reference not just to logical forms of a traditional sort, but to possible worlds and counterpart relations across possible worlds. The possible worlds are in the models, not in the logical forms. Hence, it appears that to represent the kinds of semantic information needed for person agreement and reflexivization in such sentences, one has to go beyond logical form and look at models. This entailed giving up a strict version of the Chomskyan Commitment to state general principles governing the occurrence of grammatical morphemes in terms of formal syntax alone.

Knowing this, I proposed an alternative performative analysis, a semantic one, some years later, at the 1972 University of Cambridge *Conference on Formal Semantics* (see Lakoff, 1975). Lycan refers to this paper in his bibliography. My proposal shared enough with Ross's purely syntactic performative analysis to enable me to use it to state the generalizations of the data that he had discovered. But it also differed in crucial ways.

Ross had not used logical forms and their interpretations in giving his analysis. I did. In addition, my analysis did not include any of Ross' assumptions that I had objected to. In particular,

—I did not claim that *every* declarative sentence has such a performative clause in deep structure;

—I did not claim that the performative clause is the highest clause in the deep structure of the sentence;

—I did not claim that specific individuals were to be mentioned as speaker and hearer;

—I did not claim the representation of speech act force is given by this purely syntactic analysis;

—and I was especially careful to set up the analysis so that it did not embody the claim that performatives had truth conditions.

Lycan attributes to me the only 'Performative Analysis' he mentions, and he falsely asserts that I make all the above claims that I carefully set up the analysis to avoid making.

What I did in that analysis was to characterize speech act predicates in logical form as having at least three arguments: a speaker, a hearer, and a propositional content. This structure was a characterization of the deep structure syntax of speech act force, both used and described, whether expressed in a special speech act construction or by the use of a verb. For example, consider sentences like:

- (A) I ordered you to leave.
- (B) I order you to leave.

These both involve directive speech acts; in (A) the speech act is described, while in (B) it is performed. Suppose we use the predicate ORDER as a characterization of directive speech act force, whether described or performed. Under the analysis I proposed, ORDER will occur in the deep structure of (A) and (B), where it will represent the predicate corresponding the English verb *order*. The logical forms of (A) and (B) will also contain arguments for ORDER, say x for the speaker, y for the hearer, and FUTURE(LEAVE(y)) for the propositional content. In (A), ORDER will be past tense, while in (B) it will be present tense.

At the heart of my analysis was a distinction between truth and satisfaction in a model. Truth is a special case of satisfaction in a model. The issue of truth only arises for an object of cognition. Thus, if there is a proposition that is, say, believed or claimed, the issue of its 'truth' arises. Acts, on the other hand, when not considered as objects of cognition, just happen. Performed speech acts are acts that happen. Described speech acts are acts taken as objects of cognition. But both are acts of a particular type, and are characterized by the same kind of structure which is neutral between an occurring act and a described act. Thus,

ORDER($x, y, (\text{FUTURE}(\text{LEAVE}(y)))$)

is a syntactic characterization in predicate-argument terms that is neutral between an occurrence and a description.

On my proposal, the difference between occurrences of speech acts and descriptions of speech acts comes in the model-theoretic interpretation. Suppose we have a possible world semantics, with one world designated as the actual world. Suppose

ORDER($x, y, (\text{FUTURE}(\text{LEAVE}(y)))$)

is satisfied, that is, given value '1', in the actual world at the present time. Under my proposal, this means that a directive speech act is being performed at present, with the referent of ' x ' as the speaker, the referent of ' y ' as the addressee, and 'FUTURE(LEAVE(y))' as the propositional content of the speech act, in this case the condition that must be satisfied for the directive to be obeyed.

Such a description is necessary for any adequate model-theoretical characterization of the act performed by uttering

- (B) I order you to leave.

Setting up

ORDER($x, y, (\text{FUTURE}(\text{LEAVE}(y)))$)

as the logical form of (B) thus makes very good sense, if one is to represent acts using model-theoretical apparatus, as I proposed doing. Such a practice is now commonplace in research on the logic of actions and speech acts.

Now compare

(B) I order you to leave.

and

(C) Leave.

By uttering (C), a speaker performs the same directive speech act that he would perform by uttering (B), if we give (C) the same logical form as (B), then the same principles of model-theoretic interpretation used in (C) can be used in (B). If such logical forms are also syntactic deep structures, then linguistic generalizations that ignore the distinction between performed and described speech acts can be stated in generative grammars. Such a performative analysis thus permits semantic generalizations, and permits generalizations governing the occurrence of grammatical morphemes and constructions to be stated in a generative grammar.

Now let us turn to sentences like:

(D) I state to you that I ordered you to leave.

and

(A) I ordered you to leave.

On my proposal, (D) would have the logical structure of

(E) STATE(x,y ,(PAST(ORDER(ORDER(x,y ,(LEAVE(y)))))))

Under my proposal, a model-theoretical interpretation of this logical form in the actual world at the present time would assign this logical form the value '1' just in case a speaker (the referent of 'x') is performing an act of stating to an addressee (the referent of 'y'), and the propositional content of the statement is

PAST(ORDER(x,y ,(FUTURE(LEAVE(y))))).

What my proposal says is that such an act of stating *occurs*. The propositional content of that act of stating is, however, a cognitive object, and as such the issue of truth arises for it. The propositional content of the speech act of stating is thus true just in case there is a past state of the world in which

(ORDER(x,y ,(FUTURE(LEAVE(y))))

gets value '1': that is, just in case that speech act of ordering occurred in the past.

If we assign (A) the same logical form as (D), my proposal will make the same claims about it, namely, if its logical form (E) is satisfied (that is, gets value '1') in the actual world at present, then a speech act is occurring in which the speaker is making a statement with the propositional content that in the past he ordered the addressee to leave. If no such order was made, the content of the statement is false. Moreover, if the logical form (E) receives the value '0' in the actual world at the present time, then no such act of stating is occurring. In this case, nothing is said about whether the propositional content of (E) is true or false.

At the heart of my proposal was the notion of satisfaction in a model, which can characterize occurrences as well as truth. Issues of 'truth' arise only for objects of speech and thought. This distinction is discussed at great length in (Lakoff, 1975), but one would never guess it from reading Lycan's account of my proposal. He simply never mentions the analysis I propose, and acts as if all logical forms are to be given truth conditions, as opposed to mere satisfaction conditions. In distinguishing between satisfaction and truth in this way, I had, of course, changed the notion of logical form that most philosophers were brought up with, but I had done so in a way that was both consistent with the technical apparatus of model-theoretical semantics and with our intuitions both about truth and about the occurrence of speech acts.

A fine point: Lycan claims that a performative analysis of declarative sentences would make false claims about referential opacity. This is simply not true of the analysis I propose and the analysis common among linguists by 1975, namely, that the transparent readings represent speakers' descriptions. Thus in both,

—Oedipus wanted to marry his mother.

and in

—I state that Oedipus wanted to marry his mother.

'his mother' on the transparent reading is the speaker's description and the content of that description is satisfied in the same world in which the speech act occurs and is consistent with the knowledge of the speaker that Oedipus' mother is Jocasta. The content of that description on the transparent reading is satisfied in the possible world consistent with Oedipus' beliefs, where Oedipus' mother is not Jocasta. All this is done in terms of the models, not the logical forms, which are merely syntactic objects.

Where I assumed a model-theoretic account of referential opacity, Lycan seems to be assuming a purely syntactic account in which adding another predicate of speaking would permit another place for quantifier scope and hence an additional reading. The best recent account of referential opacity I know of is in Gilles Fauconnier's (1985) book *Mental Spaces*, and I refer the reader to that book. It is the best overview I know of that tells why referential opacity cannot be handled syntactically and must be done in terms of models—and mental models at that. In short, my old performative analysis is consistent with an analysis of referential opacity of the sort characterized by Fauconnier.

I gave up my model-theoretic account of performatives by 1975, but not because there was anything about the performative analysis *per se* that required it to be abandoned. I gave it up because it had become clear that model theory and transformational grammar both had to be abandoned, and the analysis happened to be framed in terms of both of them. In 1974, I had discovered the phenomenon of syntactic amalgams (Lakoff, 1974)—sentences which could not have a single underlying structure. An example is:

—John invited you'll never guess how many people to you can imagine what kind of a party for God knows what reason.

The embedded fragments *you'll never guess how many people, you can imagine what kind of a party and God knows what reason* each take the matrix clause *John invited X number of people to Y kind of a party for z reason* as part of its deep structure. There is no single deep structure that meets such constraints, and no possible transformation to derive such a sentence. This entailed that deep structures and syntactic derivations were not generally applicable concepts in grammar. As such, syntactic amalgams constituted true counterexamples to the most fundamental assumptions of transformational analysis. For this reason, I abandoned deep structures and derivations.

In 1975, Rosch discovered basic-level categorization (see Rosch, 1977, 1978; Lakoff, 1987, ch. 2) and Fillmore showed the necessity for non-truth-conditional frame semantics (see Fillmore, 1982, 1985). These results entailed the empirical inadequacy of model-theoretical semantics, and so I abandoned it too (see Lakoff, 1987).

What has replaced generative syntax and truth-conditional semantics are cognitive grammar and cognitive semantics (see Lakoff, 1987; Fauconnier, 1985; Langacker, 1987; Sweetser, 1990). My old model-theoretic performative analysis should be translatable into such terms in a fairly straightforward way. No one has done so so far, because no new linguistics would be involved. Fitting an old analysis to a new theory is not all that exciting, especially at a time when lots of really new empirical work is being done in the cognitive linguistics framework. But if one were so inclined, here is how one would go about translating from the old theory to the new:

- replace logical forms by Idealized Cognitive Models;
- replace possible worlds by mental spaces,
- replace transformational rules by grammatical constructions.

What you should get (hopefully) is a cognitive version of the performative analysis, with pretty much the same empirical linguistic claims made as in the case of the model-theoretic performative analysis—though very different psychological and philosophical claims.

The problems with Lycan's discussion of the performative analysis arise repeatedly throughout his book, and it would take a book bigger than his to correct them. I will confine myself to one last case where Lycan does the sort of thing he did with the performative analysis.

Lycan's discussion of indirect force in chapter 7 is mainly a reaction to a short paper David Gordon and I wrote in 1971 called 'Conversational Postulates' (see Gordon and Lakoff, 1975). The paper was an attempt to deal with a range of syntactic problems. Lycan's chapter is three times the length of our paper, but he never even describes the syntactic problems that motivated our analysis. Let us consider such a problem: negative polarity items, which in English are grammatical morphemes like *any* and *ever*, superlatives marking a virtual endpoint on a scale (like *the least thing*), verb phrases with indefinite objects designating a smallest quantity (like *drink a drop*), as well as special expressions like *a damned thing*, *a red cent* and many others. In French, the subjunctive mood can function as a negative

polarity item, and in Russian the genitive case can. Since what is at issue is the distribution of grammatical morphemes and constructions, negative polarity falls phenomenologically in the domain of syntax for those who take the Generalization Criterion seriously.

Negative polarity items cannot occur in simple positive sentences:

- *I did anything this morning.
- *I have ever been in New York.
- *Bill did the least thing to help me.

These do, however, occur in negative sentences, as well as in various other constructions.

- I didn't do anything this morning.
- I haven't ever been in New York.
- Bill didn't do the least thing to help me.

These sentences are negative syntactically (since they contain an overt negative morpheme—*n't*). They are also negative semantically, in that they would have negatives in their logical forms. They are also negative pragmatically, in that they conversationally convey negative propositions.

This correspondence of negation across the syntactic, semantic and pragmatic dimensions raises an interesting issue: Is it the syntactic negative that is triggering the polarity? Or is it the semantic or pragmatic negative? The Chomskyan Commitment originally led to the assumption that it had to be the syntactic negative.

One thing that spurred the study of indirect speech acts was the discovery of a construction where the correlation between syntactic, semantic, and pragmatic negation did not hold. In this construction, syntactic and semantic negatives correlate, but they are pragmatically positive. Similarly, syntactically and semantically positive sentences are pragmatically negative. The construction appears in sentences like

—Why not leave?

which has a syntactic negative with its normal semantics, but which conveys a positive suggestion, namely, to leave. Correspondingly,

—Why leave?

is syntactically and semantically positive, but it conveys a negative suggestion, namely, not to leave. We inserted negative polarity items into such sentences to test whether it is the overtly present syntactic and semantic negative that triggers polarity items, or whether it is the pragmatically conveyed negatives that do. Here are the results:

- *Why not do anything this morning?
- *Why not go to New York ever?
- *Why not do the least thing to help her?
- Why do anything this morning?
- Why go to New York ever?

—Why do the least thing to help her?

As these examples show, the negative polarity items do not occur with the overt syntactic/semantic negative in the first set of examples. Instead, they occur with the pragmatically conveyed negative of the second set, where there is no overt negative at all. Thus any rule of grammar characterizing the occurrence of negative polarity items must be able to make reference to the pragmatically conveyed negative.

In order to do this in a formal theory, one has to be able to guarantee that such sentences are paired by a grammar with the correct pragmatically conveyed meanings. Only then can one state a rule governing the occurrence of polarity items so that the rule can 'find' the correct pragmatically conveyed meanings. The solution that Gordon and I proposed, with conversational postulates and transderivational rules, was intended to accomplish this. Of course, such analyses change with the change from logic and generative grammar to cognitive linguistics. Again, such analyses are translatable into cognitive linguistic terms.

Linking the syntax and the pragmatics in just the right way is no mean trick, since a general solution must account for the full range of phenomena linking syntax and pragmatics. Here are two such phenomena that constrain the possibility for a general solution. The first concerns the occurrence of internal *please*, which differs in a crucial way from initial *please*. To see the difference, consider the difference between:

—Can you open the door?

—It's hot in here.

The first is a conventional way of making a request to open the door. It contains the action requested, namely, *open the door*, right there in the sentence. The second can, in the right context, function via generalized conversational implicature as a request to open the door. It does not contain a reference to the action requested right in the sentence. Initial *please* simply signals the occurrence of a polite conveyed request, whether it is made conventionally or by generalized implicature. Initial *please* ignores the distinction.

—Please, can you open the door?

—Please, it's hot in here.

Internal *please*, however, distinguishes between the two cases.

—Can you please open the door?

—*It's please hot in here.

Internal *please* only occurs when the verb phrase following it names the action requested.

This can be seen by looking generally at cases where internal *please* can and cannot occur. It occurs in cases where the sentence without *please* would convey a request to perform the action named by the verb phrase following *please*.

—I wonder if you could please open the door.

—It would help me a lot if you could please open the door.

—I would be a lot happier if you could please open the door.

Internal *please* does not occur if the sentence without *please* would not otherwise convey a request to do the action named by the verb phrase following *please*.

—*I heard that your cousin was unable to please open the door.

—*It would be said if you had to please open the door.

—*I'm glad that the burglar couldn't please open the door.

In order to state the occurrence of internal *please*, one must be able to look at what is conventionally conveyed by the sentence without *please* and see if it is a request to do the action named by the verb phrase following *please*.

Since the difference between initial *please* and internal *please* is part of the grammar of English, the grammar must have principles linking syntactic occurrence with a constraint on pragmatically conveyed meaning. This is the kind of job that transderivational rules of the sort Gordon and I proposed were designed to do.

Secondly, one must be able to deal with syntactic constraints on the occurrence of what I (Lakoff, 1987, case study 3) have called 'speech act constructions'. The imperative construction, for example, is a speech act construction since it conveys a directive. Such constructions cannot normally occur embedded. Interestingly enough, the speech act constructions that convey assertions act as a class with respect to certain syntactic phenomena: there are certain restricted syntactic constructions where they can occur embedded.

Here are some constructions that convey assertions:

Deictic Locatives:

Here comes the bus CONVEYS The bus is coming.

Negative Questions:

Isn't it a beautiful day? CONVEYS It's a beautiful day.

Inverted Exclamations:

Am I ever hungry! CONVEYS I'm hungry.

WH-exclamations:

What a good time I had! CONVEYS I had a good time.

Rhetorical Questions:

Who on earth can stop Bird? CONVEYS No one can stop Bird.

Tags:

It's raining, isn't it? CONVEYS It's raining.

English has a peculiar rule governing where such constructions can occur in embedded sentences.

Speech act constructions conveying assertions can occur embedded in sentence-final clauses expressing reasons, where the reason equals the content of the assertion.

Thus, such sentences can occur in sentence-final *because*-clauses, but not in sentence-final *if*-clauses:

- I'm leaving, because here comes my bus.
- *I'm leaving, if here comes my bus.
- Let's have a picnic, because isn't it a beautiful day!
- *Let's have a picnic, if isn't it a beautiful day!
- I'm going to make him some breakfast, because is he ever hungry!
- *I'm going to make him some breakfast, if is he ever hungry!
- We should have another party, because what a good time everyone had!
- *We should have another party, if what a good time everyone had!
- The Celts are gonna win because who on earth can stop Bird?
- *The Celts are gonna win if who on earth can stop Bird?
- We should call off the picnic, because it's raining, isn't it?
- *We should call off the picnic, if it's raining, isn't it?

Such constructions can also occur embedded in other adverbial clauses expressing reason, clauses beginning with *although*, *except*, and *since*. All other adverbial clauses, those with *where*, *when*, *while*, *as*, and so on, do not permit such constructions to be embedded.

On the Generalization Criterion, this is a syntactic phenomenon since it concerns where certain constructions can occur embedded. The general principle states syntactic occurrence in terms of pragmatics and semantics. The general principle picks out the right class of constructions on a pragmatic basis: their conveyed speech act force. And it picks out the right class of adverbial clauses on the basis of their semantics: they express a reason.

It was concerns such as these that led Gordon and me to propose rules of grammar that could link pragmatically conveyed meaning to syntactically specified structures. Lycan criticizes our proposals without ever taking up the syntactic concerns that led us to make them. Moreover, the proposals he puts forth also do not address those concerns. The theory of indirect force that he provides, like the theory that John Searle (1975) provides, cannot characterize linguistic generalizations like those cited above.

In summary, Lycan wants to stick to the Fregean Commitment as primary. He wants syntax to characterize where in sentences syntactic elements go without looking at semantics and pragmatics. He wants semantics to be truth-conditional and to depend on syntax but not on pragmatics. Consequently, he maintains a theory in which syntactic principles are stated without recourse to pragmatics. He holds these beliefs as a matter of a priori philosophical commitment. And in the face of massive counterevidence concerning generalizations governing the occurrence of syntactic elements, he ignores such generalizations and reads proposals attempting to state such generalizations as though they came out of thin air.

This is why I do not recognize the work of myself and my colleagues in Lycan's descriptions of our work. Because Lycan does not accept the Generalization Criterion as primary, he does not address the empirical issues at the heart of our work. He is trying to impose a philosophical program on language, without any regard for whether that program is consistent with general principles governing the occurrence of linguistic elements. Lycan's very traditional philosophical agenda just doesn't fit the real linguistic generalizations.

In the halcyon days of generative semantics—the late 1960s—I believed that the Chomskyan and Fregean commitments would go hand-in-hand with the Generalization and Cognitive Criteria. It was to be a perfect marriage of a priori philosophy and empirical science. But as luck would have it, it was not a marriage made in heaven.

Epilogue

It was once the province of philosophers to speculate on the nature of the physical universe. Aristotle saw it as his job as a philosopher to give an account of physics. Today, no self-respecting philosopher would engage in a priori speculation about physics, with no concern for empirical findings. Yet in the areas of language and cognition, there are no such constraints. The philosophy of mind and of language is still seen very much as a valid area for a priori speculation.

The clash between the Generalization and Cognitive Criteria on the one hand and the Chomskyan, Objectivist and Fregean Commitments on the other raises the issue of how valid such speculation is. The clash also points up the fact that many researchers within individual cognitive sciences like linguistics and psychology have had traditional philosophical training and have brought such philosophical commitments with them into their disciplines. This makes it especially difficult to ask meaningfully just how much of what one believes about a discipline results from a priori philosophical commitments and how much from empirical investigation. If a linguist or psychologist brings to his work an a priori Chomskyan or Fregean commitment, rather than a commitment to the Generalization or Cognitive Criteria, what are we to make of their work? Can we compare it at all to results that take the Generalization and Cognitive Criteria as primary? It is in the service of beginning to ask such questions in a serious way that I have tried to make my own commitments clear.

What is not generally appreciated is that the situation is every bit as difficult in philosophy. Patricia Churchland (1985) has argued that recent results from neurobiology and cognitive science have rendered the basic tools of philosophers obsolete. I reached a similar conclusion in *Women, Fire, and Dangerous Things*, on the basis of a survey of a wide range of evidence. Mark Johnson (1987), in the *The Body In The Mind*, has raised similar questions. The empirical results that Churchland, Johnson, and I are familiar with entail that much of the work done in philosophy, especially in the philosophy of mind and language, has been rendered as obsolete as Aristotle's physics. This does not apply just to those subfields of philosophy but to a major part of the philosophical mode of thought. What Pat Churchland, Mark Johnson, and I are challenging is the validity of the traditional way of formulating and thinking about philosophical problems. Philosophy relies on conceptions of what language, reason and knowledge are, and those, we claim have been changed radically by empirical results in the cognitive sciences—so much so that philosophers can no longer take for granted the mode of philosophical inquiry that they were trained in and have used throughout their careers.

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