

SOME PROBLEMS WITH LAKOFF'S NATURAL LOGIC

Sentences of natural languages have grammatical forms. They also have logical forms. In 'Linguistics and Natural Logic'¹ George Lakoff maintains that there is some interesting connection between the two. The task of specifying just what that connection is Lakoff calls the task of formulating a natural logic. In 'Linguistics and Natural Logic' Lakoff begins to formulate such a logic. But there are many problems with what he formulates. My object in this essay is to point out some of these problems. In what follows I will point out problems with what Lakoff formulates concerning two notions which philosophers have said quite a bit about. These two notions are that of logical form and of illocutionary force. The problems concerning these notions center around how Lakoff characterizes them. I try to show that Lakoff's characterizations are opaque. Consequently, what Lakoff formulates in terms of these notions is also opaque. This opacity vitiates claims Lakoff makes, vitiates one's conception of a natural logic.

Lakoff thinks that

... it should not be too surprising to find that the logical structure that is necessary for natural language to be used as a tool for reasoning should correspond in some deep way to the grammatical structure of natural language. (151)

He cites the following case as a case in which "...there is a correspondence between grammatical structure and logical structure." (152):

Take the following example.

- (1) The members of the royal family are visiting dignitaries.
- (2) Visiting dignitaries can be boring.
- (3) a. Therefore, the members of the royal family can be boring.
b. Therefore, what the members of the royal family are doing can be boring.

Example (1) is a classical case of a structurally ambiguous sentence. The phrase 'visiting dignitaries' can either be a noun phrase consisting of a head noun 'dignitaries' preceded by a modifier 'visiting', or it can be a verb phrase with the verb 'visit' and the object noun 'dignitaries'. The same structural ambiguity occurs in sentence (2). Corresponding to each of these grammatical analyses, we find a pattern of deduction. Thus if 'visiting' is assumed to be a modifier of the head noun 'dignitaries', then (3a) follows as a logical consequence. On the other hand, if 'visiting' is taken to be a verb followed by a direct object, then (3b) follows as a logical consequence.

Whenever sentences of a form superficially similar to (1) and (2) can have only one of these grammatical analyses, then only one of the patterns of deduction appears. (151–152)

¹ George Lakoff, 'Linguistics and Natural Logic', *Synthese* 22 (1970), 151–271. Parenthetic numerical references are to pages of 'Linguistics and Natural Logic'.

In speaking of such cases, philosophers from Russell to Quine have made use of the notion of logical form. Lakoff does also.

Throughout the sections of 'Linguistics and Natural Logic', Lakoff speaks of the logical forms of sentences of natural languages. For example:

To the extent to which a theory of grammar assigns grammatical form independently of meaning, to that extent that theory will be making the claim that any correspondence between grammatical form and logical form is accidental. (153)

In some cases, the rules which determine which sentences are grammatical or ungrammatical are identical to rules relating the surface form of an English sentence to its logical form (153)

Thus, the rules relating the surface forms of sentences containing true quantifiers to their logical forms obey the same constraints as ordinary grammatical rules. (165)

If the theory of generative semantics is correct, then it follows that the study of the logical form of English sentences is indistinguishable from the study of grammar. (165)

An account of the logical form of a sentence must include an account of the presuppositions of that sentence. (193)

Consider the question of whether the logical form of a sentence, as we have been considering that term, is a representation of the meaning of that sentence. (211)

Most of Lakoff's talk concerning logical forms of sentences occurs in the course of various arguments. For example, the conclusion to one of Lakoff's arguments is:

...the rules of adverb-preposing and quantifier lowering do double duty in that they serve both to distinguish the grammatical from the ungrammatical sentences of English and to relate the surface forms of sentences to their corresponding logical forms. (165)

Just how does Lakoff characterize the notion of logical form? It is important to know this if one is to assess Lakoff's talk of logical form. For example, consider Lakoff's conclusion given just above. What Lakoff is claiming to have shown is quite startling: that certain rules not only bifurcate the set of sentences in terms of grammaticality, but also relate sentences to their logical forms. Do certain rules do these two things? In order to determine if they do or do not, one thing one needs to know is just how Lakoff characterizes the notion of logical form.

Lakoff notes that "...it makes sense to speak of the logical forms of sentences only with respect to some system of logic." (194). True enough. A system of logic is comprised of a vocabulary, formation rules that operate on the vocabulary, and transformation rules that specify the theorems of the system. There are many different systems of logic, and there are many different ways in which these systems of logic differ. One sentence of a natural language may be represented in many of these many different systems of logic. And the representation will, because of one logical difference

or another, result in two different logical forms for the same sentence. So much is glossing the obvious.

Lakoff is concerned with a system of logic called a "natural logic". Supposedly it is with respect to this system of logic that Lakoff's talk of logical form is to make sense. For Lakoff says: "The notion of logical form is to be made sense of in terms of a 'natural logic',..." (151). So what is a natural logic?

At present there is no system of logic called a "natural logic": "..., the construction of a full, nonfragmental natural logic is not an immediate goal. In fact, it may not even be a possible goal." (195). Yet throughout the sections of 'Linguistics and Natural Logic' Lakoff does characterize a natural logic. But this characterization is so opaque and inconsistent that one cannot make much sense of Lakoff's notion of logical form. It is an instance of *obscuram per obscuras*: the notion of logical form is obfuscated by the opacity and inconsistency of Lakoff's characterization of a natural logic. Let me now attempt to make this opacity and inconsistency evident.

A natural logic is

...a theory about the logical structure of natural language sentences and the regularities governing the notion of a valid argument for reasoning in a natural language. (255)

Lakoff characterizes such a theory in two ways. The first way is by presenting a list of considerations concerning a natural logic. The list is:

To recapitulate, we have made the following assumptions:

- (i) We want to understand the relationship between grammar and reasoning.
- (ii) We require that significant generalizations, especially linguistic ones, be stated.
- (iii) On the basis of (i) and (ii), we have been led tentatively to the generative semantics hypothesis. We assume that hypothesis to see where it leads.

Given these aims, empirical linguistic considerations play a role in determining what the logical forms of sentences can be. Let us now consider certain other aims.

(iv) We want a logic in which all the concepts expressible in natural language can be expressed unambiguously, that is, in which all nonsynonymous sentences (at least, all sentences with different truth conditions) have different logical forms.

(v) We want a logic which is capable of accounting for all correct inferences made in natural language and which rules out incorrect ones.

We will call any logic meeting goals (i)–(v) a 'natural logic'. (195)

The second way in which Lakoff characterizes a natural logic is by presenting various remarks which serve to characterize either general or particular features of a natural logic. For example:

...it is a theory about the human mind, not a theory about the universe. (255)

But natural logic involves presuppositions, and so will require a three-valued logic. (253)

...our present notion of what a propositional function is will be inadequate for natural logic, ... (247)

Some of the remarks which serve to characterize particular features of a

natural logic are only made as suggestions. For example:

One way of providing truth conditions for such cases is to employ a model containing possible worlds and alternativeness relations holding between worlds. (224)

Hypothesis: Natural language employs a relatively small finite number of atomic predicates that take sentential complements (sentential operators). These do not vary from language to language. They are related to each other by meaning-postulates that do not vary from language to language. (223)

First consider the opacity of the list of considerations (i)–(v). Lakoff wants to “...call any logic meeting the goals (i)–(v) a ‘natural logic’.” (195). By “meeting the goals (i)–(v)” Lakoff means to be setting up certain requirements for a logic to be a natural logic. Consideration (i), though, is not helpful with respect to this. Consideration (i) is:

(i) We want to understand the relationship between grammar and reasoning. (195)

It appears to be another way of saying we want to understand the connection between grammatical forms and logical forms of sentences. As such, it labels, but does not explicate, a relationship. A system of logic may help us to understand this relationship. But consideration (i) is not a helpful requirement on a logic. It does not indicate how to formulate a natural logic. One doesn't know what is to count as reasoning, what is to count as grammar. Indeed, consideration (i) would be invoked after one has a system of logic. But it is before there is a natural logic that Lakoff makes claims about logical forms. Consideration (i) doesn't aid one in clarifying these claims; it appears to be one of them. Consideration (i) is not helpful with respect to understanding just what a natural logic is.

Consideration (ii) is:

(ii) We require that significant generalizations, especially linguistic ones, be stated. (195)

The notion of a significant generalization has figured in the construction of transformational grammars. A goal one has in constructing a transformational grammar is to frame generalizations that are true and linguistically significant. A problem, of course, has been to find some way of measuring linguistic significance. In lieu of more than a reliance on intuitions, the notion of a significant generalization is obscure, more so to the extent that one goes beyond plain cases. In order to remedy this, Chomsky, for one, has tried to explicate the notion in a precise way:

When we select a set of formal devices for the construction of grammars, we are, in fact, taking an important step toward a definition of the notion ‘linguistically significant generalization.’²

² Noam Chomsky and Morris Halle, *The Sound Pattern of English* (1968), p. 330.

For example, in framing rules for a grammar, Chomsky makes use of this definition:

- (9) The 'value' of a sequence of rules is the reciprocal of the number of symbols in its minimal representation.³

Chomsky takes this definition to mean that

... the number of symbols in a rule is inversely related to the degree of linguistically significant generalization achieved in the rule. In other words, definition (9), together with a specific choice of an alphabet from which the symbols are selected... and a specific set of notations for formulating rules and schemata, provides a precise explication for the notion 'linguistically significant generalization' ...⁴

Chomsky has plainly tried to clarify the notion of a linguistically significant generalization. Lakoff does not indicate in 'Linguistics and Natural Logic' if he goes along with Chomsky's explication of the notion. Given that Chomsky's explication results from a precise specification of the symbols and notational conventions of a grammar, at present a natural logic could not be used to explicate the notion in a similar way. There are enough problems, then, with clarifying the notion of a linguistically significant generalization. There also appear to be other notions in need of clarification. Presumably there will be other kinds of significant generalizations stated in a natural logic, generalizations not only about grammar but also about reasoning. Clarity about logically significant generalizations would be of some aid in clarifying the notion of logical form. But it is not plain just what significant generalizations have to do with a system of logic; just how to measure logical significance is not plain. For example, one doesn't know what are the significant generalizations stated in terms of the version of quantification theory given in Quine's *Methods of Logic*. One simply doesn't know what kind of generalization Lakoff is concerned with here. The notion of a logically significant generalization is a new one. As it is presented, it stands in need of clarification before it can be of use in formulating a natural logic.

Consideration (iii) is an assumption. It is:

- (iii) On the basis of (i) and (ii), we have been led tentatively to the generative semantics hypothesis. We assume that hypothesis to see where it leads. (195)

If a system of logic is a natural logic, then it must be compatible with, must be in accord with, the generative semantics hypothesis. What is the generative semantics hypothesis? Lakoff also refers to it as "...the theory of generative semantics." (165). He makes this claim about the theory:

Generative semantics claims that the underlying grammatical structure of a sentence is the logical form of that sentence, and consequently that the rules relating logical form to surface form are exactly the rules of grammar. (165)

³ *Ibid.*, p. 334.

⁴ *Ibid.*, p. 335.

But what does this claim amount to? One wants to know more about what the underlying grammatical structure of a sentence is supposed to be. One wants to know what sort of grammar is used to specify this grammatical structure; what the vocabulary and formation rules for constructing underlying structures are; what the schemes for representing sentences with these structures are. One looks to Lakoff's paper 'On Generative Semantics' for answers that will remove these obscurities. The notion of the underlying grammatical structure of a sentence has been characterized variously from Chomsky's *Aspects of the Theory of Syntax* and on. The general, albeit vague, idea has been that this structure is the structure connected with the meaning of a sentence. So I am inclined to suppose that in 'On Generative Semantics' Lakoff's notion of semantic representation of a sentence is the structure in question. That notion is characterized in this way:

Given a syntactic structure (P_1, \dots, P_n) we define the semantic representation SR of a sentence as $SR = (P_1, PR, Top, F, \dots)$, where PR is a conjunction of presuppositions, Top is an indication of the 'topic' of the sentence, and F is the indication of the focus of the sentence. We leave open the question of whether there are other elements of semantic representation that need to be accounted for.⁵

This characterization is itself obscure. At the present one only has the vaguest of ideas about presuppositions, topics, and foci in a natural language. For example, Lakoff characterizes the notion of topic in this way:

These considerations would indicate that the notion 'topic' of a sentence is to be captured by a two-place relation having the meaning of 'concerns' or 'is about'.⁶

But just what the meaning of these terms is is not a simple matter to determine. Consider, for example, Goodman's (1961) quandaries concerning the term 'about'. Additional obscurity concerns how one is to fill in the dots in Lakoff's characterization of semantic representation. What are the constraints on filling in the dots such that one ends up with an independent characterization of the notion of logical form? If it isn't an independent characterization, then Lakoff's talk of logical forms may very well be a case of begging the question at issue: the connection between grammatical and logical form. Begging the question would just trivialize the issue. I suspect that Lakoff does beg the question here. Later in 'On Generative Semantics' he says:

From the generative semantics point of view, the semantic representation of a sentence is a representation of its inherent logical form, as determined not only by the requirements of logic, but also by purely linguistic considerations, for example, the requirement that linguistically significant generalizations be stated. Thus, it seems to me that generative

⁵ George Lakoff, 'On Generative Semantics', unpublished (1968), p. 4.

⁶ *Ibid.*, p. 35.

semantics provides an empirical check on various proposals concerning logical form, and can be said in this sense to define a branch of logic which might appropriately be called 'natural logic'.⁷

By taking Lakoff's point of view here, one is simply assuming that the semantic representation of a sentence is the logical form of a sentence. What reason is there for assuming this? One might as well say that the underlying such-and-such structure of a sentence is the so-and-so form of that sentence. It's equally as arbitrary, equally as obscure.

I will take up consideration (iv) later. Consideration (v) is hard to comprehend. It is:

(v) We want a logic which is capable of accounting for all correct inferences made in natural language and which rules out incorrect ones. (195)

All correct inferences made in a natural language must be accounted for. So a natural logic is a system of logic in which one must account for all correct deductive, inductive, abductive, and what-have-you inferences. I have no idea of what a system of logic would be like in order to account for such an aggregation of inferences. I do not know whether such an aggregation of inferences would be homogeneous enough to be accounted for in one system of logic. Lakoff, as a matter of fact, never mentions inferences other than deductive ones, and speaks of axioms and rules of inference such as are found in systems of deductive logics (e.g., 196, 198, 200, 224, 253). So consideration (v) remains hard to understand, does not aid one in making sense of the notion of logical form.

Now consider the opacity of some of Lakoff's other remarks which serve to characterize a natural logic.

For example:

...it is a theory about the human mind, not a theory about the universe. (255)

Yet Lakoff also says that a natural logic is

...a theory about the logical structure of natural language sentences and the regularities governing the notion of a valid argument for reasoning in a natural language. (255)

Just what about a natural logic enables it to be a theory about both sentences and minds? The answer to this question will aid one in determining what counts as evidence for or against a natural logic. It will aid one in determining whether Lakoff is really espousing psychologism in logic. It will aid one in determining how to construe Lakoff's talk about rules of inference in a natural logic. Are rules of inference in a natural logic to be construed as empirical generalizations? The answer to this question might aid one in construing Lakoff's talk about logical forms in a natural logic.

⁷ *Ibid.*, p. 51.

Consider another remark:

But natural logic involves presuppositions, and so will require a three-valued logic. (253)

This limits a natural logic to a three-valued logic. One would like to know what kind, of the many kinds, of three-valued logic is in question here. One would like to know why a two-valued version of quantification theory isn't good enough here. One can have two-valued logics that take account of presuppositions. If one knew these things, perhaps the notion of logical form would be somewhat clarified.

So far I have attempted to show that Lakoff's characterization of logical form is opaque. I have done this by showing that what serves to characterize the notion, Lakoff's natural logic, is itself opaque. But perhaps some can interpret Lakoff's remarks in a lucid way. There is still an inconsistency in Lakoff's characterization of logical form. Let me now try to make this evident.

Consideration (iv) is:

(iv) We want a logic in which all the concepts expressible in natural language can be expressed unambiguously, that is, in which all nonsynonymous sentences (at least, all sentences with different truth conditions) have different logical forms. (195)

According to this consideration, "all nonsynonymous sentences... have different logical forms." (195). That is: if two sentences are nonsynonymous, then they have different logical forms. The contrapositive of this is: if two sentences have the same logical form, then they are synonymous. Having the same logical form, then, is a sufficient condition of sentence synonymy here. Lakoff makes use of this consideration when he argues that "...our present notion of what a propositional function is will be inadequate for natural logic,..." (247). In arguing that it is inadequate, Lakoff proceeds as follows:

Consider (6).

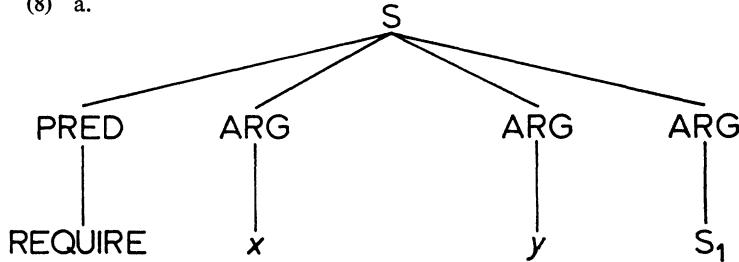
- (6) a. Everyone wants to be president.
 - b. Everyone wants himself to be president.
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But they [6a, 6b] mean different things, and one can be true while the other is false. Hence, they must have different logical forms. However, given the notion of a propositional function as indicating identity only through using either the same variable letter, or lines connecting slots, there is no way of differentiating (6a) from (6b) in logical form. Consequently, our present notion of what a propositional function is will be inadequate for natural logic, since in natural logic (6a) and (6b) must both be given logical forms and the difference between them represented systematically. (247)

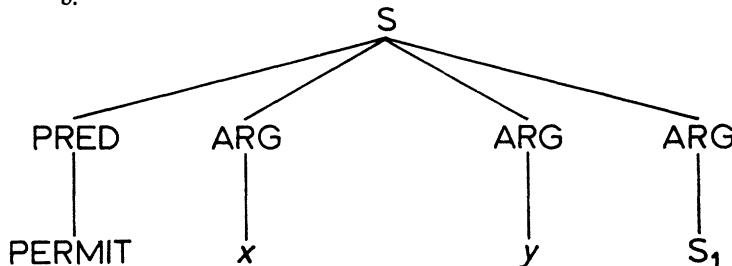
Here Lakoff is making use of consideration (iv): two nonsynonymous sentences are said to have different logical forms. But Lakoff contradicts consideration (iv) when he argues (211–212) that in a natural logic a logical form of a sentence is not a complete semantic representation of that sentence. For his argument depends upon claims that certain nonsynonymous sentences do indeed have the same logical form. Lakoff proceeds as follows:

Consider the question of whether the logical form of a sentence, as we have been considering that term, is a representation of the meaning of that sentence. Consider, for example, sentences of the form ‘ x requires y to do S_1 ’ and ‘ x permits y to do S_1 ’. Let us, for the sake of argument, consider these sentences as having the logical forms (8a) and (8b), respectively.

(8) a.

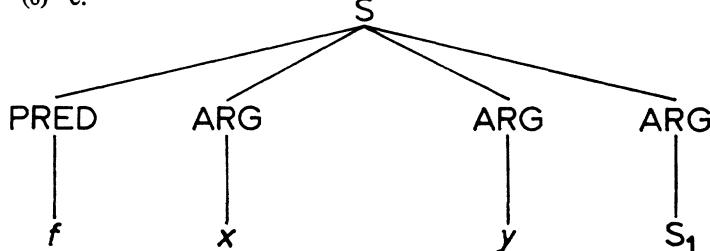


b.



These logical forms differ only in the specification of the predicate. ‘REQUIRE’ and ‘PERMIT’ are to be understood not as words of English, but as symbols for certain atomic predicates. The symbols we have chosen happen to be English words in capital letters, but they could just as well have been a box and a diamond, or any other arbitrary symbols. Thus, in effect, both (8a) and (8b) have the same form, namely that of (8c),

(8) c.



except that they contain different arbitrary symbols indicating atomic predicates. Considering this, in what sense can we say that (8a) and (8b) reflect the different meanings of the sentences given above? (211–212)

Lakoff concludes:

It is clear that there is more to representing meanings than simply providing logical forms of sentences. (212)

Lakoff here adduces two nonsynonymous sentences, sentences of the form ‘ x requires y to do S_1 ’ and ‘ x permits y to do S_1 ’. He maintains that both nonsynonymous sentences have, “in effect”, the same logical form. Since Lakoff concludes that “It is clear that there is more to representing meanings than simply providing logical forms of sentences.” (212), I discount his qualification of “in effect”, which qualifies what to count as the same logical form here. Lakoff’s argument has this structure: find two nonsynonymous sentences, show that they have the same (*simpliciter*) logical form, and conclude from this lack of correspondence between same meaning and same logical form that plainly logical forms do not provide full representations of meanings of sentences. If Lakoff’s qualification here, “in effect”, were to be taken seriously, what Lakoff claims to be lucid would in no way be lucid. One would still wonder whether two nonsynonymous sentences have the same logical form or not, and no qualifications about it. Adducing two nonsynonymous sentences and claiming that they have the same logical form contradicts consideration (iv). Recall what the contrapositive of consideration (iv) is: if two sentences have the same logical form, then they are synonymous. If Lakoff claims that they have “in effect” the same logical form, then one would like to know what his argument is supposed to show about a logical form being a full semantic representation of a sentence.

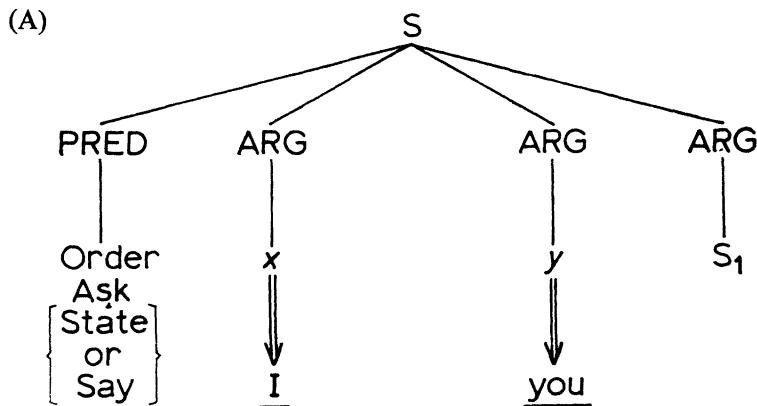
Lakoff says: “The notion of logical form is to be made sense of in terms of a ‘natural logic’, ...” (151). I think I have shown that Lakoff gives an opaque and inconsistent characterization of a natural logic here. Yet Lakoff speaks often in ‘Linguistics and Natural Logic’ about logical forms. One often wonders what he is speaking about.

Philosophers from Austin to Searle have spoken of illocutionary forces. Lakoff does also. In Section VI of ‘Linguistics and Natural Logic’ Lakoff considers

...some of the linguistic evidence which indicates that the illocutionary force of a sentence is to be represented in logical form by the presence of a performative verb, which may or may not appear overtly in the surface form of the sentence. (166)

Lakoff maintains that the underlying grammatical structure of imperatives, questions, and statements must be represented in a certain way if certain

arguments concerning linguistic generalizations are correct (174–175). Lakoff represents this underlying structure as follows:



'Order', 'Ask', and 'State' or 'Say' are performative verbs which Lakoff labels as predicates; 'x', 'y', and 'S₁' are arguments of the predicates; each of the underlying structures represents a sentence. 'x' and 'y' are indexical expressions which mark 'I' and 'you' respectively (167). 'S₁' "...represents the propositional content of the command, question, or statement." (166). Lakoff refers to this representation as (A); so will I.

(A) is not a perspicuous representation, and nothing Lakoff says about (A) removes its opacity. Let me try to point out the opacity of (A).

(A) is supposed to represent the illocutionary force of a sentence (166). But just what is an illocutionary force of a sentence? The phrase 'illocutionary force' was introduced in Austin (1962), but a look at the ensuing literature should make one wonder about just what an illocutionary force is. For example, Jonathan Cohen (1964) argues that, as Austin characterizes the notion, it is vacuous. And see, for example, Garner (1968), Black (1963), Strawson (1964), Searle (1968), Fingurette (1967), and Walker (1969) for more difficulties with the notion as characterized by Austin. Is Lakoff here making use of Austin's characterization of the notion of illocutionary force? Or Searle's? Or Cohen's? Lakoff offers no characterization of the notion, nor cites a characterization he is using. Given the literature, the notion is not a notion one can simply invoke uncontroversially. There are problems concerning just what one is invoking when one is invoking illocutionary forces.

There are some things that an illocutionary force usually isn't. An illocutionary force usually is not considered an illocutionary force of a sentence, but of an utterance of a sentence in a certain way in certain circumstances. It just isn't a force of a sentence *simpliciter*. The sentence 'Go home.' does not itself have an illocutionary force, whereas if I uttered that sentence, then

the speech act I perhaps performed by uttering that sentence might have the force of a warning. And even if sentences did have illocutionary forces, there would be no single and unique force of a sentence: 'Go home.' could be an order, a warning, a plea, any one of many, many forces. The usual recourse here is to escalate to talk of the illocutionary force potential of a sentence, the conventional illocutionary force associated with a sentence, or the normal illocutionary force associated with a sentence. Yet such escalation requires an explication of the notions potential, conventional, and normal. It also requires evidence that illocutionary forces are potentially, conventionally, or normally found in connection with most sentences.

One needs a characterization of the notion of illocutionary force here for a very simple reason. In lieu of a characterization of the notion, Lakoff's remarks about illocutionary forces make little sense: one doesn't know how to assess them. For example, Lakoff says:

It is clear that sentences like 'I order you to go home', in which there is an overt performative verb, namely 'order', enters into the same logical relations as a sentence like 'Go home' in which there is no overt performative verb in the surface form. (166)

An overt performative verb usually makes explicit the illocutionary force of a speech act. If so, then it is not clear that 'Go home.' enters into the same logical relations as 'I order you to go home.'. Indeed, just the opposite is lucid. For example, 'Go home.' need not be uttered so that it has the illocutionary force of an order. And so the overt performative verb 'order' need not be prefixed to 'Go home.'. 'Go home.' can be uttered, as the usual doctrine goes, so that it has the illocutionary force of advising, or counseling, or reproaching, or denouncing, or entreating, or pleading, or praying, or instructing, or many other forces. Or, depending upon one's characterization of the notion, 'Go home.' can be uttered so that it has the force of advising someone to go somewhere, or praying that someone go somewhere, or counseling someone to go somewhere, and so on. It all depends upon how you determine illocutionary forces, and upon how sensible one's way of determining this is. So usually one would consider ordering just one of many of the illocutionary forces of an utterance of 'Go home.'. But given that there are other forces, it is not clear that 'I order you to go home.' and 'Go home.' enter into the same logical relations. For example, if a Marine captain says "Go home." to a Marine private, he can be ordering the private to go home. And if the private does go home, it's true that the private is obeying an order. But if the captain is advising the private, it doesn't follow that if the private goes home, then he is obeying an order. In the former case, but not the latter, if the private does not go home, he can be courtmartialed for disobeying an order. Without a characterization of the notion of illocutionary

force, it's either arbitrary or *ad hoc* or both to make such claims as Lakoff does about 'Go home.' and 'I order you to go home.'

According to Lakoff, illocutionary force is represented by a performative verb in the logical form of a sentence (166). It is important to be able to tell which verbs are and are not the performative ones. It is important because

...the structure given in (A) is exactly the same structure that one finds in the case of non-performative verbs of ordering, asking, and saying, ... (167)

One wants to be able to represent an illocutionary force with (A). But (A) also represents sentences without their illocutionary forces. And the difference between the two representations is the presence or absence of a performative verb in (A). So which verbs are the performative verbs? Is the class of performative verbs to be characterized according to frame tests: sometimes Lakoff suggests this (168). Is the class to be characterized according to a use in speech acts of some sort: sometimes Lakoff suggests this (169). Lakoff never says explicitly how the class is to be characterized.

It is also not plain what connection there is between single performative verbs and subclasses of performative verbs. It appears that a single performative verb is required in (A). But which of the many performative verbs is one to select? There are, according to Austin's count, around ten thousand of them to choose from. But some of Lakoff's talk about performative verbs appears to be talk about subclasses of them: verbs of saying, of ordering, of asking (166–169). What subclasses are these? Austin puts 'ask' and 'state' in the same subclass, expositives. Lakoff appears not to do this. Has he some new schema for classing performative verbs here? Or is this just indifferent use of indifferent schemas? One wants to know what the relation between the members of these subclasses is; one wants to know if it is the subclass name or the name of one of the many members of the subclass which occurs in (A); one wonders if neither does, and some abstract element occurs in (A).

Consider now Lakoff's notion of propositional content. Lakoff says: "In (A), S_1 represents the propositional content of the command, question, or statement." (166). Lakoff makes nothing of distinctions between an imperative sentence (166), a command (166), and an order (167). Nor does he make anything of distinctions between statements (166) and declarative sentences (169). There are obvious distinctions to be noted here, ambiguities to avoid. But Lakoff doesn't note these, so I will construe his indifferent usage in this way. Since he characterizes the notion of propositional content in terms of plain old sentences, I will construe him to be speaking strictly about imperative sentences, interrogative sentences, and declarative sentences. So S_1 in (A) represents the propositional content of an imperative

sentence, interrogative sentence, or declarative sentence. I have no idea what Lakoff's view on type-token distinctions here is.

The notion of propositional content is characterized in this way:

In 'I state that I am innocent', the direct object contains the embedded sentence 'I am innocent', which is the propositional content. (167)

I suppose that this characterization can be generalized to the embedded sentences which are the direct objects of 'I order that...' and 'I ask that...'. In declarative sentences, the propositional content is what is true or false:

Note that in statements it is the propositional content, not the entire sentence, that will be true or false. (166)

Lakoff gives this example:

For example, if I say to you 'I state that I am innocent', and you reply 'That's false', you are denying that I am innocent, not that I made the statement. (167)

But it does not follow from this example that you are denying that the embedded sentence 'I am innocent.' is true. It might or might not. Some would argue that one is denying the proposition, some the sentence, still others the statement in the sense of what is stated: and all could use this very example. What is Lakoff's view here? Denying that I am innocent could be denying the proposition that I am innocent: propositions are usually talked about in this way.

Uncertainties over just how to interpret the notion of propositional content recur. Lakoff says: "...the propositional content, which is true or false, is not given by the sentence as a whole,..." (167). A remark like this, in which propositional contents are "given by" sentences, makes one wonder whether Lakoff is implicitly characterizing the notion in terms of something other than plain sentences, in terms, rather, of what sentences express. One would like to know whether Lakoff's notion of propositional content is like the philosopher's notion of proposition, or if Lakoff's use of 'propositional' is not to be construed like that. I will take it that it is not to be construed like that.

Lakoff's notion of propositional content is characterized in an opaque way. Propositional contents are the embedded sentences which occur as direct objects after performative verbs. In declarative sentences, propositional contents are supposedly true or false. Yet that declarative sentences *simpliciter* are true or false is a hard view to maintain. The standard query to such a view is: "I am innocent." says Ralph, and he is; "I am innocent." says Rex, and he isn't. Yet didn't Ralph and Rex utter the same sentence: 'I am innocent.'. Or did they? Perhaps Lakoff would invoke the indices in (A) in order to provide specifications enough to avoid this query. But if he

does, then is one to hold that not the embedded sentence is true or false, but that utterances of that sentence are, or types or tokens?

The standard query leads one to wonder about the individuation of propositional contents and problems that arise concerning individuation. For example, if speaker, hearer, time and place indices must be specified, of what general utility is the notion of propositional content? Consider cases like this: if James states "I am innocent." and Jeremy states "I am innocent.", then do we have here the same propositional content or not? Are there, like sentences, types and tokens of propositional contents? Are we individuating speech acts or plain utterances of sentences or plain sentences? The same perplexities occur with imperatives and interrogatives: if I ask you whether all zebras are striped and if I ask you whether, concerning zebras, they are all striped or not, then do we have here the same or different propositional contents? How is one to decide the matter? Lakoff suggests no way to decide this.

One would like to know why in 'I order that you're innocent.' and 'I state that you're innocent.' the propositional content of the latter sentence, but not the former sentence, is true or false. They seem to have the same propositional content on one simple way of deciding the matter: the same sentence, 'I am innocent.', is the direct object in each case.

Now consider Lakoff's arguments for (A). I find none of these arguments persuasive. Let me try to make this plain. Lakoff presents six linguistic arguments. The arguments concern topicalization, fronting of adverbs, the occurrence of the emphatic 'so', the occurrence of pronouns, what adverbial expressions modify, and "binding" with verbs. Lakoff maintains that the linguistic facts he adduces in these arguments are evidence for (A). In the first four of these arguments, the facts are sentences with or without asterisks in front of them. Those sentences with an asterisk before them are supposedly ungrammatical sentences. But I do not agree with Lakoff's placement of asterisks in many, many cases. For example, Lakoff places an asterisk in front of 'The fact that never had he seen such impudence bothered John.' (169). But indeed what fact bothered John? I say: "The fact that never had he seen such impudence bothered John.". Another example is: "Shove it up your (*my, *her, *their) ass." (170). I find all of these grammatical, I just wouldn't use them in front of my mother. Another example is: 'John dreamed that egg creams, he liked.' (168). Once again, I find this grammatical. For what was it that John dreamed he liked?

It really doesn't matter much if I do find these sentences grammatical. What is wanted here is some sort of asterisk introduction rule, a rule to use in arbitrating between Lakoff and myself. To formulate such a rule some theory of grammaticality is wanted. To formulate such a theory some sort

of characterization of the notion of grammaticality is needed – if indeed that's the notion needed here. In lieu of such, I do not know whether what Lakoff claims are ungrammatical sentences are indeed that. It makes little difference whether I agree or disagree at this point. One doesn't know what is being agreed or disagreed about. Grammaticality, of course, but what's that? That's supposedly what is marked by an asterisk in front of or not in front of a sentence – and just what does an asterisk mark?

One just doesn't know what is being claimed about or attributed to a sentence when it is said to be an ungrammatical sentence. But Lakoff uses asterisks to make his points. And though there are plain cases of grammatical sentences, Lakoff's cases are not plain cases. In assessing his cases it doesn't matter if one has a goodly number of plain cases like 'The cat is on the mat.', 'Go home.', 'Are you ill?'. These are just cases, they don't themselves provide a way to extend to new cases, to make sensible claims about new cases. One doesn't know the factors that serve to determine, one doesn't know the parameters that serve to demarcate, grammaticality. For example, I do not know whether 'High now to noon.' is ungrammatical or not. How would I determine this?

The usual appeal has been an appeal to one's linguistic intuitions as if one were monitoring or introspecting some sort of linguistic pineal gland. Recourse to simple talk of intuitions is of not much use here. One needs a theory about the matter, not a motto to the effect that in our intuitions we trust. I am not suggesting that pre-theoretical distinctions don't matter. In fact a decade ago they would have sufficed. There was a time in linguistic theory when plain cases were the rule. That time has passed; they're now the exception.

One way that seems to obviate disagreements over grammaticality is to limit one's claims to some dialect. Lakoff does this:

Again, the facts given here are from the author's native dialect and the argument is based on the existence of a dialect in which such facts hold. (260)

But just what are the "such facts" here? They're not about simple phonetic or phonemic variation between dialects. They're facts like this: that 'Egg creams, I state that I like.' is ungrammatical and that 'Egg creams, I stated that I liked.' is grammatical (168). Now are these facts? That is, is it true that, for example, 'Egg creams I state that I like.' is ungrammatical in an actual dialect? Just how is one going to find out if it is or it isn't? Perhaps some might just simply say: get your tape recorder and go investigate various dialects. But that is of little use without a theory about grammaticality. What is one to record? Does one just stand in the street and ask passersby if such and such a sentence is grammatical or not? What is one then asking?

How can one determine if the replies are relevant to the issue of grammaticality at all? Pre-theoretical distinctions might do for a start, but they won't do for a finish.

Lakoff's argument concerning what adverbial expressions modify involves specifying the reason why a speaker is asking, ordering, or telling someone something (173). Lakoff maintains that in 'Since I'm tired, go home.', 'since I'm tired' does not modify 'go'. Lakoff says that the paraphrase 'Since I'm tired, I order you to go home.' supplies an "understood performative verb" which 'since I'm tired' modifies. He maintains that "... 'since I'm tired' obviously modifies 'order'. It provides the reason why I am giving the order,..." (173). His view amounts to this: specified by adverbial expressions in sentences that one utters is "the reason why" one orders what one does. Many a bored girl has uttered 'Since I'm tired, go home.' and the reason why she said that, let alone ordered it, is far from a sudden tiredness. Just what motivates one to say what one does is not so simple a matter that it provides plain and simple evidence for much of anything, let alone evidence for what modifies what.

Lakoff's argument concerning "binding" is an argument I don't know how to assess. I understand little about "binding". Lakoff says: "It appears that verbs like 'ask' and 'know', which take indirect questions, act like operators binding the items which they question." (174). Concerning "binding", Lakoff maintains: "Without an analysis like (A), there could be no non *ad hoc* uniform analysis of binding in questions." (174). But I fail to see how Lakoff can maintain this. He says later:

"Since it is not at all clear what it means for a verb like 'ask' to *bind* an item being questioned, we would naturally prefer an analysis in which the binding function was assumed by a quantifier associated with 'ask'." (260)

And:

...but unfortunately I am as much in the dark as to the real logical form of questions as everyone else seems to be at the moment. (261)

Just what, then, is "binding" and what does Lakoff think it shows about (A)?

Despite his avowal of dismay over the logical forms of questions, in his argument concerning "binding", Lakoff says:

(A) makes the claim that all direct questions are really indirect questions in logical form, that is, that sentences like 'Who left' have the same logical form as 'I ask you who left'. (173)

But what reason is there for supposing that this claim is correct? The relation between direct and indirect questions has been a relation much disputed. For example, one can invoke the opacity of indirect questions such that I may utter 'Where is Cicero?' and then you may wonder whether the indirect

question of this is 'I ask you where is Tully.' or 'I ask you where is Cicero.' or both. This indicates that there is no simple relation between the direct and indirect question forms. Considerations of speakers and hearers and beliefs enter into specifying the relation, not just sentences.

Concerning Section VI's six arguments, Lakoff says:

All of these arguments involved linguistic generalizations which could be stated if (A) was accepted, but which could not be stated otherwise. (174-175)

Lakoff presents only one way, plausible or not, of stating his generalizations. He hasn't thereby presented any evidence that his way of stating them is the only possible way.

Lakoff says: "Therefore the logical forms of imperatives, questions, and statements would have to look like (A) if all of these grammatical arguments are accepted." (175). I say: As the arguments are, there is little reason to accept them. As the notions of illocutionary force, performative verb, and propositional content are, one doesn't know what one is accepting anyway.

My object in this essay has been to point out certain problems with Lakoff's natural logic. Though I have pointed out certain problems, I have not tried to solve them. Though I have pointed out some problems with Lakoff's natural logic, I have by no means pointed out all of the problems with it.⁸

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