OSU WPL 21.1-90 (1976)

The Myth of Semantic Presupposition

Steven E. Boër and William G. Lycan
OSU Department of Philosophy

Contents

The Myth of Semantic Presupposition

Steven E. Boër
William G. Lycan

The notion of "presupposition" has captured the fancy of many linguists, and appeals to "presuppositions" are widely regarded as carrying explanatory force in linguistic theory. Our aim in this study is to criticize, from a standpoint congenial (though by no means specific) to Generative Semantics and the Performative Analysis, the popular thesis that there are "semantic" presuppositions, i.e. that certain sorts of sentences have peculiar quasi-logical implications which are distinct from ordinary entailments and yet closely akin to them, in that the falsity of the alleged implicata results in appreciable semantic consequences anent the sentences in question. A methodological corollary of this thesis is that linguists who regard grammar for a natural language as operating on a kind of "natural logic" must complicate their semantic theories by the addition of more or less complex formal apparatus to account for the distinctively semantic oddities which are alleged to result when "presuppositions" fail.[1] We shall argue (i) that the thesis is false, (ii) that consequently the methodological corollary is without support,[2] and (iii) that alleged cases of semantic presupposition do not even form a natural kind, in that where discernible "implications" do obtain, they turn out to be relations of distinct and largely unrelated sorts (thus, we shall urge that such cases not be subsumed under a single theoretical term). We shall accordingly offer piecemeal alternative explanations of the intuitions in question, and go on to provide what we believe to be an illuminating diagnosis of the fallacies on which the notion of semantic presupposition rests.

1. Introduction: "Presupposition"

Most linguistic semanticists (and many philosophers of language) seem to agree that the notion of "presupposition" is both rich in intuitive content (and thus available as an important source of <u>data</u> for syntax and semantics) and crucial for our understanding and theorizing about the meanings of utterances (and thus <u>theoretically</u> important in syntax and semantics). A reader of the literature comes away with the impression that we have a vast stockpile of relatively hard data concerning the presuppositions of sentences, but that we have yet to get quite as clear about what "presupposing" is as purist metatheoreticians would like; nevertheless, the intuitive notion that we have will do well enough to go on with, and we may continue to appeal to data concerning presupposition in framing syntactic and semantic arguments on diverse topics.

Here are some examples of pairs of sentences the like of which have been here and there adduced under the rubric of "presupposition" (as distinct from entailment):

(1) a. Sam realizes that Irv is a Martian.
b. Irv is a Martian.

(2) a. Fred regretted leaving home.
b. Fred left home.

(3) a. Bring me the avocado in the brown paper bag.
b. There is an avocado in a brown paper bag.

(4) a. Few girls are coming.
b. Some girls are coming.

(5) a. If Irv were a Martian, I'd be running away from here.
b. Irv is not a Martian.

(6) a. Have you stopped beating your wife?
b. You have beaten your wife.

(7) a. I hope I can disprove Gödel's Theorem.
b. It is possible to disprove Gödel's Theorem.

(8) a. I promise to bring back your toilet-seat.
b. I intend to bring back your toilet-seat.

(9) a. Fred, who was fat, could not run.
b. Fred was fat.

(10) a. Camille is pretending to be sick.
b. Camille is not sick.

(11) a. John managed to get out of the phone booth.
b. John tried to get out of the phone booth.

(12) a. She was poor but she was honest.
b. Being poor tends to preclude being honest.

(13) a. If you touch me again, I'll scream.
b. If you don't touch me again, I won't scream.

(14) a. Melvin is a bachelor.
b. Melvin is an adult.

It may perhaps be clear that the first member of each of these pairs somehow "suggests" or "implies" its fellow. What is not at all clear (and would be naive to assume) is that there is a single distinctive and important relation which is instantiated by all these pairs. In fact, as we shall see, the differences between the pairs are more interesting than the similarities.

To complicate the matter further, the literature contains a richly varied panoply of nonequivalent definitions or introductions of the term presuppose and its cognates, and it is clear that not one but many distinct theoretical notions are in play as well. There are many more such notions than have been pointed out to date, though they may be grouped fairly easily into a few larger categories. And it is clear (though we shall not be able to document the first and third of these points here) that (i) the differences between these various notions have tacitly been traded on, sometimes with substantive (but spurious) results; that (ii) when the proper distinctions have been made, most of the resulting notions will be seen to be relatively clear and manageable, though some (including the core concept of "semantic" presupposition) will be found to be vacuous and/or theoretically useless; and that

(iii) when the differences have been attended to, but not before, significant progress may be made on the relevant theoretical issues, such as the question of transitivity and the much-touted "projection problem".[3]

Some recent theorists have at last begun dissecting the monolith in crude but helpful ways. It is by now more or less standard to distinguish semantic from pragmatic presuppositions (Stalnaker 1972; Keenan 1971; Karttunen 1973; Thomason 1973; Atlas 1975; and others). That is, it is pointed out that there are at least two such notions that are perhaps not quite the same. But even this rough difference is rarely taken seriously in the literature--thus Karttunen (1973), having pointed out the distinction, writes:

> For the time being, let us simply assume that we understand what is meant by a presupposition in the case of simple sentences...and turn our attention to more complex cases.
>
> ...we may even forget about the distinction between semantic and pragmatic presuppositions. What is said about one kind of presupposition will apply to the other as well (I hope). (p. 171)

These two remarks will startle a reader who has taken a careful look at our list of sentence pairs or has taken note of the assorted definitions of presupposition that have been offered in the literature.[4]

Let us list a few of these definitions:

(15) a. S_1 presupposes$_1$ S_2 = $_{df}$ S_1 entails S_2 and S_1's denial entails S_2. (Horn 1969; Morgan 1969)

b. S_1 presupposes$_2$ S_2 = $_{df}$ If S_1 "makes literal sense," then S_2 is true. (Keenan 1971)

c. S_1 presupposes$_3$ S_2 = $_{df}$ If S_1 is true, then S_2 is true; and if S_1 is false, then S_2 is true (i.e. if S_2 is not true, then S_1 is neither true nor false). (Alternatively: S_1 necessitates S_2 and S_1's denial necessitates S_2.) (Strawson 1950; Keenan 1971; Lakoff 1972; Karttunen 1971b)).

d. S_1 presupposes$_4$ S_2 = $_{df}$ A speaker utters S_1 felicitously only if { S_2 is true. / that speaker believes S_2. / someone present believes S_2. / it is at least pretended that S_2 is true. / etc. } (Heringer 1972).

And a close companion,

(16) S_1 "invites the inference of" S_2 = $_{df}$ Given certain background beliefs that we have, we would have some warrant for assuming that if someone J utters S_1, he will act as if he is willing to be regarded as

> having committed himself by uttering S_1 to the truth of S_2. (Geis and Zwicky 1971)[5]

The semantic/pragmatic distinction cuts across this representative set of definitions in a rough but noticeable way. Let us say, albeit clumsily, that a notion of "presupposition" is semantic iff the implications in question are a function of semantic status, semantic properties, propositional content or logical form, while a notion of "presupposition" is pragmatic iff the implications in question arise only in virtue of contextual considerations, the roles of the relevant sentences in standard speech acts, Gricean conversational matters, simple matters of background knowledge on the part of particular speakers, etc. By this crude criterion, definitions (15a-c) delineate semantic notions, while (15d), (16) and others of their ilk yield pragmatic notions; entailment, significance, truth-value, and necessitation are semantic attributes which sentences have or can be treated as having in isolation, while felicitiousness and background beliefs are the sorts of things that pertain to particular speakers in particular circumstances.

We have argued elsewhere (Boër and Lycan 1974) against the linguistic relevance of "invited inference" à la (16). And, as we shall try to make clear, the Austinian notion specified by (15d) is somewhat beyond the scope of this paper. Thus, we shall concentrate on "semantic" presupposition, and debunk it in the ways sketched above, providing for a number of typical cases alternative accounts of the relevant phenomena.

2. Our Program

The first thing to notice is the dubiousness of (15a) and (15b), as compared to (15c). Let us begin with (15b). Its main defect is that it is impossibly vague. (Is literal meant as opposed to metaphorical??). In addition, (15b) does not seem to square at all well with examples of the sort listed as (1)-(14). To begin, each first member of those pairs "makes literal sense," period (in whatever sense we can intuitively attach to that term), whether or not its associated second member is true. Second, in the sense of (15b),

(17) Tommy fell off his tricycle.

presupposes$_2$

(18) There is at least one language.

since (17) could not very well be true unless there were some language for it to be true in; and this is not an "implication" of any relevant sort. (15b) presumably is a misstatement of (15c), on the assumption that "making literal sense" is in some way intimately connected with having a truth-value. Let us move on to (15a).

2.1. Two Fallacies

(15a) has an extraordinary feature.[6] If S_1 entails S_2 and S_1's denial entails S_2, then their disjunction entails S_2. But their disjunction is a tautology, viz. an instance of the Law of Noncontradiction.

Since a tautology cannot entail a nontautologous sentence, S_2 must be a tautology as well. Thus, no sentence presupposes$_1$ anything but tautologies. Moreover, since every tautology is entailed by every sentence (including any S_1 in its denial), every sentence presupposes$_1$ all tautologies. Again, these results do not square with the data sentences in (1)-(14).

It is easy enough to see what has gone wrong. Entailment is essentially a concept of standard bivalent logic, though it can easily be defined in more exotic formal systems. Presumably what exponents of (15a) have been getting at is again the idea that, when S_1 "presupposes" S_2 and S_2 fails, S_1 is neither true nor false; but (15a) fails to capture this idea, since entailment supports contraposition (if S_1 presupposes$_1$ S_2 and S_2 is false, then S_1 is false and S_1's denial is false, which--assuming the validity of double negation--is a contradiction; thus, presuppositions$_1$ cannot fail.)

A notion of "presupposition" that turns on the idea of truth-valuelessness requires a nonclassical semantics; so what the "presupposition" enthusiast really needs is a model-theoretic notion of strict implication that does not support contraposition, and this is the notion of necessitation (cf., e.g. van Fraassen 1968).

A sentence S_1 necessitates a sentence S_2, roughly, just in case there is no model relative to which S_1 is true and S_2 is untrue. In a bivalent system, obviously, the notion of necessitation coincides with that of entailment, since in such a system to be untrue is to be false; if S_1 necessitates S_2 and in some model S_2 is false, then in that model S_1 is untrue and hence false as well. In a nonbivalent system, however, this last inference fails. A model can falsify S_2 without falsifying S_1, since in that model S_1 may be neuter (here, truth-valueless) rather than false. What the proponent of semantic presupposition presumably has in mind, then, is that for S_1 to "presuppose" S_2 is for both S_1 and its denial to necessitate S_2, it being understood that the underlying logic does not respect bivalence; thus, the falsity of S_2 requires the truth-valuelessness of S_1. And this is just the Strawsonian notion of "presupposition" captured by (15c) above. Since both (15a) and (15b) seem when pressed to melt away into (15c), and since (15c) has in fact itself been widely promulgated in some of the loci classici of presupposition, we shall take (15c) as codifying the core concept of "semantic presupposition", and reserve the latter term as designating this notion, viz. that of presupposition$_3$.

For the record, notice two formal points: First, (15c) still entails that every tautology is semantically presupposed by every sentence (since every tautology is necessitated by every sentence), though happily it lacks the more embarrassing feature of (15a). We propose to pass over this fact as being a "don't-care"; it is no more interesting that tautologies are semantically presupposed by every sentence than it is that they are entailed by every sentence. Second, semantic presupposition (presupposition$_3$) is transitive--the proof is trivial.[7] Informally: Suppose S_1 presupposes S_2 and S_2 presupposes S_3. Now if S_3 is false and hence not true, then S_2 is truth-valueless and hence not true; and if S_2 is not true, then S_1 is truth-valueless. Thus, S_1 presupposes S_3.

With the distinction between entailment and necessitation in mind, we may now display the flaw in a widely accepted argument of Linsky's

(1967) against Strawson's celebrated criticism of Russell's Theory of Descriptions. As is well known, Russell (1905) contended that

(19) The King of France is wise.

entails

(20) There is one and only one King of France.

Strawson (correctly) draws from this claim the consequence that if (20) is false then (19) is false, and argues against this consequence, concluding that the falsity of (20) results in the truth-valuelessness of (19), i.e. that (19) semantically presupposes (and therefore does not entail) (20).

Linsky maintains that this alleged contrast is spurious--far from refuting Russell's claim that (19) entails (20), he says, Strawson has succeeded in proving that (19) does entail (20)!;

> Let us assume that [(19)] presupposes [(20)]. What this means is that from the premise that [(19)] has a truth-value, it follows that [(20)] is true. But if [(19)] is true, it follows that [(19)] has a truth value. Therefore, if [(19)] is true, it follows that [(20)] is true. But [(19)] is true, if, and only if, the King of France is wise, and [(20)] is true if, and only if, one, and only one, person is King of France. Therefore the statement that the King of France is wise entails the statement that one, and only one, person is King of France. (p. 94).

This argument is multiply defective. First, it should be noted that Linsky cannot happily be interpreted as meaning "follows deductively" by follows (though earlier passages suggest that this is what he does intend); for the metalinguistic claim that (20) is true does not, strictly speaking, follow deductively from the metalinguistic claim that (19) is true--if only for the trivial reason that (20) (or (19)) might have meant something entirely different from what it in fact does mean. When we say that the truth of (20) "follows from" the truth of (19), we mean rather that the metalinguistic conclusion that (20) is true is deducible from the metalinguistic claim that (19) is true conjoined with some contingent premises borrowed from our theory of our own language (specifically, the premise that (19) and (20) have the meanings that they do). Let us say that the claim that (20) is true follows theoretically from the claim that (19) is true, understanding the relevant theory (call it L) to be whatever theory gives the correct account of the two sentences' meaning- and entailment-relations.

With this usage in mind, we may concede that Linsky has succeeded in showing that the truth of (20) follows theoretically from that of (19). And, since the two instances of Convention T cited by Linsky are themselves deducible from the theory L, we may further admit that

(21) If the King of France is wise, then there is one and only one King of France.

is a theorem of L, and thus that (20) itself follows theoretically from (19) itself. But these results do not suffice to show that (19) entails (20). For the theory L in virtue of which (20) follows theoretically from (19) is a brutely contingent theory; and to say that (20) follows from the conjunction of (19) with an additional contingent premise is (obviously) not to say that (19) itself entails (20).

Possibly Linsky might back up, and argue that for (19) to entail (20) just is for L, the correct theory of our language, to yield the conclusion that if (19) is true, then (20) is true. If this is right, then, since Linsky has shown that L does yield this conclusion, (19) does entail (20) after all. But to take this line would be to overlook the indispensable fact that Strawson is working within a three-valued logic. The fact that the truth of (19) requires the truth of (20) in virtue of L does not guarantee that the falsity of (20) so requires the falsity of (19); what Linsky has succeeded in showing is only that (19) necessitates (20). One could obtain the stronger claim that (19) entails (20) only by adding the further premise that (19) is either true or false; but that premise is just what is at issue. Thus, Linsky has failed to demonstrate the incoherence of the distinction between entailment and semantic presupposition.

It is easy enough to state the facts of the situation in a way that is both perfectly coherent and free from any of the foregoing confusions. Russell and Strawson agreed that (19) necessitates (20), i.e. that the truth of (20) follows theoretically from the truth of (19). However, Russell believed that the falsity of (19) follows theoretically from the falsity of (20), while Strawson contends that what the falsity of (20) theoretically requires is rather the truth-valuelessness of (19). Invoking an obvious notation:

RUSSELL		STRAWSON
$T(19) \underset{L}{\Rightarrow} T(20)$	--agree--	$T(19) \underset{L}{\Rightarrow} T(20)$
$F(20) \underset{L}{\Rightarrow} \sim T(19)$	--agree--	$F(20) \underset{L}{\Rightarrow} \sim T(19)$
$F(20) \underset{L}{\Rightarrow} F(19)$	--disagree--	$F(20) \underset{L}{\Rightarrow} \sim T(19) \,\&\, \sim F(19)$

Now we may define necessitation, entailment and presupposition in correlative terms.

S_1 necessitates S_2 iff $T(S_1) \underset{L}{\Rightarrow} T(S_2)$.

S_1 entails S_2 iff S_1 necessitates S_2 and $F(S_2) \underset{L}{\Rightarrow} F(S_1)$.

S_1 semantically presupposes S_2 iff S_1 necessitates S_2 and

$F(S_2) \underset{L}{\Rightarrow} \sim T(S_1) \,\&\, \sim F(S_1)$.

Thus, entailment and presupposition are mutually exclusive species of necessitation. And this terminology, in addition to its coherence and its safety from Linsky's objection, makes good sense of the dispute between Russell and Strawson, since it is perfectly coherent on this usage to say that S_1 presupposes but does not entail S_2; and as Strawson suggests, entailment and presupposition are mutually incompatible.

2.2. Analytical Tools

These formal preliminaries have succeeded in making our notion of semantic presupposition clear, and in demonstrating its coherence. But it remains to be seen whether that notion is in addition both nonempty and useful in linguistic semantics or any other branch of linguistic theory. And indeed the central thesis of this essay is that the notion is in fact empty, and hence uninteresting. In Sections 3 and 5 we shall embark on a series of central case studies. In each study we shall first show directly that the case in question does not fit the definition of semantic presupposition or anything usefully like it, and then go on to offer a reasonably plausible account of what is instead going on, though we have not the space here to go into each case in as much detail as we would like.

In section 4 we shall offer some explanations of why it has seemed so plausible to construe these cases as instances of semantic presupposition; our explanations, we believe, afford considerable insight into the relation between semantics and pragmatics.

For the most part we shall concede that such pairs as (1)-(14) above exemplify some very loose and informal generic relation of "suggestion" or "implication", but we intend our case studies to show (as our second most important thesis) that the cases surveyed are cases of a number of entirely different kinds of "suggestion" or "implication", and that, although each of these kinds of "suggestion" is linguistically interesting and important in its own right, they have nothing interesting or important in common. If we are right, then, (i) there are no semantic presuppositions, though there are other, looser sorts of implicative relations; and (ii) there is no general class of phenomena worthy of being subsumed under any common theoretical term such as <u>presupposition</u> at all, though there are far narrower relations of "suggestion" or whatever that are individually well worth investigation and explication. We shall, however, retain the term <u>suggest</u> to designate whatever it is (however boring) about all or most of the pairs (1)-(14) that has made theorists suppose there to be an interesting general notion which they all exemplify.

In Section 3 each alleged case of "presupposition" will be explained away in terms of homelier and more manageable linguistic relations, and we shall succeed in preserving bivalence throughout. In aid of that program, we must spend a little time getting out a few of these humbler relations.

2.2.1. Entailment

We shall argue in a few of our cases that the alleged "presuppositions" are simply classical (semantic) entailments which, for one reason or another, have eluded recognition as such. In the primary sense, classical entailment is a model-theoretic relation which holds between a

set of logical forms (formulas of our bivalent canonical idiom) on the one hand and a particular logical form on the other. We may define this relation more precisely than we have done above, as follows:

> If CL is our bivalent canonical language, V_{CL} is the set of admissible valuations of CL, and F_{CL} is the set of formulas of CL, then: for any $\Gamma \subseteq F_{CL}$ and $A \in F_{CL}$,
> Γ entails A iff, for every $v \in V_{CL}$, v simultaneously satisfies Γ only if v satisfies A.

Entailment between actual sentences of a natural language is defined in terms of the logical forms of those sentences.

> If S_1 and S_2 are sentences of a natural language L, $\{A,B\} \in F_{CL}$, A is the logical form of S_1, and B is the logical form of S_2, then:
> S_1 entails S_2 iff $\{A\}$ entails B.

People sometimes distinguish between what an utterer of the sentence S_1 "asserted" and what he "implied". In making this distinction, they may have either of two goals in mind. On the one hand, they may be contrasting what S_1 or its utterer implies with what S_1 entails. To account for this case, we define below three common species of "implication" which may usefully be contrasted with direct entailment. On the other hand, proponents of the assertion/implication contrast may be drawing a distinction within the class of entailments of S_1. This latter distinction is somewhat harder to explain. It appears to be a pragmatic matter of relative emphasis. That is, the utterer of S_1 is held to have implied rather than asserted S_2 on the ground that S_2, although entailed by S_1, does not express what seems to have been uppermost in the speaker's mind when he uttered S_1. Consider the following:

(22) a. Peering through the keyhole, I saw my wife in bed with my best friend!
b. I saw my wife in bed with my best friend.
c. I peered through the keyhole.

There is some inclination to say that the utterer of (22a) "asserts" (22b) but only "implies" (22c). His remark about the keyhole is only incidental; his primary concern (witness the intonation contour) is with what he saw. This marginal sort of "implication" has no semantic content over and above that supplied by classical entailment: it merely superadds to entailment a variety of purely pragmatic considerations about the speaker's probable system of values, i.e. about the relative importance to the speaker of one entailment versus another. Even so, this pragmatic ingredient has been known to occasion some bothersome confusions about presupposition, which we shall briefly discuss in succeeding sections. Since "implication" of this variety plays only a superficial role in our overall account of alleged presuppositions, we shall not embark on the thankless task of trying to characterize it precisely.

2.2.2. Theoretical Implication

Returning for a moment to entailment, we note the following trivial corollary of our definitions: given any two sentences S_1 and S_2 which are capable of entering into entailment relations, we can always find a third sentence S_3 such that $\ulcorner S_1 \text{ \& } S_3 \urcorner$ entails S_2. For the most part, S_3 will be uninteresting. But sometimes S_3 is a sentence which speakers of the language tacitly or explicitly regard as true, for S_3 may formulate some ingredient in a theory which they hold. When this happens, people will tend to infer S_2 directly from S_1 and to treat S_1 as if it entailed S_2, whereas in fact no such entailment exists (cf. our discussion of Linsky and the theory L, above). The obvious explanation of this tendency is that the background theory which supports their inference is so well-entrenched in their consciousness that they make use of it without explicitly recognizing that they are drawing on extralogical premises; probably the best example of this is the theory L itself, which codifies our knowledge of our own language. To describe this widespread phenomenon, we introduce the notion of theoretical implication, defined as follows.

> If S_1 and S_2 are sentences of a natural language L and P is a nonempty set of speakers of L, then:
>
> S_1 theoretically implies S_2 for P at time t iff there is a sentence S_3 of L such that S_3 expresses all or part of some theory held by the members of P at t, and $\ulcorner S_1 \text{ \& } S_3 \urcorner$ entails S_2.

In practice, we shall often omit the qualification "for P at t" when the values of "P" and "t" are contextually obvious. Theoretical implication may be illustrated by the following example.

(23) a. John jumped off the roof.
b. John fell.

Many contemporary speakers of English would immediately infer (23b) from (23a), and would say that (23a) "implied" or even "entailed" (23b). But this implicative relation cannot be entailment, since, so far as logic is concerned, it is entirely possible that John remained suspended in space after his jump. The reason that people tend to leap from (23a) to (23b) is just that they concurrently hold background theories about the behavior of unsupported objects near the earth's surface--theories which, when sententially formulated and conjoined with (23a), yield a conjunction which does entail (23b). (23a) does not itself entail (23b); rather (23a) theoretically implies (23b) for a large class of speakers of English at the present time (and many past times as well).

2.2.3. "Act-implication"

A third sort of "implication" concerns the relation between a sentence and the statement of one or more of the conditions under which that sentence can be felicitously uttered. Felicity conditions are pragmatic constraints on the successful and nondefective performance of speech acts (promising, ordering, questioning, etc.). Whether or not a given sentence can be felicitously uttered in a given context depends, of course, on what speech act the speaker is trying to perform with that sentence on that occasion. Accordingly, we define the

following notion of act-implication:

> If S_1 and S_2 are sentences of a natural language L and @ is any speech act, then:
>
> S_1 act-implies S_2 relative to @ iff S_1 can, under normal circumstances, be used to perform @, and S_2 formulates a pragmatic constraint on successful and nondefective performances of @ (i.e. S_1 could not be felicitously uttered in the attempted performance of @ unless S_2 were true).

In the case of sentences which--like explicit performatives--are normally restricted to the performance of a single sort of speech act, and in contexts where it is obvious what speech act is at issue, we may omit the qualification "relative to @" and speak merely of S_1 act-implying S_2. Consider, for example, the following sentences:

(24) a. I (hereby) promise to leave.
b. The utterer of (24a) intends to leave.

(24a) act-implies (24b), since (24a) is a conventional device for promising and (24b) formulates a nondefectiveness condition on promises (viz. sincerity). Our tendency to infer (24b) from (24a) owes chiefly to our inductive assumption that speakers are generally aware of the pragmatic constraints on speech acts and normally try to meet them. When we hear (24a) in speech, we simply take it for granted that the conventionally associated speech act has been successfully and non-defectively performed unless something in the context clearly demands otherwise.

It has sometimes casually been assumed that the notions of "act-implication" and "semantic presupposition" simply coincide. We shall show in case study 3.6 of Section 3, and in Section 4, that they do not.

2.2.4. Conversational Implicature

A fourth, and somewhat more complicated, species of "implication" is what H. P. Grice (1961 and 1974) has called conversational implicature. Grice offers some general pragmatic rules or "conversational maxims" which greatly facilitate communication and which we all tend to obey. Some of these maxims are:

(25) a. Make your contribution [to a conversation] as informative as is required (for the current purposes of the exchange). [The Maxim of Strength]
b. Do not make your contribution more informative than is required.
c. Do not say what you believe to be false.
d. Do not say that for which you lack adequate evidence. [The Maxim of Evidence]
e. Be relevant. [The Maxim of Relevance]
f. Avoid ambiguity.
g. Be brief (avoid unnecessary prolixity).

These rules are regarded by Grice as corollaries of a more general instruction which he called the "Cooperative Principle", viz.

> (26) Make your conversational contribution such as is required, at that stage at which it occurs, by the accepted purpose or direction of the talk-exchange in which you are engaged.

(26) and its subordinate maxims are taken, plausibly, to be conventions which serve as valuable auxiliaries to the prior conventions which govern syntax and meaning. Their main function is to expedite the giving and/or receiving of information, in more or less obvious ways.

Using the maxims, we can construct detailed explanations of a person's inferring the truth of a sentence S_2 from someone's assertive utterance of a sentence S_1 even though S_1 does not entail S_2. Grice in fact outlines the general form for such explanations:

> He has said that p; there is no reason to suppose that he is not observing the maxims, or at least...[the Cooperative Principle]; he could not be doing this unless he thought that q; he knows (and knows that I know that he knows) that I can see that the supposition that he thinks that q is required; he has done nothing to stop me thinking that q; therefore he intends me to think, or is at least willing to allow me to think, that q; and so he has implicated that q.

An explanation of this form, although it assumes that the explainer knows the normal (literal) sentence-meaning of the sentence which replaces "p", does not ascribe the explainer's inference of the sentence replacing "q" to any connection between the latter sentence and the meaning or semantic properties of the former. The explainer merely engages in some straightforward, informal commonsensical reasoning based on his knowledge of (26) and its corollaries (25a-g). Derivatively, we may define the following relation between sentences, which we call conversational implication:

> Let S_1 and S_2 be sentences of a natural language L; then: S_1 conversationally implies S_2 iff any normal speaker of L who utters S_1 in a normal tone in a normal context conversationally implicates that S_2 is true (i.e. iff S_1 and S_2 could replace "p" and "q" respectively in a correct application of the Gricean explanation-schema to the context of S_1's utterance).

Using the notions explained in this Section, we shall proceed to our series of case studies. There is, however, one more important prior point to be made.

2.3. Responsibility

Semantic presupposition is primarily a relation between sentences (better, between their logical forms); in fact, the distinction between "semantic" presupposition and "pragmatic" presupposition is sometimes

(cf. Stalnaker 1972, 1973) taken to rest on the claim that the latter relation relates speakers, rather than sentences or their logical forms, to sentences. On the other hand, it is generally held that a speaker (pragmatically) presupposes at least the semantic presuppositions of the sentence he or she utters; so the question of what it is for a speaker to presuppose something can be raised in either case.

It is said, for example, that a person who utters (12a) above presupposes that being poor tends to preclude being honest, this belief being indicated by the presence in (12a) of the word but. What is this relation of "speaker's presupposition"? The natural suggestion that comes to mind is that a speaker presupposes a sentence S just in case his or her utterance on that occasion is somehow defective, inappropriate or flawed unless he or she believes S. But this will not do. For a speaker may token (12a) in a perfectly appropriate and nondefective manner without himself or herself accepting (12b)--e.g. if he or she knows that the hearer accepts (12b). Perhaps we should say instead that a speaker presupposes S just in case the utterance on that occasion is inappropriate, etc., unless the hearer accepts S; but this suggestion faces obvious counterexamples as well. Nor is it required that S in fact be true. It will not do even to require that at least one party to the conversation accept S, nor that the speaker is at least pretending to accept S, for speaker and hearer may have some reason for talking "as if" S were true even though neither actually believes this.

About all we can say at this point is that a speaker presupposes (or "presumes") S iff the utterance on that occasion is inappropriate, etc., unless the speaker is speaking as if S is true, or unless the speaker is "representing himself/herself as" believing S, or the like. But we cannot stop here, for these scare-quoted phrases are no clearer than presupposes and presumes themselves. They are invoked as technical terms; so to say that the felicitous utterer of (12a) "represents himself/herself as" believing (12b) is just to relabel the problem, not to explain anything. The problem remains: Paradoxically, it seems that the entirely unflawed utterance of (12a) requires, presumes, etc., the belief that (12b) is true, but this "belief" is not necessarily the belief of anyone!

This is a quandary that we shall not here attempt to resolve. When it becomes necessary to remind ourselves that we cannot talk simply of requiring that the speaker believe an alleged presupposition, we shall ring in the slogan "or whoever" to recall the puzzling nonspecificness of the actual requirement in question.

3. Case Studies

3.1. Nonrestrictive Relative Clauses

Let us begin with an alleged "presupposition" that turns out rather obviously to be just an entailment. It has been claimed (by Keenan 1971 and others) that nonrestrictive relative clauses give rise to semantic presuppositions; it would be said, e.g. that (27a) semantically presupposes (27b):

(27) a. Dick, who is an expert on Austin, loves the Bonzo Dog Band.
b. Dick is an expert on Austin.

It is hard for us to think of (27a) as truth-valueless when (27b) is false. For, in light of the considerable evidence that sentences like (27a) are derived from underlying conjunctions (Thompson 1971), it seems clear that the truth-conditions of such sentences are those of conjunctions. Thus (27a) has the same truth-conditions as

(28) Dick is an expert on Austin and Dick loves the Bonzo Dog Band.

as does

(29) Dick, who loves the Bonzo Dog Band, is an expert on Austin.

Necessarily, therefore, (27a) is false if (27b) is false; (27a) entails (27b).

There is an interesting consideration which may have blinded theorists to this fact and which, as we shall see, causes significant confusion among "presupposition" enthusiasts. The important point to notice (cf. Section 2.2.21 above) is that a sentence S_1's merely entailing a sentence S_2 in no way guarantees that S_1 asserts S_2, or that one who uttered S_1 would thereby assert S_2, or that S_2 gives any part of the content of "what S_1 says" in an intuitive sense. (27a) clearly does not "assert" (27b). Relativization evidently is, perhaps among other things, a way of de-emphasizing certain parts of the total semantic content of a sentence, to such a degree that we want to deny that those parts are asserted by the sentence or by the speaker who utters it; those parts are, if you like, merely taken for granted (it is tempting to say "presupposed" here, in a quite nontechnical sense). But all this is perfectly consistent with their being simply entailed by the original sentences. What is not asserted may still be entailed in virtue of logical form. For example, Peano's axioms do not assert the theorems of elementary arithmetic, but they certainly entail them. And

(30) Snow is white.

does not assert

(31) Either snow is white or pigs have wings.

or

(32) If Lincoln is dead, then Lincoln is dead.

but it entails both.

There is a tendency to confuse the linguistic act of denying what someone else has asserted with the quite different act of uttering the denial of the sentence which that person used in making his assertion. Thus, upon hearing someone utter (27a), one who wished to deny what the utterer had asserted might say

(33) Dick doesn't love the Bonzo Dog Band.

or even, much less efficiently,

(34) Dick, who is an expert on Austin, does not love the Bonzo Dog Band.

This fact might lead someone (see again Keenan 1971) to suggest that (34) is the denial of (27a) and to add that, since (34) plainly necessitates (27b) just as (27a) does, we have a clear case of semantic presupposition. But this would be fallacious. (34) is not the denial of (27a). The denial of (27a)--if it can be formed in surface-structure at all-- is formed by negating the entire sentence, not by negating just that part which one would intuitively judge to have been "asserted" by an utterer of (27a). And that external negation is true if (27b) is false.

There is, however, a troublesome datum which needs explaining. When we attempt to deny (27a) by forming the sentence

(35) It's false that Dick, who is an expert on Austin, loves the Bonzo Dog Band.

or

(36) It is not the case that Dick, who is an expert on Austin loves the Bonzo Dog Band.

we encounter an apparent dialect difference. Speakers of Dialect A, as we may call it, hear no difference between (34) and (35) or (36). In Dialect A, (34), (35), and (36) are all treated as being straightforwardly equivalent to (37):

(37) Dick is an expert on Austin, and Dick doesn't love the Bonzo Dog Band.

--and hence as necessitating (27b). Speakers of Dialect B, on the other hand, treat (36) as syntactically ambiguous: they allow that (36) cannot only be read along the lines of (37) but can also be read as equivalent to the noncommittal (38):

(38) It is not the case that Dick both is an expert on Austin and loves the Bonzo Dog Band.

Speakers of Dialect B, however, freely grant that (37) is far and away the more natural reading of (36): they almost always read (34) as (37), and they are strongly inclined in most instances to read (35) and (36) similarly, i.e. to accord these sentences readings on which they necessitate (27b).

The difference between our two dialects, as well as their points of agreement, can be explained without recourse to semantic presuppositions. The crucial difference seems to lie in their respective treatments of relativization. Specifically, Dialect A places a restriction on the formation of nonrestrictive relative clauses which is absent in Dialect B.

There is considerable evidence that, in English generally, relativization is blocked within the scope of certain sentence-forming operators, i.e. that a sentence of the superficial form

(39) O(x, who is F, is G)

cannot, for certain choices of O, be derived from the underlying structure

(40) O(x is G & x is F)

but only from an underlying structure like

(41) O(x is G) & (x is F)

in which the conjunct to be relativized is not already within the scope of the operator O. The role of the commas in the surface-form (39) is to signal that the relative clause, though superficially occurring within O's complement, is not within the scope of O at the level of underlying semantic structure. For example, let O be an epistemic operator, as in

(42) John is convinced that Mary, who died last year, is alive and well in Argentina.

It is implausible to think that (42) derives from

(43) John is convinced that (Mary is alive and well in Argentina & Mary died last year)

but highly plausible to think of (42) as stemming from

(44) (John is convinced that Mary is alive and well in Argentine) & (Mary died last year).

It might be thought that our hearing (42) as derived from (44) rather than from (43) is just habitual disambiguation on the basis of our charitable reluctance to ascribe explicitly contradictory beliefs to John. But even if we provide (42) with an environment that not only tolerates but encourages a contradictory reading of the complement of John is convinced that, such as

(45) That stupid John has lots of contradictory beliefs; for example, he is convinced that Mary, who died last year, is alive and well in Argentina.

we STILL cannot hear the relative clause as expressing part of what John believes--it remains in our mouths, an extraneous side comment. Similarly, let O be an alethic modal operator, as in

(46) It might have been the case that John, who is honest, was a politician.

We hear no reading of (46) on which it entails (47):

(47) It might have been the case that John was both honest and a politician.

In (46) as well, the modal operator fails to penetrate the commas.

Dialect A includes negation among the sentence-forming operators which block relativization in this way. Dialect B does not. Consequently, Dialect A treats (36) as unambiguously derived from (37), an internal negation. In Dialect A, (27a) has no external negation in surface-structure, although of course the semantic content of (27a)--which is recorded in the underlying conjunction (28)--can easily be externally negated in surface structure. The results are not encouraging for the advocate of semantic presupposition. Although (27a) necessitates (27b) in virtue of entailing it, it is simply false that the denial of (27a) necessitates (27b). The fact that (36) necessitates (27b) in Dialect A is quite irrelevant, since, as we have seen, (36) is not (logically) the external negation of (27a) in that dialect. The presupposition claim cannot even be formulated in terms of surface structure. And it is untenable when formulated in terms of logical structure, for the external negation of (28), which shares (27)'s logical form, plainly does not necessitate (27b). The peculiarities of Dialect A concern only a bit of syntax.

Dialect B, in contrast, allows that (36) may be derived from either (37) or (38). Why, then, do speakers of B tend to assume that any actual utterance of (36) is most likely derived from (37)? The answer, we believe, lies in Gricean considerations of conversational implicature, not in the semantic realm at all. The crucial point is this: to utter the denial (i.e. the external negation) of a conjunction, or something logically equivalent to this denial, is to implicate that, although one has reason to believe that the conjuncts are not (or cannot be) true together, one's evidence is insufficient to indicate which conjunct in particular is false (cf. Grice 1961:130-2). The existence of this implicature is a simple corollary of the assumption of obedience to the Conversational Maxims. To begin with, one must have adequate evidence for one's denial of the conjunction. There are only two forms this evidence could take: specific evidence for the falsity of one conjunct in particular, or nonspecific evidence which tends to rule out joint satisfaction of both conjuncts without specifying where the fault lies. The latter sort of evidence may be fairly rare in practice, but possession of the former sort is inconsistent with obedience to the Maxims. For if the speaker knew or had reason to suspect which conjunct is false, he would have data which entail, but are not entailed by, the denial which he uttered. His utterance would therefore violate Grice's Maxim of Strength, to the effect that one ought not to say significantly less than one's evidence warrants. Thus, for better or worse, the hearer concludes that the speaker possesses only nonspecific evidence vis-à-vis the conjunction in question.

In the face of this conversational implicature, it is easy to see why a speaker of Dialect B would prefer (37) to (38) as a reading of an actual utterance of (36). Read as (38), an utterance of (36) would be appropriate only in relatively rare evidential situations; but read as (37), an utterance of (36) would fit what seems to be the statistical majority of speech-situations, in which specific evidence is available. More importantly, the reading corresponding to (37) is secured by the pragmatic effect of relativization in (36), viz. de-emphasis: if (36) is read as (38), it is difficult to explain why

the utterer would de-emphasize part of what he is concerned to deny.

In Dialect B, special stage-setting is required to make (38) a "live option" as a reading of (36). If the speaker goes on to tell an appropriate story about his reasons, then (37) and (38) will be felt to be equally plausible readings of (36), as in

(48) It is not the case that Dick, who is an expert on Austin, loves the Bonzo Dog Band; for recent psychological studies have shown that only highbrows understand Austin, and only lowbrows like the Bonzo Dog Band.

So strong is the pragmatic presumption in favor of the reading (37) that it is extraordinarily difficult to elevate (38) beyond mere parity to the status of "more likely" reading of (36). The only fairly natural way of "compelling" a speaker of Dialect B to hear (36) as (38) is to invoke tacitly metalinguistic internal quotation. Thus, only an utterance of something like

(49) It is simply false that "Dick, who is an expert on Austin, loves the Bonzo Dog Band."

--where the quoted material is uttered in a derisive tone of voice--will create a presumption in favor of the reading (38).

Nothing in our account of Dialect B requires an appeal to semantic presupposition. To think that presupposition is present at all is to overlook the fact that, in Dialect B, (36) necessitates (27b) only on one of its two syntactic readings; but that reading, viz. (37), is not the reading on which (36) is the denial of (27a). The mistake is a natural one, however, owing to the powerful pragmatic presumption in favor of (37).

Notice that nothing in our total account of nonrestrictive relative clauses requires any particular disambiguation of any surface sentence. In any test for semantic presupposition, we simply distinguish external from internal negation, regardless of which construction is in fact expressed by any of the negative sentences in question. In each case, it is seen that the external negation fails to necessitate the alleged presupposition, while the internal negation entails it--either way, semantic presupposition is ruled out.

The data of both Dialects A and B suggest the following hypothesis:

Principle H: When a sentence containing an emphatic (i.e. emphasizing or de-emphasizing) construction in surface structure is externally negated, no change of emphasis results.

That is, whatever semantic ingredient has been syntactically emphasized/de-emphasized in the original sentence will remain emphasized/de-emphasized in that sentence's denial. It is easy to provide an independent rationale for Principle H as well: Emphatic constructions, which are surface constructions that indicate disparities of focus within logical forms, do not reflect semantic differences, i.e.

differences of logical form or semantic structure; they are produced by optional transformations which operate in the presence of certain sorts of conative factors--whichever passing desires, purposes or motives comprise the speaker's reason for producing his or her utterance and impose on it a direction of interest. If the sole function of some emphatic construction is to call attention to or direct attention away from a semantic item of a particular kind (underlying subject, object, predicate, relation, entire clause, or what have you), then one would not expect that item's broader semantic environment to matter to the operation of the emphatic construction, unless that environment is one so distortive as to yield a surface structure the relevant part of which is no longer "in the speaker's own mouth." Thus, take

(50) Raffles stole the cheese.

where the stress is functioning purely as an emphatic device.[8] Although the speaker's emphasis is not preserved under direct quotation, as in

(51) Bunny shouted, "Raffles stole the cheese."

in which (50) appears only as a mentioned, reported utterance-token, it plainly is preserved in

(52) Raffles didn't steal the cheese.

Likewise, the emphasis of (53) is preserved in (54)

(53) Raffles stole the cheese.
(54) It's false that Raffles stole the cheese.

and that of (55) is preserved in (56) and in (57).

(55) Raffles--mind you, Raffles--stole the cheese.
(56) Raffles--mind you, Raffles--didn't steal the cheese.
(57) It's not true that Raffles--mind you, Raffles--
stole the cheese.

There is also a conversational rationale for Principle H: If a sentence S is pragmatically most appropriate to utter in circumstances C, then one who utters exactly the same sentence, only prefixed by a negator, is presumed willing to let the pragmatic emphasis of S stand, i.e. he is thought of as saying, in effect, that S, thought of as uttered in C, is false. For if the utterer wished to take issue with the pragmatic emphasis carried by S in C, it seems etiquette (and possibly the Maxim of Relevance) dictate that he should do so explicitly, by appropriately rewording his remark rather than by parroting an external denial of the original sentence; in conversation it is assumed that the parties share focus of interest unless an intention to shift focus is overtly acknowledged.

3.2. Cleft Constructions

Cleft sentences behave in a way parallel to those containing non-restrictive relative clauses, and similar presupposition claims have been made in connection with them. Thus Keenan (1971) tells us that (58a) presupposes (58b):

(58) a. It was John who caught the thief.
b. Someone caught the thief.

But surely (58a) straightforwardly entails (58b); if no one at all caught the thief, then it is certainly false that it was John who did.

The temptation to call this a case of semantic presupposition again stems in part from an undue regard for the fact that an utterer of (58a) would not normally be said to have "asserted" (58b). And Keenan's text makes it clear that he takes the denial of (58a) to be

(59) It wasn't John who caught the thief.

In our speech, at any rate, (59) is an internal negation, paraphraseable by

(60) $(\exists x)[\text{Caught}(x,\text{the thief}) \ \& \ \sim(\text{John} = x)]$.

on which paraphrase it entails (58a) just as (58a) does. (Thus, we construe <u>it</u> in (58a) and (59) as reflecting a bound variable, which seems to us to be the most natural way of taking it.) As before, (59) is what one might utter if one wanted to deny what an utterer of (58a) had asserted; but (59) is not the denial of (58a). The denial of (58a) is

(61) It is not the case that it was John who caught the thief.

which is paraphraseable by

(62) $\sim(\exists x)[\text{Caught}(x,\text{the thief}) \ \& \ (\text{John} = x)]$.

Thus (61) is entailed by the falsity of (58b).[9]

Admittedly, however, even (61) seems to suggest (58b) to some speakers, i.e. they would tend to infer (58b) upon hearing (61) uttered in an ordinary context. This fact is explicable in terms of purely contextual considerations. The tendency to infer (58b) upon hearing (61) is not very strong anyway: it is felt most acutely when (61) is tokened in a context where there is already a presumption that the thief has been captured; and it is felt scarcely or not at all when (61) is tokened in contexts where this presumption is absent or replaced by the presumption that the thief is still at lrage. For example, if it is generally believed that the thief has been captured, and someone has uttered (58a), someone else might express disagreement (however ponderously) by uttering (61). In so benign a context, (61) seems to express agreement with the statement that the thief has been captured. On the other hand, if it is generally believed that the thief is still at large, and yet someone has uttered (58a), someone else might express disagreement by saying

(63) {You're wrong. / It's false that it was John who caught the thief.} No one has as yet.

There is, however, something conversationally wrong with uttering (61) without qualification or explanation, in the latter context. For if the speaker (or whoever) believes that the thief is still at large, then the utterance of (61) violates the Maxim of Strength, since (61) is much weaker than

(64) The thief has not been caught.

And, as in the case of nonrestrictive relative clauses, if the speaker believes (64), his or her emphasis in (61) of the role of the putative agent (guaranteed by Principle H) is inexplicable, since (64) entails of anyone x that it is false that x caught the thief.

We infer, then, that the speaker (or whoever) does not believe (64). But this alone does not suffice to show that (58b), whose denial (64) is, is presumed. So we have yet to complete our explanation of why (61) seems to suggest (58b).

It does seem that (61) residually suggests (58b) only to speakers who tacitly imagine (61) to be uttered in favorable surroundings. After all, (58a) is just a transformational variant of

(65) John caught the thief.

The pragmatic difference between (58a) and (65) seems to be this: In containing a clefted subject, (58a) emphasizes the role of the agent, whereas (65), without special stress, seems to put the roles of agent and action on a par; thus (58a) focuses on John's activity and answers the question, Who caught the thief?. At this point Principle H comes into play: Since (61) is the external negation of (58a), (61) likewise stresses the role of the agent. (61) could be verified by either of two possible situations: that in which (64) is true, and that in which someone other than John caught the thief (i.e. in which (60) is true). We have seen that the utterer of (61) is not presuming (64), but we were troubled by the possibility that he or she may have nonspecific grounds and thus may not be presuming (60) either. Now if the speaker did have nonspecific grounds, i.e. if the speaker is agnostic concerning the choice of (64) or (60), there would prima facie be no reason to emphasize the semantic element that characterizes (60) in particular and is conspicuously absent in (64). Thus, our hypothesis that the speaker's grounds are nonspecific leaves us with a strikingly unexplained fact. So, other contextual factors being equal, we opt for the remaining possibility, viz. that the speaker is presuming (60) as evidence for (61); and (60) trivially entails (58b). Of course, other contextual factors may not be equal, and so we should expect our argument against the hypothesis of agnosticism (and hence, on our account, the presumption of (58b)) to be easily defeasible. And so it is, with only the merest disclaimer or contextual factor which obviates the need for it:

(66) It's false that it was John who caught the thief. I don't know whether or not the thief has been caught at all, but in any case John is too stupid and cowardly to have caught her.

So far we have found no use for semantic presuppositions; nor is it likely that further revelations about the exact syntax of (58a), (59) and (61) will provide any place for this notion. If (59) and (61) are syntactically univocal--i.e. if (59) is syntactically an internal negation and (61) is syntactically an external negation--then the presupposition claim vanishes before a battery of pure entailments such as attach to (60) and (62); and (61)'s residual suggestion of (58b) is explained pragmatically. If, on the other hand, either or both of (59) and (61) are syntactically ambiguous as between internal and external negations, our pragmatic considerations would explain why people tend to hear the former reading in preference to the latter.

3.3. Factive Verbs

One of the most widely discussed classes of sentences allegedly generating presuppositions in the class of "factive" constructions studied by Kiparsky and Kiparsky (1970). As is well known, factive predicates supposedly involve a presupposition of the truth of their sentential complements. The following are some of the Kiparsky's examples:

(67) a. It is { significant / odd / tragic / exciting } that S.

b. John { regrets / is aware / comprehends / grasps } that S.

Factive constructions like those in (67) supposedly can be negated without affecting the presupposition of the truth of S; if this is right, it conclusively supports the claim that such sentences have no truth-values unless S is true.

Here too we want to argue that the sentences in (67) entail their sentential complements, and that their denials fail to necessitate (and hence fail to presuppose) those complements. Let us begin by drawing attention to two bits of negative evidence.

First, strong epistemic verbs like know and realize--which the Kiparskys concede to be "semantically but not syntactically factive"--have a long historical association with the concept of truth. Epistemologists of the last two millenia have insisted that such concepts as "knowledge" and "realization" analytically involve the truth of what is known or realized. In a more contemporary idiom, their observation amounts to the claim that

(68) X knows that S.

and

(69) X realizes that S.

entail the embedded sentence S. Confronted with an utterance of

(70) I know that 1 + 1 = 3.

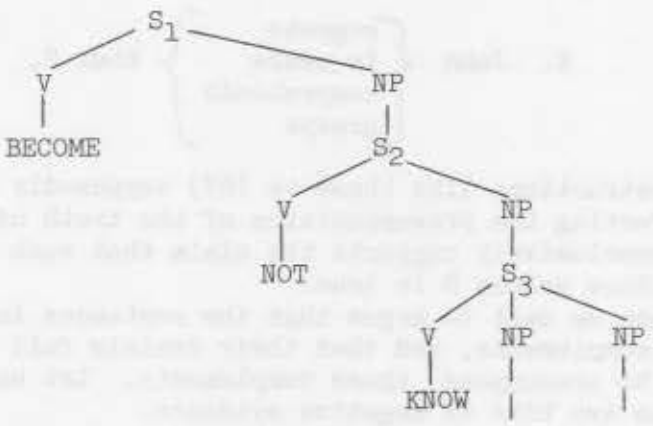
epistemologists (and most ordinary speakers) unhesitatingly would say "No you don't" or "That's false". If some ordinary speaker does not quite know what to say about such utterances, it is because he lacks a coherent theory of knowledge, or simply because such utterances are statistically unfamiliar, not because he speaks a different dialect of English. Notice, incidentally, that the sentence

(71) You do not know that 1 + 1 = 3.

simply cannot be heard as alleging someone's ignorance of a presupposed fact--at least not by anyone who can count.

Second, if we admit--as it seems we must--that sentential operators involving know, realize, and similar epistemic verbs have truth-conditions which (along with our underlying logic) require the truth of the sentential complement, then a variety of other factive verbs will also fall into line with our thesis. Consider, for example, the verb forget. De Rijk (1974) has convincingly argued for the following semantic representation of forget:

(72)



On this representation, however, a sentence of the form

(73) John forgot that S.

entails the embedded sentence S. For something can become so only if it was not formerly so. Hence it can become the case that John failed to know S only if John formerly knew S. And if John knew S, then S must be true. Given a sufficient stock of primitive epistemic operators which behave semantically like know and realize, it should not be too difficult to provide semantic representations for grasp, comprehend, and the like which result in the sentential complement

being simply entailed rather than presupposed. Such a project may have promise even for nonepistemic, evaluative factives like regret, deplore, applaud, etc.

It may be objected that the negations of the sentences in (67) do not behave appropriately, in that they appear to commit the utterer to the truth of the complement S just as much as do the originals. If this is so, then the commitment cannot be explained in terms of truth-conditionally generated entailments, since it is logically impossible that a sentence and its negation should both entail a contingent sentence S. So presuppositions must be invoked to account for the denials of the sentences in (67). And if we invoke presuppositions to account for these details, we thereby commit ourselves to using the concomitant formal machinery to handle the originals.[10]

It is contended that we cannot give a proper account of the negations of factive constructions without appealing to presuppositions. This, we shall show, is false. The behavior of these negations can be adequately explained without abandoning the view that the falsity of S makes every sentence in (67) false and their denials straightforwardly true. We shall first establish this conclusion for the verb know and then show how the same reasoning secures a similar result for other factives.

Consider the following sentences:

(74) a. Irv knows that Sam is a Martian.
b. Irv doesn't know that Sam is a Martian.
c. Sam is a Martian.

Morgan (1969), Karttunen (1973) and others have claimed that sentences like (74a) and (74b) both necessitate (74c). But we have already seen reason to believe that (74a) simply entails (74c). Consequently, if (74c) is false, then (74a) is false and its denial, (74b) is true. So (74b) cannot necessitate (74c). And yet (to give these authors their due) there is something wrong, in at least some contexts in which (74c) is false, with uttering (74b)--even though the truth of (74b) is guaranteed by the falsity of (74c). (It should not be thought that a sentence's being merely true suffices for that sentence's being appropriate or felicitous to utter, even in "normal" circumstances.) (74b), uttered with rising stress on doesn't, and particularly if immediately followed by because Sam isn't one, is unexceptionable; but without such stage-setting, (74b) would perhaps be misleading.[11] Why is this?

The explanation, we believe, involves both conversational and theoretical factors, and is somewhat subtle; but, once spelled out, it seems to us intuitively quite clear and compelling, and it makes no use of occult semantical notions. To begin with, let us note that (74a) is intuitively paraphrasable by

(75) Sam is a Martian and Irv believes on the basis of adequate evidence that Sam is a Martian.

At least, both of the following conditions must obtain in order for (74a) to be true:

(76) a. Sam is a Martian.
b. Irv believes on the basis of adequate evidence that Sam is a Martian.

The falsity of either (76a) or (76b) suffices for the falsity of (74a) and hence for the truth of (74b).

Now suppose that someone tokens (74b) without any accompanying qualification or special stage-setting. Grice's Maxim of Evidence assures us that if (as we assume) the speaker is cooperative, then he has adequate evidence for the truth of (74b), (74b) being intuitively the denial of a conjunction of necessary conditions. What form might the speaker's evidence take? There are only three possibilities: (i) The speaker may have adequate evidence for the falsity of (76a). (ii) The speaker may have adequate evidence for the falsity of (76b). (iii) The speaker may have insufficient specific evidence concerning (76a) or (76b) taken alone, but yet have evidence that they are at least not both true.

Let us consider possibility (i). Notice first that there is an asymmetry in our attitude toward the twofold conditions for (74a). Let us say that (76a) expresses the general condition for the truth of (74a), and (76b) the specific condition for the truth of (74a). The specific condition is person-relative in a way that the general condition is not: it concerns the subject, Irv, and not the status of what he believes. (As it happens, the embedded sentence (76a) also mentions a person, but this feature of (74b) is expendable and irrelevant.)

Now Grice's Maxim of Relevance dictates that one ought not to talk about things which are irrelevant to the point one is trying to make. But (74b) mentions a particular person, viz. Irv; so there is a conversational presumption that the truth of (74b) has something importantly to do with Irv's properties in particular. But at the same time, the Maxims forbid saying substantially less than one is in a position to say. So if the speaker were entitled to deny (76a), the general condition, he should do so explicitly: the speaker should not utter something which, like (74b), is entailed by but does not entail what he is in a position to assert. Moreover (here is the asymmetry) the falsity of the general condition (76a) has much more disastrous consequences than would the falsity of the specific condition (76b). If Irv does not justifiably believe that Sam is a Martian, then it follows merely that Irv does not know that Sam is a Martian, not that anyone else fails to know this. But if Sam is not a Martian, then nobody can be said to know that Sam is a Martian, i.e.

(77) X knows that Sam is a Martian.

will be false for all values of X. Since so much more than the mere falsity of (74a) hinges on the falsity of the general condition (76a), and since (74b) is presumed to tell us something which is nontrivial and specifically about Irv--not something which, on the assumption of the falsity of (76a), would be true of anyone in the world--a hearer is conversationally entitled to the conclusion that the speaker is not assuming that (76a) is false. Therefore, the speaker's evidence for (74b) cannot be the failure of (76a).

Passing over possibility (ii) for a moment, let us consider possibility (iii), the possibility that the speaker's evidence for (74b) is wholly nonspecific. What we want to say here is that such a situation is strikingly rare, and consequently that possibility (iii) is quite improbable. There are, of course, many common situations in which we have adequate evidence for something which can be expressed in the form of a denial of a conjunction. For example, we might be fully justified in accepting

(78) It's not the case that Jesse both shot the marshal through the heart and talked with him later about the problem of crime in the streets.

without having any idea which of the relevant conjuncts was false, since we hold a well-established biological theory which entails both (79) and (80).

(79) If Jesse shot the marshal through the heart, then the marshal is dead.
(80) No dead person talks with anyone about anything.

But (79) and (80) jointly entail

(81) If Jesse shot the marshal through the heart, then Jesse did not talk with the marshal later about the problem of crime in the streets.

And (81) trivially entails (78). Similarly, we might have adequate evidence for

(82) It's not the case that both Batman and Superman are in the phone booth now.

without having any idea who is or isn't in fact in the phone booth, since our commonsensical theory of ordinary objects entails (83) from which we trivially infer (84).

(83) Only one person can fit into a phone booth at a time.
(84) If Batman is in the phone booth now, then Superman isn't; and if Superman is in the phone booth now, then Batman isn't.

In short, we can come to know the denial of a conjunction, without having adequate evidence against either conjunct in particular, by virtue of having a well-established theory which entails a conditional (or, derivatively, a disjunction) which in turn trivially entails the denial of the conjunction.

Is something like the foregoing operative in the case of (74b)? Let us render (74b) in conditional form, obtaining

(85) If Sam is a Martian, then Irv does not believe on the basis of adequate evidence that Sam is a Martian.

or, equivalently,

(86) If Irv believes on the basis of adequate evidence that Sam is a Martian, then Sam is not a Martian.

Clearly, if (74b) is true then so are (85) and (86), provided that their conditional frames are taken to be strictly truth-functional. But since the purely truth-functional conditional has only rare and specialized uses in English, we would never express (74b) in either of these ways. For, in ordinary speech, both (85) and (86) are interpreted as implying stronger, at least minimally nomological connections between their respective antecedents and consequents. However, the relevant statements, (76a) and (76b) or its denial, are not closely related at all: they have utterly different foci. (76a), we have already observed, is about Sam and his race or nationality, whereas (76b) is about Irv and his epistemic position, implying nothing whatever about Sam's properties. We have no theory, scientific, philosophical, or commonsensical, which connects these two disparate matters. Consequently, waiving any specific evidence we may have concerning the truth-values of (76a) or (76b) taken individually, we have no evidence for (85) or (86) either; thus we cannot be said to have arrived at (74b) by inferring it from a background set of entrenched beliefs via (85) or (86). (Contrast the case of (78)-(81). Plainly, the stronger the nomological connection expressed by a given conditional, the greater will be the likelihood that the truth of the negated conjunction equivalent to that conditional will be known to us on the basis of nonspecific evidence rather than on the basis of our knowledge of the falsity of one of the conjuncts, and vice versa. To see this, consider the limiting case of a strictly nomological connection--an instance of a law of sentential logic:

(87) It's not the case that the Continuum Hypothesis is both true and false.

We would always know (87) trivially and a priori whether or not anyone ever ascertained the truth-value of the Continuum Hypothesis. Since (85) and (86) lie at the other end of the spectrum of nomologicality, having for ordinary people no nomological status at all, it is entirely unlikely that anyone would have nonspecific evidence for (74b).)

Similar remarks apply to the disjunctive equivalent of (74b), viz.

(88) Either Sam is not a Martian or Irv does not believe on the basis of adequate evidence that Sam is a Martian.

As before, there is no statement of any general background theory of ours that entails (88) in the way in which (83) entails (82); we would in any normal case come to know (88)--and hence (74b)--only by virtue of antecedently knowing the truth-values of at least one of the two conditions (76a) and (76b), not the other way around.

The foregoing reasoning rules out possibility (iii). The only remaining option is (ii), the possibility that the speaker who asserts

(74b) has adequate evidence for the falsity of (76b). In terms of the Gricean Maxims, this means that we are prone to regard (74b) as something of an understatement, since (76b) is logically stronger than (74b). But this conclusion is inevitable, since the only alternatives are to regard (74b) as disastrously trivial or else backed by an exceedingly rare and peculiar sort of evidence. (Notice that we are not contradicting our earlier claim, made in Section 3.1, that in ordinary situations the denial of a conjunction conversationally implies agnosticism on the utterer's part; the principle is correct but defeasible. In the present context it is simply overridden by the asymmetry between (76a) and (76b) on the one hand, and the probabilistic presumption against nonspecific evidence on the other.)

Let us recapitulate our findings. Upon hearing an utterance of (74b), unaccompanied by special stage-setting, a hearer who follows the line of least resistance will arrive at the following twofold conclusion:

(89) a. The utterer of (74b) believes that Irv does not justifiably believe Sam to be a Martian.
b. The utterer of (74b) does not believe that Sam is not a Martian.

(89) is certainly sufficient to explain why we tend to hear (74b) as an internal negation, i.e. as a denial of (76b) alone. But it is not yet obvious why some speakers also hear (74b) as actively asserting (76a). For (89b) does not entail

(90) The utterer of (74b) believes that Sam is a Martian.

However unlikely, it is surely possible that the utterer of (74b) is agnostic on the question of Sam's origins. To secure the inference of (90) from (89b) we need (91):

(91) The utterer of (74b) has an opinion as to whether Sam is a Martian.

We submit that it is primarily in contexts where the utterer is presumed to have an opinion as to the truth-value of the complement that a negated knowledge-statement will be heard as actively suggesting that complement (in addition to denying the relevant specific condition). Such contexts will be numerous, for there are many matters concerning which the lack of any opinion is highly unlikely. Where there is readily available evidence for or against a proposition--as there is for, say, the proposition that aspirin cures headaches--then it seems very unlikely that an intelligent adult who has led a normal life could have failed to form an opinion on the matter, or that he would be unwilling, if pressed, to commit himself. In addition to considerations of subject matter, there are many other contextual factors which might lead us to the conclusion that the utterer of negative knowledge-statement has an opinion about the truth-value of the complement. For example, the speaker may be an acknowledged expert on matters mentioned or described in the complement, i.e. one who, as a matter of his profession, would be expected to have an opinion (the utterer of (74b)

might be a well-known exobiologist). Or again, (74b) might be uttered with a revelatory stress contour, e.g. in tones of surprise (at John's ignorance of a fact) or derision (at John's stupidity in overlooking the obvious).

Moreover, if there is no contextual presumption of this kind, it is hard to hear the utterer of a negative knowledge-statement as actively implying the truth of its complement, unless it happens that we already believe that the complement is true. If, for example, we antecedently believe that Sam is a Martian, then even though we impute no opinion on the matter to the utterer of (74b), we will still hear (74b) as tending to express agreement with our belief. For we have seen that the utterer of (74b) is most likely not disagreeing with (76a) but is at least allowing it to stand, perhaps "granting it for the sake of argument." And failure to take the opportunity to dispute a belief whose truth-value is crucially relevant to the truth-value of what one says is commonly regarded as a sign of tacit consent (although there is no real necessity in so regarding it). On the other hand, if the audience regards the complement as false (but imputes no opinion to the speaker) they will find the utterance of (74b) uninteresting and will no doubt point out to the utterer that he was wrong in not disputing (76a), in consequence of which he said something trivial. But they will not hear (74b) as suggesting the truth of (76a) any more than we would normally hear (71) as suggesting that 1 + 1 = 3. Of course it is possible that the audience not only fails to impute to the speaker any opinion on the complement, but also fails to have any opinion of its own on the matter. In such a case the audience would not hear any suggestion of the complement's truth. Thus, if someone were to say

(92) John doesn't know that Goldbach's Conjecture is false.

--the truth-value of Goldbach's Conjecture being a matter on which we (and most other people) lack any opinion--we would not hear (92) as alleging the falsity of the Conjecture but would instead understand it as pointing out the fact that John, whatever he may or may not think of Goldbach's Conjecture, certainly doesn't know that it's false. The most natural response to (92) under these circumstances would be "Neither do we", or "Right, the Conjecture is up for grabs".

We conclude that our ability to generate (89) solely from pragmatic and statistical considerations adequately accounts for some people's tendency to hear (74b) as claiming that Sam lacks justified belief in proposition which is true (or at least allowed to stand unchallenged). Clearly, our argument can be generalized to cover all sentences of the form

(93) X doesn't know that S.

yielding a pragmatic explanation of why these sentences are sometimes taken to "imply" or suggest the truth of S while asserting that X lacks justified belief that S.[12]

Before applying all this to the factives listed in (67), let us review the salient points of our strategy for ease of future reference.

Given a sentence S which is intuitively paraphrasable as a conjunction of statements S_1 and S_2 such that S_1 expresses the "general" condition for S's truth and S_2 expresses the "specific" condition for S's truth (in the senses exemplified above), a combination of theoretical and conversational considerations leads to the conclusion that one who utters the denial of S intends his audience to understand that he believes S_2 to be false and does not believe S_1 to be false. Further contextual considerations lead (in many if not most cases) to the further conclusion that the utterer believes S_1 to be true, or is at least willing to set S_1's truth be taken for granted for argumentative purposes. This combination of conversational, theoretical, and contextual factors lends support to interpreting the utterance of the denial of S as if it were the utterance of S_1 and the negation of S_2. For convenience, let us coin the term factive implication for this complex pragmatic relation between an utterance of the denial of S and the indicated conclusion about S_1 and S_2. Schematically, we could then say that, where S, S_1, and S_2 are as above, $\sim S$ "factively implies" $S_1 \& \sim S_2$.

Using this purely pragmatic notion, we can easily account for the behavior of the various factive constructions in (67). Consider the following examples:

(94) a. John is aware that Mary is pregnant.
b. It is significant that Mary is pregnant.
c. John is not aware that Mary is pregnant.
d. It is not significant that Mary is not pregnant.

Let us begin by asking ourselves about the intuitive truth-conditions for (94a) and (94b), in that order.

The predicate aware appears to admit of a strong reading, on which it amounts to knows, and also a weaker reading, on which it is equivalent to something like correctly assumes. Since our discussion of know takes care of the former, we shall confine our attention to the latter understanding, on which (94a) is paraphrasable by

(95) Mary is pregnant, and John $\left\{\begin{matrix}\text{assumes}\\ \text{believes}\\ \text{takes it}\end{matrix}\right\}$ that Mary is pregnant.

Thus paraphrased, (94a) entails both (96a) and (96b):

(96) a. Mary is pregnant.
b. John $\left\{\begin{matrix}\text{assumes}\\ \text{believes}\\ \text{takes it}\end{matrix}\right\}$ that Mary is pregnant.

and (94a) is thus straightforwardly false if either (96a) or (96b) is false.

The sentence (94b) is somewhat more complicated, owing to the presence of a suppressed parameter. Intuitively, to be significant is to be significant to or for some person or group of persons. Moreover, being significant for a person X is a property which attaches

to an envisaged state-of-affairs just in case some consequences which X finds significant would ensue or depending on whether or not the envisaged state-of-affairs obtained. It seems, then, that (94b) can be paraphrased by

(97) Mary is pregnant, and some consequence which X finds significant would ensue or not depending on whether or not Mary is pregnant.

Thus (94b) would entail both (96a) and (98):

(98) Some consequence which X finds significant would ensue or not depending on whether or not Mary is pregnant.

The problem is that (94c) and (94d), the respective denials of (94a) and (94b), ought not to entail or otherwise necessitate (96a). Yet (94c) and (94d) do seem to "imply" (96a) in some weaker sense; people sometimes tend to hear utterances of (94c-d) as conveying the information recorded in (99a-b) respectively:

(99) a. Mary is pregnant, and it's false that John $\left\{\begin{matrix}\text{assumes}\\ \text{believes}\\ \text{takes it}\end{matrix}\right\}$ that Mary is pregnant.

b. Mary is pregnant, and nothing of significance to X hinges on whether Mary is pregnant.

The explanation of this fact is simple. In the sense lately defined, (96a) is the general condition for the truth of both (94a) and (94b); (96b) is the specific condition for the truth of (94a); and (98) is the specific condition for the truth of (94b). Therefore, by exactly the same reasoning as was employed in the case of know, we obtain the conclusion that (94c) factively implies (99a), and (94d) factively implies (99b). The considerable amount of effort spent on know thus has an immediate payoff for the analysis of factives in general. We shall soon see that the payoff extends beyond factives to other constructions which have been thought to involve presuppositions.

Finally, it ought to be pointed out that there is a simple and straightforward way of showing conclusively that none of the sorts of constructions we have considered so far in fact gives rise to semantic presuppositions. According to the definition of semantic presupposition, a sentence S_1 semantically presupposes a sentence S_2 only if the denial of S_1 necessitates S_2. Let us list again the denials of the principal sentences we have considered so far:

(100) a. It's false that Dick, who is an expert on Austin, loves the Bonzo Dog Band.
b. It's false that it was John who caught the thief.
c. John is not aware that Mary is pregnant.
d. Irv doesn't know that Sam is a Martian.
e. It isn't significant that Mary is pregnant.

The important thing to notice is that the various "implications" that these denials bear are all cancellable (Grice 1961:128), as in

(101) a. It's false that Dick, who is an expert on Austin, loves the Bonzo Dog Band, because Dick knows nothing about Austin. [Dialect B only]
b. It's false that it was John who caught the thief, because no one caught her.
c. John is not aware that Mary is pregnant, because she isn't.
d. Irv doesn't know that Sam is a Martian, because Sam isn't one.
e. It isn't significant that Mary is pregnant, because she isn't.

Now necessitation, a strictly model-theoretic notion, does not admit of cancellation. Therefore, the "implications" of (100a-e), cancelled by (101a-e) respectively, are not necessitated by (100a-e). By definition, then, no semantic presuppositions are involved in these cases. And their very cancellability in context should be enough to tip us off that the notions we are dealing with are context-bound, pragmatic.

3.4. Implicative Verbs

Karttunen (1971b) alleges that, in addition to factive verbs, there are also presupposition-carrying "implicative verbs". Implicative verbs are a subclass of verbs taking infinitive complements, and their distinguishing feature, we are told, is that assertive sentences with implicative main verbs "imply" an augmented version of their complement sentences. Karttunen claims that this "implication" cannot be identified with ordinary entailment, but can only be understood via an appeal to presuppositions. He gives the following partial list of implicative verbs:

(102) manage, remember, bother, get, dare, care, venture, condescend, happen, see fit, be careful, have the {misfortune / sense}, take the {time / opportunity / trouble}, take it upon oneself.

Of these verbs, manage seems to be the paradigm, for it receives the most attention. Consider the following sentences:

(103) a. John managed to solve the problem.
b. John didn't manage to solve the problem.
c. John solved the problem.
d. John didn't solve the problem.

We are told that (103a) implies (103c), and that (103b) implies (103d). But (103b) appears to be the negation of (103a), and (103d)

that of (103c); so if these "implications" were entailments, (103a) and (103c) would be logically equivalent. Karttunen claims that in fact they are not logically equivalent, giving as his reason that manage to solve and solve differ in meaning.

Of course (103a) and (103c) do intuitively "differ in meaning", but this is not enough to show that they are not logically equivalent. Consider, for example, the following sentences:

(104) a. Meno is a pederast.
b. Either Meno is a pederast, or Meno is not a pederast but has a dog that is both alive and not alive.

(104a) and (104b) can be shown to be logically equivalent by simple propositional calculation, in spite of the fact that they unquestionably differ in meaning. And in light of our discussion of nonrestrictive relative clauses, the same might well be said for the following pair:

(105) a. John, who smokes cigars, loves wine.
b. John, who loves wine, smokes cigars.

What we need is some more accurate account of the difference in meaning between (103a) and (103c) which has some clear relevance to the question of their truth-conditions and displays their nonequivalence.

Karttunen goes on to fill this lacuna with an appeal to semantic presupposition. (103a), we are informed, presupposes something like

(106) John tried (i.e. expended effort) to solve the problem.

Thus (106) is necessitated by both (103a) and (103b). But (103c) does not even suggest (106)--let alone presuppose it. So (103a) and (103c) cannot be logically equivalent, since on these assumptions it is logically possible that (103c) should be true but (103a) be truth-valueless owing to the falsity of (106). Similarly, (103b) cannot be logically equivalent to (103d); for the truth of (103d) is consistent with the falsity of (106), hence with the truth-valuelessness of (103b).

It appears, then, that implicative verbs behave in a more complex way than do factives. Implicative verbs, like factives, supposedly generate semantic presuppositions; but, unlike factives, they presuppose not the truth of the sentences underlying their verbal complements, but in each case the truth of some third, quite different sentence. In addition, they introduce a novel kind of "implication" such that an assertive sentence with an implicative main verb "implies"(but does not presuppose!) its complement, and such that the negation of the former implies (but does not presuppose) the negation of the latter. "Implication" of this new sort, then, is a mysterious and heretofore unknown tertium quid, inferentially reliable, but not so strict as necessitation.

Before assessing all these claims in connection with (103), let us pause to look more closely at the list (102).

It is far from clear that the items in (102) are happily grouped

together. Some of the verbs in question are, in our speech at least, not "implicative" at all. Consider the following exchange:

(107) Bully: "Which of you dares to fight me?"
John: "I dare to fight you!"
Bully (eyeing John's bulging biceps):
"Ordinarily, I'd clobber you here and now, but I hear my mother calling and have to go home."

In reporting this exchange, we might appropriately say something like

(108) John dared to fight the bully, but the fight never took place, because the bully chickened out.

But the acceptability of (108) belies the claim that (109) necessitates (110).

(109) John dared to fight the bully.
(110) John fought the bully.

Similarly, the following two sentences are, in our speech, virtual synonyms:

(111) a. John took it upon himself to make the announcement.
b. John unilaterally decided to make the announcement.

In this sense it is possible that a man should take it upon himself to do something which he is subsequently prevented from doing. That is, the following sentence seems perfectly acceptable:

(112) John took it upon himself to make the announcement, but dropped dead of a heart attack just as he was opening his mouth to speak.

Both (109) and (111a) impute states of mind which, in the normal course of events, are accompanied or immediately followed by the indicated actions. But the presumption of fulfillment, if indeed there is one, seems merely inductive. As a final example, we could cite the verb care. In negative constructions like (113) it is difficult to hear any implication of (114) since it is so easy to invent counterexamples like (115).

(113) John didn't care to discuss the matter.
(114) John didn't discuss the matter.
(115) John didn't care to discuss the matter, but Mary forced him to talk about it.

Of course there may be dialects of English in which these verbs are uniformly "implicative" in Karttunen's sense. In erecting a general strategy for handling genuinely implicative verbs, however, it is

best to concentrate on unequivocal examples. So let us look at Karttunen's strongest case, the verb manage. If the alleged behavior of manage can be explained without recourse to presupposition, then the same form of explanation, relativized to dialect, ought to account for the weaker members of (102) as well.

A preliminary thing to note about manage is that, strictly speaking, the sentence (103a) does not necessitate (106).

(103) a. John managed to solve the problem.
(106) John tried to solve the problem.

For a person can manage to do something without trying--inadvertently or accidentally. Thus neither (116) nor (117) necessitates or even allows that the person in question was attempting to perform the indicated action.[13]

(116) While trying to prove Fermat's Last Theorem, Saul inadvertently managed to prove Goldbach's Conjecture.
(117) We had been trying for months to knock all the beer cans off the log, but Bottomley managed to do it by accident while trying to shoot down a rust-speckled grosbeak.

In fact, it is surprisingly difficult to say what is (putatively) necessitated by (103a). Minimally, manage seems to involve a broad presumption to the effect that some sort of impediment exists, if not for the agent then at least for some other contextually involved person or persons. In other words, to say that John managed to do such-and-such is to represent the action of doing such-and-such as something which "wasn't entirely easy"--without actually saying, but leaving it to the context to determine, wherein the trouble lies. Since this point is crucial to what follows, we shall belabor it a moment longer. If someone were to utter

(118) John managed to breathe.

he would not, appearances to the contrary, be committed to saying that John found it hard to breathe. The implied impediment is not intrinsically person-specific, although obvious pragmatic factors can lead us to hear it as such. This becomes clear when we consider other contexts in which (118) would be perfectly appropriate. Suppose that John, having been raised in the Andes, has extraordinary breathing powers. Suppose further that (118) is uttered by someone who is aware of this fact and is describing a mountain-climbing episode in which everyone but John was fainting, unable to breathe. There is still the presumption that, under the circumstances, breathing wasn't easy; but now we hear it as attaching not to John but to his companions. With a little more patience, we could easily point the presumption in such a way that it cannot be heard as attaching to anyone in particular, but only to a mysterious "someone". Thus suppose that (118) is uttered in a context in which everyone knows of John's great lung capacity and

that the utterance occurs as the climax of the speaker's description of John's single-handed ascent of Everest. The presumption of impediment clearly does not attach to John, and the context supplies no other specific person or persons to whom it could apply. The most we can say is that "someone" would find it difficult to breathe under those circumstances. In short, what remains constant amid all these shifts of "focus" is the nonspecific presumption of contextual impediment; the variable factor of felt application to a specific person appears to be something which arises extralinguistically, from the hearer's beliefs about the context of utterance. The significance of this point will manifest itself shortly.

Everything we have said so far suggests that (103a) genuinely necessitates something like the deliberately noncommittal sentence

(119) Solving the problem wasn't entirely easy.

But does (103a) semantically presuppose (119)? If it does, then (103b)--the denial of (103a)--must also necessitate (119). Whatever implicative connection exists between (103b) and (119), however, seems cancellable in context, hence cannot be viewed as genuine necessitation. For (120) is acceptable:

(120) John didn't manage to solve the problem--it was so easy that a trained monkey could solve it blindfolded!

Admittedly, the felt need for stress in (120) suggests that the implication which it cancels is strongly felt in the first place. So we must explain how (103b) can strongly suggest (119) without necessitating it.

Before addressing this problem, let us pause and take quick stock of our other intuitions about the data. Parallel to the feeling that (103a) necessitates (119), we find an equally strong feeling that (103a) also necessitates (103c). Moreover, it seems to us that the joint truth of (119) and (103c) is sufficient for the truth of (103a). In our speech, that is, (103a) may be closely paraphrased by a combination of these two sentences, as in (121).

(121) John solved the problem, which wasn't an entirely easy thing to do.

(103a) and (121) would appear to have equivalent truth-conditions.[14] (121) obviously entails both (119) and (103c), since it derives syntactically from their conjunction. So, at least where (103a) is concerned, there is no immediate obstacle to viewing (103c) and (119) as simply being two of its ordinary entailments. It is when we turn to (103b), the denial of (103a), that we encounter an apparent obstacle, viz. explaining (103b)'s felt relations to (119) and (103d).

The problem is a familiar one: (103a) behaves like a conjunction, so (103b), its apparent denial, ought to behave like a negated conjunction, i.e. (103b) should not entail either (119) or (103d). Yet an utterance of (103b) suggests to the audience that both (119) and

(103d) are taken to be true. Given our earlier treatment of factives, the solution to this problem is evident. (119) and (103c) are respectively the general and specific conditions for the truth of (103a), for (103c) directly concerns John, while (119) was shown to lack specificity regarding any particular person. If (103c) is false, then (103a) is false; but if (119) is false then not only (103a) but any sentence of that form--i.e. any result of replacing John by another singular term--will also be false. Therefore, by exactly the same reasoning as was applied to factives, it follows that (103b), the denial of (103a), factively implies the conjunction of (119) with (103d).

We note in passing that our solution provides for an interpretation that captures the germ of truth in Karttunen's remark that (103b) "implies" (103d) and that this mysterious implication (supposedly neither an entailment or a presupposition) is supported by (103b)'s allegedly presupposing (106). Since we have seen that (106) ought to be replaced by (119), we could reformulate Karttunen's claim by saying that (103b) implies (103d) in virtue of its connection with (119). In the terminology we have adopted, this claim can be interpreted as simply encapsulating the process of reasoning which was used earlier to explain why negated factives are heard as negations of specific necessary conditions. The speaker's evidence for (103b) cannot, on pain of gross triviality, bear on the falsity of the general condition (119); and since possession of the requisite sort of neutral, non-specific evidence is highly improbable, we conclude that the speaker's evidence bears on the falsity of (103c), hence on the truth of (103d). Roughly: since (119) has a conversationally privileged position, the negation slides past it and is heard as attaching to (103c), yielding an assertion of (103d). It is in this sense that (103b) implies (103d) "in virtue of" its connection with (119).

So far we have shown that all of the felt implications of (103a) and (103b) can be straightforwardly explained in terms of entailments and factive implications, and hence that there is no residual datum requiring the acceptance of nonstandard semantic apparatus. Since this is all that we were strictly concerned to show, we could stop here. But it would obviously be desirable to have at least a rough account of why people's intuitions regarding implicative verbs like manage, exemplified in Karttunen's claims, are in such a sorry state. Consider the sentence

(122) John didn't manage to solve the problem, but he solved it.

Given our results so far, (122) is not a contradiction. (It is at best only what might be called a "factive contradiction", i.e. a sentence which factively implies something (here, that John didn't solve the problem) which is incompatible with what is asserted (here, that John did solve the problem). Such sentences, resulting from the explicit cancellation of a factive implication, are entirely acceptable when put into context.) Similar observations hold of Karttunen's other "implicative" verbs as well; contrary to what is implied by his text, e.g. (123) and (124), however contrived they may be, are

surely not contradictions either.

(123) John didn't remember to lock his door; having forgotten to, he locked it inadvertently by getting his eyebrow caught on the bolt.

(124) John didn't see fit to remain silent; Marsha sat on him and stuffed a large gag into his mouth.

Just possibly Karttunen wants to insist that he simply cannot accept (122), (123), or (124) under any circumstances, no matter how contexts are filled in. Perhaps in Karttunen's speech, (103b) does necessitate (103d), and (122) etc. are simply contradictions, despite appearances. But this can be so only if (103b) is something other than the actual denial of (103a) for Karttunen or a speaker of his persuasion. Without becoming entangled in controversial syntactic hypotheses, we can give at least a partial account of this phenomenon in terms of our paraphrase (121).

If (103a) is paraphrased by (121), then the natural paraphrase for (103b) is

(125) It is not the case that John solved the problem, which wasn't an entirely easy thing to do.

What is suggestive about (125) has already been noted in our discussion of nonrestrictive relative clauses, viz. in Dialect A of English, (125) is umambiguously an internal negation deriving from

(126) ~ (John solved the problem) & (Solving the problem wasn't easy).

whereas in Dialect B (125) is syntactically ambiguous as between (126) and (127).

(127) ~ (John solved the problem & solving the problem wasn't easy).

If (103a) and (121) share equivalent underlying structures, then presumably so do (103b) and (125). But in Dialect A (125) derives from a structure which entails both (103d) and (119). Consequently, in Dialect A (103b) would genuinely entail (103d) and (119) rather than merely factively implying them, and (122) would be a logical contradiction. In Dialect B, however, (103b) would share the ambiguity of (125), having one reading equivalent to (126) and a distinct reading equivalent to (127). In Dialect B, the ambiguity tends to be resolved in favor of the logically stronger reading on familiar grounds of conversational implicature; and (122) is felt to be "almost a contradiction" on the ground that (103b), though ambiguous, is of a form whose instances are much more commonly construed as internal negations.

Thus, at least some of the confusion about manage can be laid to the fact that Dialects A and B differ in their syntactic treatment of

the intuitive paraphrases of (103a) and (103b). Karttunen, we might say, speaks on behalf of Dialect A, whereas we have spoken on behalf of Dialect B. But it is important to point out that this possible difference between dialects does not jeopardize our earlier results, which were obtained by treating (103b) as the denial (i.e. the external rather than internal negation) of (103a). For if (103b) is unambiguously an internal negation, whose underlying structure is equivalent to (126), then there are no puzzling data to be accounted for at all: (103b) would simply entail (103d) and (119). There could be no question of semantic presupposition in this instance, since (103b), although it necessitates (indeed, entails) the sentence (103d), is not the denial of (103a). (103b)'s behavior would be totally irrelevant. It is only by allowing (103b) a reading equivalent to (127) that one can generate any "felt problem" for whose solution an appeal to semantic presuppositions and quasi-logical "implications" might even conceivably be relevant, viz. the "felt problem" of how (103b) could in some sense imply both (103d) and (119) without actually entailing them. And, as we have seen, this problem is solved completely by recognition of the relevant factive implications. Our final conclusion, then, can be accounted for in purely pragmatic terms and without the invocation of an unprecedented and ill-behaved implicative relation.

3.5. Counterfactives

Factive verbs have negative twins, viz. "counterfactive" verbs like pretend, imagine, make believe, etc. Not surprisingly, it has been contended that sentences of the form

(128) X is pretending that S.

semantically presuppose the falsity of the sentential complement S (Lakoff 1972, Langendoen and Savin 1971). It has also been suggested (by Lakoff) that stress can effect a reversal of presupposition, i.e. that (129) normally necessitates the falsity of S, but that (130) necessitates the truth of S.

(129) X is not pretending that S.
(130) X is not pretending that S.

All of these claims seem to us to be clearly false. Consider the following expanded instances of (128)-(130):

(131) a. Susie is pretending that she is an orphan--little does she know that her vacationing parents were killed last week!
b. Mary is not pretending that she loves John!--Whatever gave you that idea? She's just being coquettish, but everybody knows she really loves him.
c. Mary is not pretending that there is a spider on her hand, she's hallucinating, poor thing.

(131a-c) show that the alleged necessitations are all cancellable in context, hence that they are not instances of necessitation at all.

The correct account of the "implication" carried by sentences of the form (128) is not semantic but pragmatic. In this case it seems to depend heavily on the particular sentences we substitute for S in (128). Some instances of (128), such as the one in (131a), produce easily cancellable implications; others are harder to handle. Let us take a particularly strong case, adduced by Lakoff (1972):

(132) Irv is pretending that he is in pain.

It is difficult not to hear (132) as necessitating

(133) Irv is not in pain.

And accordingly the sentence

(134) Irv is pretending that he is in pain, and he is in pain.

sounds very odd, perhaps even "contradictory" in some sense.

On reflection, it seems that the reason speakers boggle at sentences like (134) lies in the fact that virtually all of us hold certain commonsensical theories about human psychology which are logically at odds with (134). One aspect of our shared theory is that all forms of fantasizing that something is the case psychologically preclude simultaneous belief, on the part of the subject, that the fantasized state-of-affairs really obtains. (Some theorists might claim that this principle is a "conceptual truth", or even that it expresses an entailment of (128), not merely something which follows from the conjunction of (128) with a contingent theory; it makes no essential difference to what follows whether we say that (128) theoretically implies

(135) X does not believe that S.

or whether instead we say that (128) analytically implies (135). At any rate, it appears that one of these two alternatives must be the correct one.) A second, and more clearly contingent, principle of our commonsense psychology is that pains are ineluctably conscious phenomena, that pain-states are "self-intimating". These two principles, of belief-exclusion and self-intimation, serve to rule out acceptance of (134) in the following way. (134) entails (132), and (132) theoretically implies (136) by the principle of belief-exclusion.

(136) Irv doesn't believe he's in pain.

But (134) also entails (137), and (137), by the principle of self-intimation, theoretically implies (138).

(137) Irv is in pain.
(138) Irv believes that he is in pain.

(136) and (138), however, are mutually contradictory. Thus (134) is rejected as a theoretical contradiction, i.e. something which cannot be true if our homely psychological theories are correct. Notice that (132) theoretically implies (133) in virtue of the same principles. For suppose that (132) were true and (133) were false, i.e. that (132) and (137) were both true. We just saw, however, that (132) theoretically implies (136), and (137) theoretically implies (138). But (136) and (138) are jointly absurd: therefore (133) must--given the truth of our theory--be true when (132) is, i.e. (132) theoretically implies (133).

What about the denial of (132)? The sentence

(139) Irv is not pretending that he's in pain.

theoretically implies neither (133) nor (137). (If it implied either, we should have the absurd result, by contraposition, that (133) theoretically implies (132), or that (137) theoretically implies (132)!) This observation is not surprising, since although (132) strongly suggests (133), (139)--in our speech at least--carries no strong presumption in favor of either (133) or (137). Only when (139) is given special stress, as in

(140) Irv is not pretending that he is in pain.

is there a strongly felt bias in favor of (137). But the source of the bias is easy to locate. The heavy stress in (140) conveys the strong impression that the utterer thinks there is something in the very nature of pretending which makes (132) false, i.e. some powerful psychological reason why pretense is ruled out. And in terms of our commonsense psychology, the obvious reason is that Irv is in pain, which would theoertically eliminate the possibility of pretense (or perhaps the reason might be that Irv believes himself to be in pain, which is still enough to rule out pretense and which would ordinarily be enough to make us say that Irv is in pain, since it is theoretically unlikely that he would have this belief without actually being in pain). Other alternatives, such as that Irv is rehearsing for a play in which he has the role of a person suffering from great pain, tend to be discounted because we have no very strong theoretical reasons for supposing that these alternatives are really "intrinsically" incompatible with pretense (e.g. Irv might be a "method" actor of some sort).

The cancellability of the felt implications of counterfactives like pretend proves that these implications cannot be genuine semantic presuppositions. And the ease with which they can be accounted for in terms of background beliefs suggests that the presupposition enthusiast has fallen prey to an occupational hazard of armchair semanticists, viz. conflating a matter of utterance-meaning with the utterer's accompanying beliefs.

3.6. Orders and Questions

All the alleged cases of semantic presupposition that we have considered so far have concerned declarative sentences, since semantic

presupposition is typically defined in terms of necessary conditions for a sentence's having a truth-value, and only declaratives admit of truth-valuation. Yet some theorists have felt that interrogatives and imperatives stand to certain declaratives in relations which are at least importantly analogous to semantic presupposition as ordinarily understood. Consider, for example, the following pairs of sentences:

(141) a. Why is the Moon made of green cheese?
b. The Moon is made of green cheese.
(142) a. Shut the door!
b. The door is not already shut.

It has been claimed that sentences like (141a) and (142a) in some sense "presuppose" sentences like (141b) and (142b) respectively (Kiparsky and Kiparsky 1970, Fillmore 1971).

If we are to assess these claims about (141) and (142), we must have at least a rough definition of the ingredient notion of "presupposition". The following seems to be approximately what the presupposition theorist has in mind. Interrogatives and imperatives, though not truth-valued, have semantic characteristics which are analogous to the possession of truth-values. Thus interrogatives like (141a)--i.e. WH-questions--typically admit of correct or incorrect answers; and imperatives typically admit of being obeyed or disobeyed. So we might speak of interrogatives as being "answer-valued" and imperatives as being "obedience-valued". Such a procedure would make possible the following definition:

(143) An interrogative/imperative S_1 semantically presupposes a declarative S_2 iff S_1 is answer-/obedience-valued only if S_2 is true.

Consequently, the falsity of (141b) entails that (141a) cannot be answered either correctly or incorrectly; and any situation in which (142b) is false is a situation in which (142a) cannot be either obeyed or disobeyed. So construed, the presupposition claim regarding (141) and (142) sounds fairly plausible; let us now see whether it is true.

Genuinely semantic presuppositions, we have repeatedly stressed, are noncancellable. So our first move will be to show that the presuppositions allegedly involved in (141) and (142) can be cancelled. Having thus established that the relations are not semantic in character, we shall offer an account of them in purely pragmatic terms.

Consider first (141a). Logically speaking, the crucial feature of (141a) is that, like all "Why"-questions, it is a complex question on a par with the notorious

(144) Have you stopped beating your wife?

There is a similar temptation to say that (144) "cannot be answered" when a certain condition falls, viz. when the addressee fails ever to have beaten his wife. But this is simply wrong. A complex question like (144) can straightforwardly be answered in the negative by

either (145a) or (145b):

(145) a. No, I haven't stopped--I'm still doing it.
b. No, I haven't stopped--for I never started!

(145a) is the answer appropriate for a wife-beater, and (145b) for one who does not beat his wife. The only problem with a simple "No" answer on the part of a non-wife-beater is that, though absolutely correct, it leaves open the question of the speaker's reason for giving it. Now (141a) might receive either of two answers, viz. (146a) or (146b):

(146) a. The Moon is made of green cheese because...
b. { It isn't. / The Moon is not made of green cheese. }

Since (141b) is false, no answer like (146a) will count as a "correct" answer. For (146a) offers an explanation, but an explanation with a false conclusion must be either logically defective or contain a false premise. Yet it would be rash to conclude from this fact that (141a) does not admit of any correct answer. For (146b), we submit, is the correct answer to (141a). Of course, (146b) does not have the superficial form of an explanation, exemplified by (146a); but this is to be expected. Just as one can reply to an accusation by repudiating it, so too one can answer a complex question like (141a) by simply repudiating the question itself. Arguments to the contrary seem to rest on an equivocal use of answer. For it seems we have both a superficial and a semantic notion of "answer": we can think of an answer to a question as being a declarative sentence standing to the question in the appropriate surface-grammatical relation (as (146a) stands to (141a)), or we can think of an answer as being a sentence which (regardless of its superficial shape) is semantically appropriate to the question, in that what it asserts specifies one member of the relevant exclusive and exhaustive set of possible states of affairs, even though the state of affairs so specified is not itself queried by the speaker as part of his or her speech act. (That possible state of affairs in which the moon is made of green cheese because S_1, that in which the moon is made of green cheese because S_2, ..., and that in which the moon is not made of green cheese are all the alternative possibilities that there are. We assume here that the normal function of a question is to solicit a preference for one member of some partition on logical space.) To say just this is only to offer a slogan, of course; extended discussion of semantical issues would be required in order to make this notion of semantic appropriateness precise and to give it convincing motivation, as well as careful examination of the illocutionary structure underlying Why-questions and its relation to their semantic content. But, once the two notions of "answer" are distinguished, it is fairly plain that something like the latter notion is the only relevant one. (146b) is an answer to (141a) because it accomplishes the desired specification of one of the relevant states of affairs; it is a correct answer because it is true. And it should be noted that any ordinary speaker would accept (146b) as a perfectly appropriate and felicitous answer to (141a).

(It may be true that (141a) itself is infelicitous in some way when (141b) is false; certainly a speaker who uttered (141a) knowing that (141b) is false would be guilty of raising a pointless question. But these facts (we shall argue more fully in Section 4 below) are irrelevant to (141a)'s semantic status in such a situation.) Since the falsity of (141b) does not preclude the possibility of answering (141a), (141a) does not semantically presuppose (141b) in the sense demanded by (143).

Turning to (142a), we immediately notice that it admits of two nonequivalent paraphrases, viz. (147a) and (147b):

(147) a. Cause the door to shut!
b. Cause the door to become shut!

(147a) has nothing to do with whether or not the door is already shut; if the door happens to be shut already, one could obey (147a) by opening the door and then shutting it. Suppose, for example, that John is the sound-effects man at a radio station. Among his equipment is a portable door for making slamming noises. He keeps this door shut at all times when it is not in use, for, when open, it tends to get in his way and might slam shut at the wrong moment owing to a draft in the studio. At the appropriate point in the script, the director holds up a card on which (142a) is written; John obeys this direction by quietly opening his portable door and then noisily slamming it shut. Clearly, it is the paraphrase (147b) which seems to have some essential connection with the truth of (142b). So let us confine our attention to (147b).

Why cannot (147b) be obeyed--or, for that matter, "disobeyed"--if the door is already shut? The reason seems clear enough: as a matter of logic, nothing can become the case unless, for some immediately prior stretch of time, it was not the case. But if the door is already shut, then it is too late to rectify matters.[15] So (142a) is like

(148) Stop World War II!

in coming too late to be obeyed. But are matters really so transparent? We think not. To see why, let us indulge in a bit of science fiction. Suppose that John possesses a time-machine. At time t, John is given the order (142a). John already knew that the door was closed, so he time-travels back to a moment prior to t, opens the door, and time-travels forward to the moment immediately following t, whereupon he proceeds to shut the door. What John was asked to do at t was to cause the door to become shut (if not right away, then at least in the near future). But, as a result of his time-trip, the door has been open for a stretch of time up to and including t, so it is no longer impossible that the door should "become" shut.

One's immediate reaction to such a story is to say that John "caused" the process of becoming only because he could alter the past but that altering the past is impossible. But what sense of impossible is involved here? No doubt the laws of nature, as currently understood, rule out time-travel. But physical impossibility does not

entail logical impossibility. To our knowledge, time-travel has never been shown to be a (logically) self-contradictory notion. Yet if it is granted that it is at least logically possible to alter the past, thus creating a new future, then it seems one must also grant that it is at least logically possible that (142a)--paraphrased by (147b)--could be obeyed even though (142b) is false at the time that (142a) is uttered. And this bare possibility is enough to show that (142a) does not semantically presuppose (142b). On the contrary, it would be more accurate to say that the falsity of (142b) at the time (142a) is uttered makes it physically impossible to obey (142a)--a fact which, whatever its intrinsic interest, has no bearing on semantics.

The point of asking a "Why"-question is to get an explanation. If one antecedently believes that there is no fact to be explained, then one can rationally expect only two kinds of responses: an unsound argument from a deluded hearer, or a flat repudiation of the question from an enlightened hearer. Under these circumstances, asking (141a) when one takes (141b) to be false would be an exercise in futility. Similarly, the point of ordering or requesting someone to do something is (normally) to get that person to do the thing in question. If one antecedently believes that the action is in any sense impossible for the agent, then--unless one has some rather bizarre purpose in mind--there is no reason to waste effort in issuing an order or request. Using a notion defined much earlier, we could summarize all of this by saying that (141a) and (142a) act-imply (141b) and (142b) respectively, i.e. the latter are "felicity conditions on" the speech acts normally associated with the former.

There is an unfortunate tendency on the part of some theorists to assume, tacitly or explicitly, that sentences which express felicity conditions on a given speech act must have some intrinsic semantic connection with the sentences typically used to perform that act. And writers on speech acts (e.g. Searle 1969) have reinforced this tendency by using the word presupposition as a catch-all designation both for certain relations between sentences and for various pragmatic relations between a speaker, a sentence, and an attempted speech act. The underlying confusion is one between sentence-meaning and speaker-meaning. It is probably true that a speaker who utters a sentence S in the attempted performance of a speech act A "gives us to understand" that certain felicity conditions for A are satisfied. But it does not follow that the sentences which formulate those conditions thereby in any sense convey part of the meaning of the sentence S. Thus, for example, the sentence

(149) John will be killed.

might be used to make a promise, to give assurance, to make a prediction, to give a warning, and so on. Each of the following sentences expresses a felicity condition for one of these uses of (149):

(150) a. The speaker intends to kill John or to have him killed. (Promise)
b. The speaker thinks that the hearer doesn't want to see John killed. (Warning)

c. The speaker has good reason to believe that John will be killed. (Prediction)

Each of (150a-c) is something which we might infer from an utterance of (149) in a certain context, i.e. each is something we might infer from the fact that that man (about whom we believe such-and-such) uttered (149) in those surroundings (about which we have certain other beliefs). But none of (150a-c) is something we would infer from the sentence (149) in isolation. This becomes evident when we consider that felicity conditions for different speech acts may be incompatible. For in addition to (150a-c) we have

(151) The speaker thinks the hearer does want to see John killed. (Promise)

If any of (150) or (151) is a consequence of (149) taken in isolation, then there is no reason why they should not all be consequences of (149)--for they are surely all on a par as falicity conditions for various uses of (149). But then we should have the absurd result that both (150b) and (151) are consequences of (149). (Surely there is nothing in the literal meaning of the sentence (149) which in any way supports the conclusion that anyone who uttered (149) would have contradictory beliefs.) In practice, of course, no one would draw such a silly conclusion, precisely because one would think of (149) as uttered in a context where only one speech act was at issue. But this is just to concede our print: (149) act-implies one or another of (150a-c) or (151) relative to a given assumption about what the actual or hypothetical utterer is trying to accomplish; and act-implication is a concept of pragmatics, not of semantics.

3.7. Existential Presuppositions

Even if it is admitted that all the foregoing sorts of presuppositions have been discredited, it might still be thought that there is one kind of presupposition which is beyond reproach, viz. the "existential" presupposition allegedly carried by sentences containing singular terms (names, demonstrative pronouns, and definite descriptions). Surely it will be said, any declarative sentence containing an "empty" (i.e. non-denoting) singular term in an ostensibly referential position is truth-valueless, cannot be used to make a statement, etc. Here we seem to have a genuine semantic presupposition: the existence of referents for the appropriate terms appears to be a necessary condition for a declarative sentence to have a truth value. (And erference failures in nondeclarative sentences will have corresponding consequences anent their semantic analogues of truth-value.)

Let us begin our examination of this claim by turning to the most venerable (and hackneyed) example in the literature:

(152) The present King of France is bald.

As is well known, (152) necessitates

(153) There is a present King of France.

and it has widely been held that (152) presupposes (rather than entails) (153), on the grounds that

(154) The present King of France is not bald.

also seems to necessitate (153). But the situation here is similar to those involving nonrestrictive relative clauses and cleft constructions (cases 3.1 and 3.2 above), in that we need to distinguish external from internal negation in order to determine whether (154) both is the denial of (152) and does indeed necessitate (153), both of which conditions must be met if the "presupposition" theorist is to make good his claim.

If (154) is the denial of (152), then (154) is equivalent to

(155) It's not the case that the present King of France is bald.

But (155) obviously fails to necessitate (153), since (156) is consistent:

(156) It's not the case that the present King of France is bald, because there isn't any present King of France.

And therefore (154) does not necessitate (153) either. (Very likely (154) is not equivalent to (155), but rather to the internal negation of (152); but in that case it does not express (152)'s denial. As in cases 3.1 and 3.2, we need take no stand on which logical form or forms (154) does in fact express.) (152) therefore does not semantically presuppose (153); and since (as is agreed on all sides) it does necessitate (153), it presumably entails it. Of course, this conclusion commits us to saying that (152) is false when (153) is false, as Russell originally contended.

We shall deal in Section 4 below with a well-known objection raised by Strawson (1950) against Russell's claim; we shall argue that the objection is revealingly defective. In the meantime, we ought to take account of a little-remarked fact, recently pointed out by Atlas (1975): that, to most speakers, even the explicitly external negation (155) suggests (153).

The correct explanation, we believe, is of a relatively familiar sort. As in some of our previous cases of negation, (155) can be verified by (at least) two distinct and exhaustive sorts of situation: there being a present King of France who is non-bald, and there simply being no (unique) present King of France. The utterer of (155) might have either of these possible situations as his or her grounds. (It is of course possible for the speaker to have nonspecific evidence for just the ultra-cautious

(157) Either there is no present King of France or there is one who is non-bald.

But, as in the case of negated knowledge-sentences, it is unusual to expect such a situation, i.e. one in which our set of well-supported

background theories entails (157) or the equivalent.

(158) If there is no present King of France who is non-bald, there is no present King of France.

but does not entail the truth of either of (157)'s disjuncts. So the possibility of the speaker's having such nonspecific evidence is statistically less likely than either of the other two options.) Thus, probably either the speaker accepts (159) or the speaker accepts (160).

(159) There is a present King of France who is non-bald.
(160) There is no present King of France.

A familiar asymmetry distinguishes these two alternatives. In either case, the speaker's utterance of (155) must be regarded as an understatement, since on either hypothesis the speaker would be in a position to be more specific about his or her grounds. But the degree of understatement differs widely; for (159) and (160) are respectively the denials of

(161) If anything is a present King of France, then that thing is bald.

and (153), which can be seen to be something very like respectively specific and general conditions for the truth of (152).

(161) and (153) are not literally specific and general conditions, as we have defined the latter terms, since neither mentions any particular individual. Being general statements (containing only logical operators and predicates), they are, if they can be said to be "about" anything, about classes or properties. Let us paraphrase (159) and (160)--their denials--very crudely in terms of properties:

(162) The property of being a present King of France and the property of being non-bald share an instance.
(163) The property of being a present King of France is unexemplified.

And (155):

(164) It's not the case that the property of being a present King of France and the property of being bald share an instance.

Now Grice's Maxim of Relevance alerts us that an utterer of (155)/(164) wants to tell us something about the relation between the property of being a present King of France and the property of being bald--otherwise mention of both would introduce irrelevance. Suppose the utterer has (159)/(162) as his or her evidence for (164). The conjunction of (162) with the background assumption that the property of being a present King of France has at most one instance entails (164). On this hypothesis the speaker is guilty of slight understatement,

being in a position to utter the stronger (159)/(162) itself. But suppose that the speaker's evidence is rather (160)/(163): As before, the speaker is guilty of understatement. But this understatement is far more dramatic: for if (160)/(163) is true, then it's not the case that the property of being a present King of France shares an instance with any other property, let alone that of being bald. Thus, on the hypothesis that (160)/(163) is the speaker's evidence for (155)/(164), the speaker's allusion to the property of being bald in particular becomes inexplicable, and violates the Maxim of Relevance. As usual, we as hearers take the path of least resistance and infer that the speaker's evidence is (159)/(162) rather than (160)/(163). And (159) entails the existence of a King--hence the suggestion carried by (155).

If there is any weak spot in the foregoing account, it is in our parenthetical and rather quick repudiation of the possibility that the utterer of (155) may have nonspecific evidence, i.e. that he or she may remain agnostic on the question of the existence of a present King. As we have said, we believe that this circumstance is (as things stand) unlikely, for reasons parallel to those we gave in favor of our similar claim in the case of negated knowledge-sentences. But the present case does not seem to us quite so obvious; it is perhaps less unlikely that someone's set of well-established background theories should support (157) in the relevantly agnostic fashion. At any rate, there are further considerations we can bring to bear against the nonspecificity hypothesis in this case.

Notice first that (152) contains what we have called an emphatic construction. For on our account, (153) is trivially entailed by, and (we would further want to say) is at least loosely "part of the meaning of" (152), and yet the entailment bears less than the standard amount of emphasis--hence our reluctance (see Section 4.1.1 below) to judge that (152) asserts (153). Thus, the (along with possessive pronouns and whatever other definite descriptors there may be) performs a de-emphasizing function, among others. And if so, then (by Principle H) it performs the same de-emphasizing function in (155) as it does in (152), viz. that of diverting focus from the existential implication of the clause in which it occurs in semantic structure. Relatively speaking, then, the scope of (155)'s negator stresses the predicate, directing the hearer's attention to the property of baldness. Now we can raise the same sort of explanatory question that we did in case 3.2 (that of negated cleft sentences): If the utterer of (155) is wholly noncommittal as to his or her evidence, i.e. if he or she has neither (159) nor (160) as specific grounds, then what accounts for the (relative) emphasis, on the predicate bald, which rather conspicuously characterizes (159) but not (160)? In the absence of any offsetting contextual factors, we ought to and do conclude as hearers that the speaker does have (159) in mind; and (159) entails (153).

At this point an exceptionally interesting sidelight appears. Notice first that the force of an emphatic construction comes in degrees; some such constructions emphasize or de-emphasize more than others. For example, a descriptor, while it de-emphasizes its own existential implication, de-emphasizes its own uniqueness implication

even more. (We are somewhat disinclined to say of an utterer of (152) that he or she "asserted" that there is a present King of France; but we are far more strongly disinclined to say of the same person that he or she asserted that there aren't two or more present Kings. And, while we are somewhat loath to say that (160) "contradicts" (152), we are much more loath to say that

(165) France has three Kings at present.

does.) To take a second example, a descriptor does not de-emphasize its existential implication as strongly as

(166) It was John who robbed the diaper service.

emphasizes the role of its agent, and the latter sentence in turn does not emphasize so strongly as does

(167) It was John--John, do you hear, dammit!, not Sheila--who robbed the diaper service.

Notice, second, that the likelihood or unlikelihood of a speaker's having nonspecific evidence for uttering the denial of a sentence whose truth depends on a general and a specific condition also comes in degrees. We have seen that nonspecific evidence is exceptionally unlikely in the case of negated knowledge-sentences. It seems somewhat less unlikely in the present case of negated subject-predicate sentences. And it is not at all rare in the case of cleft sentences. (166) has as general and specific conditions (168) and (169) respectively.

(168) The diaper service was robbed.
(169) If the diaper service was robbed, then John robbed it.

And someone might quite easily have evidence for the conditional

(170) If the diaper service was robbed, then John did not rob it.

without having specific evidence against either the general or the specific condition. (The presumption of a negated cleft sentence is not a case of factive implication.)

What is remarkable is that these two magnitudes, at least in the cases we have chosen to discuss, vary inversely. In our most obvious case of factive implication, that of negated knowledge--sentences, no emphatic construction is in play. And in the cases in which emphatic constructions are most obviously responsible for the pragmatic suggestions in question, (3.1. and 3.2.), even though "general"/"specific" structure is present in or can be imposed on them, the possibility of the speaker's having nonspecific evidence for the denial of the relevant conjunction is not strikingly unlikely or remote. Finally, our present case of slightly marginal or dubious unlikelihood is also a case in which an emphatic construction figures, but in which that construction is not so strongly emphatic as those

which occur in the cases which simply fail to support a claim of factive implication.

We cannot imagine why this inverse dependence obtains, if it does obtain in general. There is certainly no obvious connection between (on the one hand) the superficial emphatic properties of certain sentences, and (on the other) the probability or improbability of certain sorts of factual situations. The only hypothesis that occurs to us is one which lends pleasing support to our suggestions so far: that when speakers wish to implicate something by means of a negated sentence which can be construed in terms of "general" and "specific" conditions but which (for reasons of likelihood and unlikelihood) does not support a factive implication, they implicitly recognize the latter weakness and opt for the more superficial and hence more easily controllable device of emphasis, as a surrogate for the more natural variety of pragmatic suggestion.

In offering our total treatment of (152), we have exploited the fact that the present King of France, though it lacks a denotatum, nonetheless contributes meaning to the sentence(s) in which it occurs. On our view of singular terms, this means that the present King of France as it occurs in (152) is a "singular" term only superficially--semantically, it "disappears on anlaysis" in precisely Russell's way. Thus, it is being used attributively (Donnellan 1966), or non-rigidly (Kripke 1972). But what of singular terms that are not semantically structured in this way? Pace Russell, who held that all singular terms of natural languages are or abbreviate superficial descriptions used attributively, most of us believe that some singular terms, primarily proper names, are semantically fused--that they have no hidden semantic structure, but function solely in such a way as to pick out particular individuals as their respective referents. Virtually all proper names have this "purely referential" use; and, if Donnellan (1966) is correct on some further points, sometimes definite descriptions do too.

What, then, about a nondenoting name or a description which is not being used attributively, which does not vanish in favor of its hidden structure in Russell's way? That is, suppose a singular term (say, the superficial subject of an atomic sentence) has neither a semantic connotation nor a denotation? What we believe is that Russell was exactly right in claiming that "the meaning of a genuine [i.e. purely referential] name is its bearer", or, less metaphysically, that a genuine name has meaning or significance only insofar as it serves to denote what it denotes. Consequently, a connotationless and denotationless "name" is, literally, a meaningless particle--not a word of our language.[16] And a string which contains it is therefore simply ungrammatical, ill-formed. Thus, there is at least this case in which reference-failure gives rise to truth-valuelessness. For a string such as

(171) Kanrog rides poorly.

where Kanrog neither carries attributive connotation nor denotes anything, is not a sentence, but merely a surface predicate preceded by a meaningless mark or noise; thus, it is obviously neither true nor

false. This, however, is cold comfort for the champion of truth-valueless sentences. (Note that the alleged presupposition in this case,

(172) Kanrog exists.

is ill-formed as well, for the same reason. It would be quixotic indeed to insist of one string of gibberish that it "semantically presupposed" another string of gibberish.)

Our thesis concerning nonattributive but nondenoting superficial names may strike some readers as being obviously false. Consider

(173) John loves Mary.

There is an inclination to say that (173) just is grammatical, whether or not the names John and Mary are imagined to refer to anything. But we intuitively regard (173) as grammatical only because we know that these expressions are commonly used as names of persons. Compare

(174) Flork loves glork.

Is (174) grammatical or not? If (174) is considered in isolation from any particular context of utterance, this question cannot be answered. If we are told that flork and glork are names, then our puzzlement vanishes: (174) gets treated just like (173). But to be a nonattributive name, an expression must be used by someone as a name of something. Names are very special lexical items. Except in a loose way, they do not "belong" to any particular language but are the transitory contributions of particular groups of speakers to the business of speech. The grammaticality of (174) is relative to an assumption about the semantic status of flork and glork, i.e. an assumption to the effect that the real or hypothetical utterer of (174) employs these expressions as names of actual things or people.

Strictly speaking, a sentence-type is true, or false, only relative to an assignment of denotata to its demonstratives, indexicals and genuine names. A particular token of (174) will be grammatical on its occasion of utterance only if denotata are in fact assigned on that occasion to the ingredient tokens of flork and glork, i.e. if those tokens are used by the speaker on that occasion to name something; and our token of (174) will have a definite truth-value determined by the amatory relations of the objects so named. If the utterer is--improbably--failing to name anything on that occasion, then his utterance (174) lacks a truth-value in virtue of being ill-formed.

Further development of this point, especially its extension to cover demonstrative pronouns and purely referential definite descriptions, would require extensive discussion of the nature of reference and the syntactic and semantic repercussions of the distinction between "referential" and "attributive" occurrences of singular terms--all of which is beyond the scope of this essay.[17] But we think we have succeeded in motivating the claim that not even the admitted truth-valuelessness of the rare construction just discussed requires the

semanticist to forsake the framework of classical two-valued logic in favor of an encumbrance of novel semantic apparatus.

3.8. Counterfactual Conditionals

Counterfactual conditionals are frequently cited as bearers of semantic presupposition, although there is some disagreement about the content of these presuppositions. Sentences of the form

(175) If it were the case that S_1, then it would be the case that S_2.

and their cognates are sometimes said to presuppose the falsity of both S_1 and S_2 (Lakoff 1972) and sometimes said merely to presuppose the falsity of S_1 (Karttunen 1971a). We agree that, at least with respect to their antecedents, counterfactual conditionals do carry certain implications, but we deny that these implications amount to semantic presuppositions.

Consider first the consequents of such conditionals. Genuine semantic presuppositions are noncancellable, but the insertion into the consequent of the adverb still has precisely the effect of cancelling any apparent presupposition of its falsity. Thus the true sentence

(176) If I were a whale, I would be a good swimmer.

suggests that the speaker is not a good swimmer but loses this suggestive force when expanded into the equally true sentence

(177) If I were a whale, I would still be a good swimmer.

Indeed, (177) seems to entail that the speaker is a good swimmer. So counterfactual conditionals do not semantically presuppose the falsity of their consequents, though they often defeasibly suggest the latter.

Moreover, the negations of counterfactual conditionals often fail to suggest--much less to necessitate--the falsity of the embedded consequent. Consider the following sentences:

(178) a. If I were unconscious, I could move my arms.
b. It is false that if I were unconscious, I could move my arms.

By itself, (178a) does seem to suggest that the speaker cannot move his arms; but (178b) carries no such implication. In uttering (178b), a speaker is concerned to deny a certain connection between two possible states-of-affairs, viz. his being unconscious and his being able to move his arms; but he does not seem to be saying, overtly or by implication, that he cannot in fact move his arms. Genuine semantic presuppositions of a sentence must attach both to that sentence and its denial. So the failure of (178b) to imply what is allegedly implied by (178a) shows that (178a) itself does not semantically presuppose the falsity of its consequent.

However, even unnegated counterfactual conditionals do not uniformly suggest or imply the falsity of their consequents. Whether or not the suggestion is present appears to be largely a matter of extralinguistic stage-setting rather than a feature of the conditional itself. To take another example, the implication of falsity is manifestly absent when we use counterfactual conditionals to speculate about possible explanations of some admitted fact. We all know that Ford became President upon the resignation of Nixon. Suppose someone asks for some other possible ways in which Ford might have become President. Then

(179) If Nixon had been assassinated, Ford would have become President.

is a perfectly true and acceptable answer which, in context, carries no implication that Ford did not become President.

Indeed, there is an important linguistic job done by counterfactual conditionals with (putatively) true consequents, viz. that of formulating tentative or conjectural explanations of apparent facts. As will be argued below, counterfactual conditionals minimally carry a "presumption" of lack of firm commitment to the truth of the antecedent, which makes them ideal for offering speculations and guesses about the causes of phenomena. For if one is convinced that, say, the sinking of the ship was caused by a torpedo, one would say that it sank because it was torpedoed; but if one is merely casting about for a sufficient reason for the sinking, one might say that if it had been torpedoed, it would have sunk. In light of these facts, the claim that counterfactual conditionals "presuppose" the falsity of their consequents in any sense seems too insubstantial to warrant further consideration, and will subsequently be ignored.

In contrast, counterfactual conditionals with recognizably or putatively true antecedents virtually always sound radically odd--so odd that many have been willing to say that the whole conditional is truth-valueless in virtue of violating an alleged semantic presupposition of the falsity of the antecedent. Nevertheless, there do seem to be circumstances in which this "presupposition" can be cancelled. Consider the following sentence:

(180) If there were a God, it would be foolish to disobey Him.

If anyone were to utter (180), he would certainly suggest to his audience that he is an atheist. But an agnostic, who is neutral about Theism, might wish to utter (180), without compromising his neutrality. And it looks as if he could do so by inserting an appropriate disclaimer, as in (181):

(181) If there were a God--and, mind you, I don't think we're justified in saying that there is or isn't--it would be foolish to disobey Him.

Some speakers of English might prefer the indicative to the subjunctive

here; but in spite of any stylistic oddity, (181) appears to be a coherent (noncontradictory) and noncommittal remark. If so, then (180) does not semantically presuppose the falsity of its antecedent.

An even clearer case in which the presumption of falsity is cancelled has already been invoked: that in which we are casting about for tentative or conjectural explanations of an apparent fact. Thus,

(182) If the ship had been torpedoed, it would have sunk; and if someone had bored a hole in it, it would have sunk; and if it had sailed directly into a tidal wave, it would have sunk... --which do you think is the true explanation?

does not contradict the assumption that at least one of the three suggested explanations is true. Similarly, consider a person reading the news of the naval disaster for the first time, and musing.

(183) So the Nikita Khrushchev went down...That would have happened if the CIA had had it torpedoed.

(183) is certainly compatible with

(184) The CIA had the Nikita Khrushchev torpedoed.

There is also a difficulty about negated counterfactuals with true antecedents. If the falsity of the antecedent were semantically presupposed, then a counterfactual conditional with a true antecedent and the negation of that conditional would presumably both be truth-valueless. But this does not square with the fact that we often regard negated counterfactual conditionals as true even though the conditional has a true antecedent. Consider the following sentence:

(185) If the earth were a spheroid, the people in the Southern regions would fall off.

Suppose (185) is asserted by a naive defender of the flat-earth hypothesis. A perfectly natural reaction is to say "That's false!" or to counter with

(186) It is false that if the earth were a spheroid, the people in the Southern regions would fall off.

--citing as our reason for the truth of (186) the theory of Gravitation. Although this response could perfectly well be couched in the indicative mood, the choice of the subjunctive is warranted by our desire to deny just what the utterer of (185) asserted.

Similarly, certain unnegated counterfactual conditionals are retrospectively called "true" or "correct" when, at a later date, their antecedents and consequents are found to be true and suitably related. Suppose, e.g. that a nineteenth-century medical skeptic had contemptuously uttered (187):

(187) If infections were caused by microörganisms, then infections could be cured by injection of chemicals hostile to these microörganisms.

Today we regard both the antecedent and consequent of (187) as true and related by known laws, and we deem this a sufficient (though certainly not necessary) condition for saying that the nineteenth-century skeptic was "unwittingly right"--i.e. that what he said was true, not truth-valueless. Of course, if someone were to utter (187) today, we would regard his remark as bizarre; but (187), thought of as uttered a century ago, is quite acceptable. All of the foregoing facts are inexplicable on the assumption that counterfactual conditionals semantically presuppose the falsity of their antecedents.

What all of this suggests is that the oddity in question attaches not to the counterfactual conditional itself, but to utterances of the conditional in certain circumstances. The oddity, in other words, is pragmatic rather than semantic. One who utters an instance of (175) "represents himself", at least for the sake of argument, as not believing S_1 to be true. It would be incorrect to say that he represents himself as positively disbelieving S_1, since it is allowable that he should have no firm opinion about the matter. The presumption is merely that the utterer lacks (or coöperatively feigns to lack) commitment to the truth of S_1. (This is especially evident with future-tensed counterfactuals, for we are less sure of the future than we are of the past.) And the oddity arises when we impute to the actual or hypothetical utterer the belief that S_1 is true. What we need now is an account of why the oddity arises. We shall tentatively contend that counterfactual conditionals conversationally imply that their antecedents are not presumed true. To show this, however, we must have some prior account of the semantics of such locutions to serve as our guide.

The traditional account of the truth-conditions for sentences of the form (175) held that a sentence of this form is true if and only if the conjunction of S_1 with certain "cotenable" premises (typically thought of as formulations of laws of nature), entails S_2. But it proved impossible in practice to provide a precise formal definition of cotenability which would result in the validation of just the favored counterfactuals. Subsequently, David Lewis (1973) has provided an elaborate possible-worlds semantics for counterfactuals which, as a valuable corollary, makes possible a workable definition of cotenability and hence a defensible version of the traditional truth-conditions for counterfactual conditionals. Since Lewis' account is, for better or worse, the only viable candidate presently on the scene, we can do no better than provisionally to opt for it and to argue that it provides a basis for our contention that counterfactual conditionals conversationally imply that their antecedents are not presumed true.

For our purposes, the crucial feature of Lewis' analysis is that counterfactual conditionals with true antecedents turn out to be semantically equivalent to mere material conditionals, hence to have the same truth-values as their consequents. For example

(188) If Nixon had resigned, Ford would have become President.

counts as semantically equivalent to

(189) Nixon resigned ⊃ Ford became President.

and is thus counted as a true sentence. This procedure has some intuitive plausibility with regard to sentences like (188), but may seem artificial or even wrong when applied to sentences like

(190) If cows were mammals, lemons would grow on trees.

Since both the antecedent and consequent of (190) are true, Lewis would count (190) itself as true. This is admittedly somewhat artificial, since ordinary speakers of English probably would not know what to say about (190). There is some inclination to say that (190) is false on the ground that the states-of-affairs described by antecedent and consequent are irrelevant to one another. But it is difficult to give any pretheoretical justification for this intuition. For the claim that cows' being mammals is irrelevant to lemons' growing on trees could itself be paraphrased counterfactually by (191):

(191) Lemons would grow on trees regardless of whether cows were mammals or not.

and (191) in turn seems to amount to (192):

(192) If cows were mammals, lemons would grow on trees; and if cows weren't mammals, lemons would grow on trees.

It is easy to imagine someone uttering (192), e.g. if he were not sure whether cows are mammals or not but were certain that the outcome makes no difference to how lemons grow. But (192) is a conjunction, hence is true if and only if both conjuncts are true. Yet one of these conjuncts is none other than the troublesome (190). So what has become of our intuition that (190) must be false?

Sentences like (190), regarding which we have little in the way of clear and consistent semantic intuitions, are just the sort whose semantic status requires adjudication by a full-blown semantic theory of counterfactuals. Since, in default of an articulate rival, we have opted for Lewis' theory, and since that theory is otherwise elegant and powerful, it would be unreasonable to balk at its conclusions regarding counterfactual conditionals with true antecedents. (After all, a theory may be allowed to override an intuition it contradicts if it can satisfactorily explain why we have that mistaken intuition. The apparent motion of the sun overhead does not give the lie to heliocentricity. Similarly, as we shall show below, treating counterfactual conditionals with true antecedents as semantically equivalent to material conditions does enable us to explain why such sentences evoke puzzlement.)

Given Lewis' theory, it is easy to see what is wrong with uttering a counterfactual conditional in circumstances where the antecedent is presumed true. Suppose, e.g. that John utters

(193) If Mary were in town, she would contact her parents.

We could then reason as follows. If it is presumed that Mary is in town, then (193) is to be regarded as semantically equivalent to

(194) Mary is in town ⊃ Mary contacts her parents.

But (194), together with our presumption, entails that Mary has contacted her parents. Since we normally assume--as a matter of conversational etiquette--that people are speaking truly, it must also be presumed that Mary has contacted her parents. But in light of these presumptions, the utterer of (193) is fully entitled to assert

(195) Mary is in town and has contacted her parents.

(195), however, is semantically much stronger than (194), hence--on our present view--much stronger than (193). So why didn't the utterer of (193) utter (195) instead? In other words, to utter (193) when its antecedent is presumed true is to violate the Maxim of Strength, which dictates that one should not say significantly less than one is entitled to say. Therefore, from the assumption that the utterer of (193) is obedient to the conversational Maxims we may derive, via the Gricean inference-schema, that the antecedent of (193) is not presumed to be true. This explains our assumption, as hearers, that the utterer of a counterfactual does not believe its antecedent to be true.

In general, the actual truth-value of the antecedent has nothing directly to do with the conversational deviance of a given utterance of a counterfactual conditional. Rather, such deviance is a matter of whether the context of utterance is such as to generate a presumption of the antecedent's truth, i.e. an imputation to the actual or hypothetical utterer of belief in the antecedent, real or merely feigned for the sake of argument with or about some contextually involved believer. When this presumption is present, we cannot make sense of a person's uttering the counterfactual conditional in question, since the uttered sentence conversationally implies the absence of that presumption.

It is much harder, even with the aid of Lewis' theory, to explain the further strong inclination felt by some hearers to go on to infer that the speaker (or whoever) positively believes the antecedent to be false, although we have argued above that the latter "suggestion" is easily cancelled at least for semantic purposes. Previous strategies are unavailable here: Counterfactuals per se contain no emphatic constructions; nor do they have sets of "general" and "specific" conditions on their truth; nor do any further Gricean considerations seem to help. Insofar as the alleged positive suggestion of the falsity of a counterfactual's antecedent is considered a real and hard datum, it is one which we have yet to handle.

Moreover, even our foregoing explanation of the unacceptability of uttering a counterfactual with an antecedent presumed to be true must be regarded as tentative, since it rests on a rather unintuitive consequence of a theory which, though elegant, is by no means firmly established. An alternative explanation, one that covers the stronger presumption as well, will be suggested in Section 5 below. In any case, it is clear enough that the claim that counterfactuals semantically presuppose the falsity of their antecedents has little or nothing to recommend it, and in addition renders inexplicable many of our everyday responses to counterfactuals and their negations.

4. Sources of the Myth

The notion of "semantic presupposition" is, we believe, an epiphenomenon of the unfortunate coincidence of some otherwise unrelated confusions, equivocations, and bad inferences. We have already remarked on some of these in carrying out our case studies; in this section we shall pursue our diagnosis in more revealing detail.

4.1. Old Friends

4.1.1. Assertion and Contradiction

In discussing cases 3.1 and 3.2, we pointed out the fallacy of supposing that what is not "asserted" by a sentence is therefore not entailed by that sentence. The relevance of this point becomes even clearer when we reflect that, historically, the term presuppose has been used in each of two different ways: one, as contrasting with assert, and the second, as contrasting with entail. The former usage is more natural, the latter technical.

Despite the vagueness of the notion of what a sentence "says" or "asserts", we have some tolerably clear cases (cf. again nonrestrictive relative clauses, and clefting) in which information that is plainly part of the semantic content of a sentence may have been placed (by one syntactic transformation or another) in so unemphatic a position in the surface structure of that sentence that we are disinclined to admit that that information is part of what that sentence says or asserts. It is natural and harmless to say of this information that it is "presupposed, rather than asserted", by the sentence, i.e. that it is taken for granted, rather than actively put forward or emphatically pushed by the speaker. But this natural notion of "presupposition", which contrasts with that of "assertion", is not that which contrasts with that of entailment. It is the Strawsonian notion, that of "semantic presupposition", which contrasts with and precludes that of entailment. Therefore, it is an equivocation to argue (explicitly or implicitly) from purely intuitive data concerning what some sentence asserts or does not assert to positive technical conclusions about semantic presupposition. And it is this fallacy which, we think, has misled Keenan and others in cases 3.1 and 3.2, as well as Karttunen in case 3.3 (see 1971b:350-1).

Parallel considerations hold for denying and contradicting. Just as it is fallacious to argue from "failure to assert" to "failure to entail", it is fallacious to infer from the fact that a sentence S_1

(or someone who tokens S_1) cannot properly be said to have denied or contradicted an utterance of S_2, that S_1 does not entail the falsity of S_2. Not every utterance, or even every assertion, of an S_1 that entails the falsity of S_2 is properly said to contradict S_2, especially if S_2 is (logically) much stronger than the denial of S_1 and if the latter is an unemphasized consequence of S_2. For example, if a speaker were to utter

(196) Hud certainly is a devious swinging bachelor.

one who replied by uttering

(197) Hud is not an adult.

would not properly be said to have contradicted the first speaker, even though (197)--on the assumption that being a bachelor entails being an adult--entails the falsity of (196). Similarly, if a speaker were to utter

(198) So it was Moriarty who killed Holmes.

one who replied by uttering

(199) Holmes was only put in suspended animation.

would not properly be said to have contradicted the original speaker or to have denied what was asserted. To take a degenerate but even more obvious example, one who uttered

(200) The economy will soon take a turn for the better.

could not in any nontechnical sense be said to have contradicted a (demented) speaker who had tokened

(201) Three is both prime and not prime.

though (200)--like any other sentence--entails the falsity of (201).

It is this general point that is overlooked by Strawson (1950) in offering the second of his two arguments against Russell's treatment of nondenoting singular terms:

> Now suppose someone were in fact to say to you with a perfectly serious air: 'The King of France is wise.'...when, in response to his statement, we say (as we should) 'There is no King of France' we should certainly not say we were contradicting the statement that the King of France is wise. We are certainly not saying that it is false. (pp. 183-4).

Doubtless Strawson's premise is correct: In general, we would not say that one who uttered

(202) There is no King of France.

in response to

(203) The King of France is wise.

has contradicted the utterer of (203), at least not without further comment or qualification. But, as our foregoing examples have shown, it does not follow that the utterer of (202) did not token a sentence which in fact entails the falsity of (203); the utterer has merely attacked (203) at a de-emphasized outpost, showing (203) nonetheless surely to be false. Thus, the fact that we would not ordinarily say of an utterer of (202) that he or she had denied (203) or contradicted the utterer of (203) is of no consequence.

It is worth remarking that, while we believe the notion of "semantic presupposition" to be empty and uninteresting, the harmless "natural" notion of presupposing in the sense of "taking for granted" deserves thorough investigation--first, because its contrasting notion of "asserting" is intuitively viable but terribly unclear; second, because it may prove illuminating in connection with issues in pragmatics; and, third, because it may well play a role in epistemology and in the theory of dialectic.

4.1.2. External vs. Internal Negation

A second source of confusion which we have already mentioned is the failure to distinguish external from internal negation. The distinction is forced on us by the assumption that syntactic transformations operate on logical structures, i.e. on formulas of some suitably enriched formal system; for in such a system all scope ambiguities have been purged.

Some linguists tend (in conversation at least) to protest, when faced with the external/internal distinction and reminded that a sentence's external negation is not only true but mandated to be true when that sentence's alleged "semantic presupposition" fails, that external negations "aren't English". For example: "No one talks that way. In English, when you want to deny (204) you say (205)

(204) It was Peter who got sand in the parsnips.
(205) It wasn't Peter who got sand in the parsnips.

and when you want to deny (206) you say (207), etc.

(206) The present King of France is ugly.
(207) The present King of France isn't ugly.

'External negation' is just logicians' claptrap, not good English; and so it isn't recognized by the syntax/semantics of English." There are at least two grains of truth here (but only grains). First, we have already admitted that some external negations are difficult or impossible to form in surface structure (cf. the case of non-restrictive relative clauses). But this admission has no effect on our arguments. To see this, notice again that nothing we have relied on in the course of our case studies requires us to decide, given some

superficially negative sentence, whether that sentence expresses an internal negation, expresses an external negation, or is ambiguous between the two readings. In many cases, such as 3.1, 3.2, 3.3, 3.4, and 3.7, the (semantic) external/internal distinction by itself gives rise to an inescapable dilemma for the champion of semantic presupposition--no assumptions about surface structures are needed.

The second grain of truth in the quoted complaint is that external negations of complex sentences, uttered without verbal qualifications, are rarely acceptable in everyday English conversation. Why?--Because they are almost always frowned on by Grice's first Maxim as being uncooperatively weak and cautious, not because there is anything semantically wrong with them. Anyone can truly and felicitously utter (208) or (209).

(208) It wasn't Peter who got sand in the parsnips, because no one at all did.

(209) It's false that the present King of France is bald, because France doesn't have a King.

And anyone can truly utter (210) or (211)

(210) It's false that it was Peter who got sand in the parsnips.

(211) It's false that the present King of France is bald.

in the circumstances envisioned; the deficiencies of (210) and (211) are conversational, not semantic.

As a final way of seeing this, notice that any external negation is perfectly acceptable in the precise speech of philosophical logicians--the salient characteristic of that patois being that, in it, conversational maxims are ignored in the interest of rigor and precision.

4.1.3. Necessitation

A third polluted source of intuitions about "semantic presupposition", theoretically negligible but significant in particular cases, is the ignoring of arcane and bizarre but perfectly clear counterexamples to claims of necessitation. Semantic presupposition requires necessitation, and necessitation requires the absolute inconceivability of counterexamples. A reader with sufficient imagination will easily find counterexamples to an enormous number of alleged semantic presuppositions in the literature (see particularly, for example, Lakoff 1972). Thus, even many of the data which are claimed to indicate semantic presupposition are spurious.

4.2. Truth-valuelessness and Infelicitousness

Let us turn to a somewhat more penetrating examination of the causes underlying belief in semantic presupposition, for, we believe, this diagnosis will shed some light on remaining linguistic and philosophical issues. In particular, we want to investigate the notion of "truth-valuelessness" more closely than has been done to date. We should like to express skepticism about it, skepticism which is the

more crucial in that "truth-valuelessness" is the central notion in any semantic theory of presupposition.

It is not for a moment in question that there are truth-valueless sentences. Questions, imperatives, and (some say) explicit performatives do not have truth-values--obviously. We become skeptical only when this relatively clear insight is extended to cover declaratives of the familiar sort--sentences that look like fact-stating sentences. Even within this class, we recognize a subgroup of truth-valueless sentences: those which contain hidden parameters so far unspecified. Thus,

(212) Rex is big.

lacks a truth-value until we explicitly or implicitly specify a reference-class ("Big for a what?"). Similarly, we have argued (in press) that a sentence like

(213) Perry knows who Clark Kent is.

lacks a truth-value until some purpose or project has been specified. And Ethical Relativists contend, though rarely on syntactic or semantic grounds,[18] that a moral judgment such as

(214) Murder is wrong.

has a truth-value only relative to some person or group.

This sort of truth-valuelessness is easily understood: it is simply that of the open sentence. The string

(215) He is sick.

is truth-valueless in exactly the same way. But truth-valuelessness of this type is a purely syntactic and semantic matter, determined by our formation-rules and our model theory. It does not depend on any background information concerning facts in the world; and that is precisely what the alleged truth-valuelessness resulting from presupposition failure does depend on. Presupposition theorists surely do not mean to suggest that "presupposition" failure somehow implants a hidden parameter in the allegedly presupposing sentence that is not there when the putative presuppositum is true. So the truth-valuelessness in terms of which semantic presupposition is defined is of none of the foregoing familiar types.

It is obvious on reflection that "truth-valuelessness" in the Strawsonian sense is no ordinary, commonsensical notion. It is quite a technical one. Although speakers of plain English may balk when queried, "Is S_1 true or false?", finding themselves unable to respond either "It's true" or "It's false" without further clarification, explanation, or qualification, this mulish behavior is hardly tantamount to responding, "Neither--S_1 lacks a truth-value" or the like. To take a native's inability to choose one of the two truth-values on the spot as indicating either that he believes S_1 to lack a truth-value or that S_1 in fact lacks a truth-value is to make a highly substantive explanatory claim, a claim which must be compared to alternatives. And in

every such case there are plausible alternatives in the offing.

This point undermines the first of Strawson's two arguments against Russell (offered, incidentally, in the article (1950) that originally gave rise to talk of truth-valuelessness). Strawson, as before, asks us to suppose that someone has uttered (203) "with a perfectly serious air". Now:

> Would you say, 'That's untrue'? I think it is quite certain that you would not. But suppose he went on to ask you whether you thought that what he had just said was true, or was false; whether you agreed or disagreed with what he had just said. I think you would be inclined, with some hesitation, to say that you did not do either; that the question of whether his statement was true or false simply did not arise, because there was no such person as the King of France. (p. 183)

We have indicated our rejection of Strawson's contention that we have "pure intuitions" of truth-valuelessness. (If an informant did respond to our query "that the question...did not arise", the most likely possibility would be that he or she had read Strawson somewhere.) Still, it is true that no normal speaker would respond simply, "That's false". (Note in passing that falsity is the operative notion in Strawson's argument, despite his mention of the sentence, "That's untrue"; the latter can only be a slip, since on Strawson's own theory the utterance of (203) is untrue.)

So let us agree that

(216) That's false.

would be inappropriate at best if tokened in response to (213). Strawson concludes without further deliberation that (216) itself is false. But, as we have been at pains to point out, falsity is only one of many, many different varieties of inappropriateness, infelicitousness, or unacceptability; and there may well be some more plausible account of the inappropriateness of (216). In fact, there is what we take to be a more plausible alternative: The trouble with responding to (203) by tokening (216) alone is that in so limiting one's answer one violates either Grice's Maxim of Strength or the Maxim of Relevance (for this case is one of factive implication, just like that of (155) in Section 3.7 above). One who believes that there is no King of France is in a position rather to assert the far stronger

(217) That's false, since there is no King of France.

(Notice particularly, in addition, that (217) is perfectly acceptable to a normal speaker in the circumstances envisioned.) This explanation of the inappropriateness of (216) is not only compatible with but entails the truth of (216) and hence the falsity of (203).

It is worth pointing out that what we have said here is entirely consistent with the contention, often attributed to Strawson, that when we utter a sentence whose "presupposition" has failed, we do not

succeed in thereby making a statement. Whether or not a speaker has made a statement is a question of illocutionary force and hence of pragmatics; thus, it is (so far as has been shown) irrelevant to the question of whether the sentence uttered is in fact true. (It is easily seen that anyone may utter a sentence which is in fact true without thereby making a statement--as when he or she utters it within quotation, on stage, to practice elocution, or to activate a phonetically coded door-opening device.) Therefore, even if it could be established in particular cases that a speaker had failed to make a statement in or by uttering some sentence, that still would not show that the sentence was truth-valueless. The most we could say is that the sentence's truth-value just did not matter in the context in question (we shall amplify this point shortly).

We have seen that ordinary speakers are not normally capable of making intuitive judgments of truth-valuelessness (as distinct from refraining from making any judgment at all), and that the notion of "truth-valuelessness" is a theoretical artifact of linguistic and philosophical semanticists. It ought to be noted in addition that to take truth-valuelessness seriously is to require some significant departure from the simple traditional format of standard logic. Logicians who are willing to take this step are forced to invent three-valued logics (cf. Woodruff (1970)) and/or fancy semantical machinery such as van Fraassen's (1966) method of supervaluations, in each case courting justified charges of arbitrariness in settling the numerous "don't-cares" that arise in the newly amplified models. To say this is not to raise any direct objection to hypothesizing truth-valuelessness; there are deviant logics of the sort we have mentioned which can be made as elegant and as mathematically satisfying as anyone could wish. The point is only that "truth-valuelessness" as a semantical notion needs considerable sophisticated formal spelling-out before it can soberly be understood.

One would expect, from the foregoing points (that "truth-valuelessness" is not a concept possessed by laymen, and that its logic is neither simple nor (let us add) uncontroversial), that it may be hard even for the semantic theorist to form an intuitive judgment, concerning a given sentence in a context, as to whether that sentence in that context has a truth-value. And this expectation is richly borne out, in our experience anyway. Although there are intuitively clear cases of true sentences (in particular contexts) and clear cases of false sentences (in particular contexts), we have yet to see a clear case, in any context, of a truth-valueless sentence that is not an instance of one of the familiar and unexciting types mentioned above. Whatever theoretical function the notion of truth-valuelessness may serve, that notion is no raw and intuitive one; by itself it yields no data.

If this is right, then whatever utility the notion of "semantic presupposition" has is theoretical utility, as opposed to reportive utility. To repeat: a field linguist may report, as a datum, that a native refused to commit himself to a judgment of truth or to a judgment of falsity; but the linguist may not report, as a datum, that the native commited himself to a judgment of truth-valuelessness, unless (as is both unlikely and irrelevant) the native is himself a professional

linguist or philosopher or has been force-fed on the spot by such a person.

What, then, can "semantic presupposition" do for semantic theory? In the course of our case studies, we have found as yet no job for Strawsonian presupposition to do. If there is any such job, most likely the best way to get at it (as Garner (1971) has insisted) is systematically to investigate the consequences of "presupposition" failure. Are there any sentence pairs $\langle S_1, S_2 \rangle$ of which we would want (for any theoretical reason) to say that if S_2 is false, S_1 lacks a truth-value?

In some cases of alleged semantic presupposition, we have seen, the penalty for the failure (falsity) of S_2 is simply the falsity of S_1. In other cases, the penalty is the violation of Grice's first Maxim. (Notice that as a byproduct of this violation, the presumed truth--far from the truth-valuelessness--of S_1 is assured. To violate the first Maxim in uttering S_1 is to utter S_1 when one is in a position to assert some stronger truth, i.e. one which entails S_1 but is not entailed by it; and only truths are entailed by truths.) No doubt, in still other cases, the penalty will be that S_1 is infelicitous; but infelicitousness entails nothing about truth or falsity, as we shall see. In still other cases, the penalty will be that whoever tokened S_1 (or possibly someone else in the situation) has a false belief; but that result too is consistent with S_1's being either true or false. In no case are we tempted to impose truth-valuelessness as a penalty, though we might be if someone were to show some powerful explanatory reason why we should thus eschew the Law of Bivalence.

If our skepticism about truth-valuelessness is as well justified as we believe it is, then there ought to be some further diagnosis of the fervor with which philosophers and linguists have embraced the notion. We believe that the correct (causal) explanation is to be found in Austin's pellucid doctrine of infelicities (1962, Lectures XI and XII), though we shall expand slightly on Austin's remarks here.

Austin was concerned to point out that, from the standpoint of speech-act theory taken in the large, a given speech act can be (and is, in particular cases) assessed or evaluated along a number of distinct and independent "dimensions of criticism", or spectra of satisfactoriness and unsatisfactoriness. This is clearest in the case of "pure" (explicit) performatives; a performative speech act can go wrong in any one of a number of different ways, some more tragic than others depending on context. But the same is true of any other speech act. So far as we can see, there is in nature no such thing as a "pure constative", though (on our view) a semantic representation or logical form is a picture of one, in the same sense in which we can draw a picture of a mass-point or a black box.

The true/false dimension is just one avenue of criticism among others; there are many other ways of being happy or unhappy, satisfactory or unsatisfactory, felicitous or infelicitous. And (here is the important point) the importance of the true/false dimension in fact varies widely from context to context with the passing purposes of speakers, hearers, and assessors. Sometimes we care very much about truth and falsity. At other times we care much more about other sorts of virtues and faults. We think, in fact, that cases of the

latter sort predominate rather heavily. Philosophers' treatment (prior to Austin) of English sentences as if all that mattered about them were their truth-values is an occupational disease, and has resulted in true's having come to be, in some philosophers' vocabularies, the only honorific applicable to utterances. This is a crucial point to which we shall return.

Consider a case of Garner's, offered in conversation: A speaker suddenly utters a declarative sentence on a topic that he or she knows nothing about, say,

(218) At this moment there are exactly three customers sitting in the Cantonese restaurant downtown.

in a context in which it is clear that the speaker cannot possibly have any positive evidence for the truth of (218). Something is badly wrong; the utterance is infelicitous in some way yet to be specified. But it certainly need not be denigrated along the true/false dimension; the sentence uttered, (218), may very well be true.

Similarly, take Moore's Paradox:

(219) It's raining, but I don't believe that it is.

In the absence of very special stage-setting, (219) is anomalous. Though much has been written about it, both by "ordinary language" philosophers and by epistemic logicians, no one has ever quite succeeded in showing exactly what is wrong with it.[19] The important thing to see here is that, though an utterance of (219) is almost invariably as infelicitous as any utterance could be, (219) might perfectly well be true (of the speaker); this fact, indeed, is essential to setting up the Paradox.

Finally, take a negated factive:

(220) Herbert doesn't know that June is a go-go dancer.

uttered in a situation in which its complement is false. There is no question that this utterance, given appropriate stress contour, is infelicitous (in our discussion of case 3.3 above we suggested that the infelicity is partly statistical and partly Gricean). But, as we have seen, that does not affect (220)'s truth-value in the situation envisioned, since (220) is straightforwardly true--for what that is worth!

It is this last phrase that best expresses our view about "presupposition" and truth-value. In each of the foregoing three cases, something has gone badly wrong with the speaker's utterance. But there is no reason at all why this should lead us to judge that the sentence uttered lacks a truth-value.

Now we may proceed to explain philosophers' and linguists' enthusiasm for imputing truth-valuelessness to sentences whose only crime is that their "presuppositions" have failed. As we remarked earlier, philosophers at least have always grotesquely overemphasized the true/false dimension in thinking about language, to the extent that true is regarded as a kind of diploma. Once we have decided that a sentence is true, we pat it on the head and pass on to the next

sentence we want to evaluate. And, we believe, it is this habit which accounts at least for philosophers' occasional invocations of truth-valuelessness. Faced with a sentence which, though undeniably grammatical, sounds funny when its "presupposition" has failed, a philosopher is extremely reluctant to call it "true", for to do this is to give the sentence a passing grade, to honor it in what seems to the philosopher to be a conclusive way. And yet the philosopher does not want to call the sentence "false", either, for to do that is to fail the sentence, to condemn it in an apparently conclusive way obviously unwarranted by the situation. The philosopher concludes that the sentence is not true, and that it is not false--hence, that it is neither true nor false, and so, truth-valueless.

The mistake, of course, is the philosopher's taking true and false far too seriously in the first place. Why not just admit that the sentence is true (or false, whichever seems dictated by the assumed facts, what we know of its truth-conditions, and considerations of theoretical elegance), for what that is worth (very little), and get on to more important kinds of evaluation of the sentence and hypothetical speech acts in which it occurs? That is, let us give up our excessively honorific use of true and recognize that, in the sorts of cases we are talking about, to admit that a sentence is true is no great concession, but is only a prefactory note to getting on with evaluation along dimensions perhaps more pertinent to everyday life.

This same failure to appreciate Austin's vital insight that true and false comprise only one among many important pairs of terms used for the praise and blame of utterances has, we suspect, misled linguists as well. For example, Karttunen writes,

> [John didn't manage to solve the problem, if John did not even try to solve the problem], would have to be rejected as an infelicitous utterance to which no truth value could be assigned. (1971b:344)

--the implication being that the infelicitousness of the utterance in the context envisioned is the reason why "no truth value can be assigned" to the sentence uttered; in that context (as we have heard some linguists put it), the sentence is "too infelicitous" to be true or false. But this attitude radically misconceives the status of truth and falsity as evaluative properties of utterances or sentences. The true/false dimension, it will be remembered, is only one avenue of evaluation among others; it is not a final touchstone which an assessor applies only after having run through all the "lesser" infelicities and found the sentence in question acceptable in all preliminary respects. A sentence or utterance can be infelicitous to an arbitrarily extreme degree in any number of respects and still be true (or false). To say of a sentence that it must lack a truth-value because it "is infelicitous" --or that it is "too infelicitous to have a truth-value"--is like saying of a dog which is blind and which is bad at following scents that it is therefore neither loyal nor disloyal, or of a man that he is so bad at his job and so ugly and such a rotten poker player that he is neither kind to his mother nor unkind to her.

5. Relative Grammaticality

Some linguists[20] have alleged that certain syntactic phenomena require a notion of presupposition, in that one and the same sentence may be deviant or ill-formed relative to some ways the world might be, and yet perfectly acceptable relative to other ways the world might be. (We use "relative to" here as a gloss designed to blur the distinction between the fact of the way the world is, the speaker's or hearer's belief as to the way the world is, the speech community's shared background information as to the way the world is, etc. remarked on in Section 2 above. We shall speak hereafter simply of "presumptions".) Now if a string S_1 is well-formed only given the truth of a sentence S_2 or in light of the fact S_2 describes, this provides considerable temptation to say that S_1 presumes or "presupposes" S_2 in some sense or other; and, in view of the intimate connection between syntactic deep structure and semantic representation or logical form, it suggests that the kind of presumption in question is semantical or at least semantically relevant. In fact, a brief argument suffices to show that if well-formedness is relative in this way to factual presumptions about the world, then a strong form of Strawsonian semantic presupposition is viable after all: If the failure of some (logically contingent) factual presumption S_2 suffices to render an otherwise grammatical string S_1 ungrammatical or ill-formed, and if (as is uncontroversial) a string must at least be well-formed in order to be either true or false, then the failure of S_2 a fortiori renders S_1 truth-valueless; thus, if Lakoff (1969) is right about the relativity of grammaticality, S_1 (by definition) semantically presupposes S_2.

Notice that the brand of truth-valuelessness appealed to here is far less mysterious (on its face) than that denigrated in Section 3 above. The latter is the reputed truth-valuelessness of an admittedly well-formed sentence in certain circumstances, requiring bizarre alterations in what we would ordinarily and naturally take to be the truth-conditions to be assigned to that sentence (recall the cases of nonrestrictive relative clauses and negated factives) and seemingly needless complications in our logic. The truth-valuelessness that allegedly arises from presumption-failure in a case of "relative grammaticality", however, is nothing so offensively arcane or baroque--it is simply the unexciting "truth-valuelessness" of an ill-formed string. An ungrammatical sequence of words need not be assigned any unusual truth-conditions; straightforwardly, it is assigned no truth-conditions at all.

5.1. Factual Presumptions and Logical Form

Unlike the alleged data underlying the claims we discussed in Section 3, some of the phenomena cited as examples of "relative grammaticality" are striking, evidently real, and hard to explain away. We shall take up only a few of the cases that we find the most interesting and troublesome for semantic purists of our stripe.

1. Laurence Horn (1969) argues that certain sentences containing only and even are well-formed only in contexts in which certain contingent factual presumptions hold. (Lakoff (1972:581ff) gives a useful summary of Horn's data.) For example, a sentence of the form

(221) Even A Ø'd.

is deviant, ungrammatical, or at least quite peculiar if it was not expected that A would not Ø, or if there was no one besides A that Ø'd. (As always, we leave open the question of who it is that is doing the expecting.) The exact nature of the deviance or peculiarity here is as yet unspecified.[21]

2. Lakoff (1969) argues convincingly that the relative pronoun who can be used grammatically only when it is presumed that its subject is regarded for purposes of the discussion as denoting a person, as opposed to a mere thing or lower animal. (Lakoff (citing McCawley) finds it interesting that "semantics" is here invading what used to be thought of as "purely syntactic", viz. judgments of deviance or ungrammaticality; since syntax and semantics are no longer widely regarded as being separate and autonomous areas of inquiry, this invasion is not surprising. What is surprising is that our judgments of syntactic/semantic deviance should vary with our background beliefs or presumptions. To semantic purists of our persuasion, what information about a sentence is encapsulated in that sentence's deep structure, logical form, or semantic representation should not depend on any contingent factual presumptions about the way the world is; it is a purely formal matter. We shall pursue this below.)

3. Lakoff goes on to show (pp. 109-10) that intonation contour is sometimes dictated by background beliefs. Contrast:

(222) a. John called Mary a lexicalist and then she insulted him.
b. John called Mary a lexicalist and then she insulted him.

If we agree that intonation contour is at least sometimes a semantic matter--e.g. that intonation contour sometimes suffices literally to disambiguate an utterance which it characterizes--we can generate more cases in which background beliefs appear to affect syntactic and semantic well-formedness.

4. Either, too, and instead carry factual presumptions not unlike those carried by even (cf. 1 above). Lakoff claims, citing

(223) a. Jane is a sloppy housekeeper and she doesn't take baths either.
b.?*Jane is a neat housekeeper and she doesn't take baths either.

That "[t]he construction, A and not B either, carries with it the presupposition that one might expect A to entail not B" (p. 110). Of course, this is a howler as it stands--what speakers expect about entailment is irrelevant. Presumably what Lakoff means it that one would not expect A and B, and in this he seems unmistakably right. Consider also the following contrasts.[22]

(224) a. Jane just succeeded in proving Fermat's Last Theorem, and her husband is very brilliant {too / as well}.

b.?*Jane just added 2 and 2 and got 6, and her husband is very brilliant {too / as well}.

(225) a. Jane considered going to the dentist, but decided to enjoy her day off instead.

b.?*Jane considered taking a pleasant ride through the countryside, having a really good dinner, and seeing a movie, but decided to enjoy her day off instead.

Lakoff concludes on the basis of such data[23] that, while we may continue to use deviant, ill-formed, ungrammatical, etc. as predicates of utterance(-token)s in context, they and their positive cognates must now be construed as designating relations between string(-type)s and sets of factual judgments; a string is well- or ill-formed only relative to such a set. Thus, we arrive at a strong notion of semantic presupposition by allowing factual presumptions to invade semantics via syntax.

Two theoretical arguments seem to be implied here. One (let us call it the Argument from Meaningfulness) is a more explicitly semantical version of that provided on the first page of the present section: Neglecting well-known cases of "semi-", borderline or marginal grammaticalness, a string must be well-formed or grammatical in order to be meaningful. Further, a string must be meaningful in order to have any semantic properties (save, trivially, that of meaninglessness) at all. Therefore, if the grammaticalness of a string depends on contingent factual presumptions, then so do that string's very meaningfulness and a fortiori its other semantic properties.

The second theoretical argument (hereafter, the Argument from Generative Semantics) is more remote from Lakoff's text, but we suppose that it is one he would accept, since it captures a piece of motivation for the invocation of "presupposition" in semantic theory that is based squarely on the central claim of Generative Semantics: (i) The Lakovian presumptions affect syntactic well-formedness. (ii) Semantic representations or logical forms are the input to syntactic derivations. Therefore, (iii) The Lakovian presumptions are in some way part of semantic content or logical form. The moral of each of the two arguments is that factual presumptions ought in some way to be represented in our semantic accounts of the target sentences in question. And, more generally, syntax and semantics ought hereafter to be conceived as being context-relative; they are not the austere, purely formal disciplines they have been supposed to be; one cannot pursue them successfully without taking into account particular utterers in particular situations.

As we have implied throughout this essay, we want to resist these conclusions. It seems to us (though this is not the place to defend this less than popular contention) that there is important theoretical utility to be gained by splitting semiotic study into that which pertains to the formal properties of sentences considered apart from particular contexts, on the one hand, and relations that the same sentences bear to features of particular situations, on the other. In particular, we

want to hold to our perfectly natural inclination to say that a sentence simply has a certain meaning or meanings in English, and that it simply has a certain range of possible uses, these being specifiable quite independently of contextual considerations.[24] And we certainly do not want to court the counterintuitiveness and ugly theoretical complications of supposing that the very recursive rules which delineate well-formedness (rules which seem by their very nature to be purely formal) depend in any way on mention of specific possible states of affairs. Intuitively, a sentence is either a well-formed string of English or it is not (again barring borderline cases), regardless of what speakers, hearers, or theorists may happen to believe about nonlinguistic reality.

If we are to resist Lakoff's skeptical conclusions, then, we must turn aside both of the theoretical arguments we have sketched, and find some alternative account of the phenomena; and this will not be entirely easy to do, since the arguments appear to be valid and the data are hard. Let us begin with the Argument from Generative Semantics. (We shall return to the Argument from Meaningfulness considerably later.)

Lakoff has not shown that premise (i) is true. In the respective contexts envisioned, it is plain that there is something wrong with tokening the strings in question--"wrong" at least in the general sense of "inappropriate", "nasty", or "unacceptable". What Lakoff has not demonstrated is that the awfulness is specifically syntactic ill-formedness. It is quite possible in each of the cases we have listed that the penalty of "presupposition" failure is not syntactic defectiveness at all, but infelicitousness of an Austinian sort, Gricean conversational unacceptability, or some other nonsyntactic flaw. (In short, the relation between a string and its associated set of factual presumptions may well be pragmatic, as its essential contextualness naturally leads us to expect.) The problem for us here is that, as was not the case in our discussions in Section 3 above, no such pragmatic explanation comes readily to mind--the ugliness of (223b), (224b), (225b) and the like has no obvious pragmatic source.

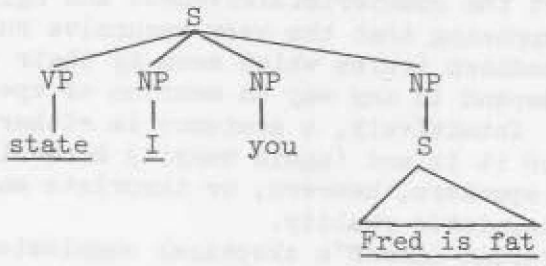
Fortunately, we need not await the development of a detailed pragmatics in order to defuse the Argument from Generative Semantics. For we still have the option of denying premise (ii), despite its apparent centrality to the Generative Semanticists' program. The first thing to notice is that, if the argument is to be regarded as valid, premise (ii) must be interpreted exclusively, i.e. as: (ii') Semantic representations or logical forms are the sole input to syntactic derivations.--Otherwise it would have to be regarded as possible for the Lakovian presumptions to be nonsemantic input to the syntactic derivations. And in fact, this latter possibility is precisely what we want to hypothesize as fact. This requires, of course, that we deny (ii'); we hereby do so, for there is independent evidence of its falsity.

For example, there are several convincing reasons to think that syntactic transformations operate in part on underlying performative prefaces which refer to the utterer of a sentence, to the hearer addressed, and to the speech act which the speaker is thereby performing.[25] Thus, e.g. a declarative sentence such as

(226) Fred is fat.

has an underlying syntactic structure something like

(227)



Now it is plain (contrary, perhaps, to slips or malapropisms on the part of a few linguists) that this posited performative preface is not part of logical form or semantic content in acceptably strict senses of those terms. A logical form assigned to a sentence, on the usage originated by Russell, determines a fully disambiguated reading of that sentence, along with a set of truth-conditions for that reading, and thereby (in the context of a containing logical theory) codifies all of the sentence's entailment-relations--nothing more. And it is clear that the performative preface displayed in (227) plays no role in determining the conditions under which (226) is true, or what is or is not entailed by (226). (Thus Lakoff writes, correctly,[26]

> Note that in sentences it is the propositional content, not the entire sentence, that will be true or false... in sentences where there is an overt performative verb of saying or stating or asserting, the propositional content, which is true or false, is not given by the sentence as a whole, but rather by the object of that performative verb. (1972:560)

The "propositional content" referred to is precisely the scope or complement of the performative operator. The specification of overt performative verbs is inessential to the point.) Entailment-relations, and truth-conditions generally, are to be read out from under the performative preface, and so, consequently, is logical form. Contrary to what Lakoff goes on neologistically to say, logical form does not properly contain propositional content--it is propositional content. The semantic content of a sentence is one thing; the illocutionary force of that sentence, or the (pragmatic) use to which it is put on some occasion, is quite another, though both notions are important to the understanding of "meaning" taken diffusely in the large.

The relevance of the Performative Analysis to our discussion of "relative grammaticality" is that it provides a counterexample to premise (ii') of the revised Argument from Generative Semantics. Logical form, properly construed, is not the sole input to the transformational component, for transformations operate as well on performative material, and performative material is not part of logical form. (Thus, if we take "deep structure" to be, by definition, whatever it is that syntactic

transformations take as input, we cannot accept the suggestion that deep structure may simply be identified with logical form. Deep structure has logical form as a proper part.) Now, what we want to suggest is that there is at least a second sort of input to the transformational component: factual presumptions. That is, we shall concede that contingent factual presumptions do indeed affect syntactic processes, but deny the alleged implication that these presumptions have semantical repercussions. In this way we may concede their existence and their syntactic relevance without courting the troublesome and counterintuitive claim that a sentence's semantic properties (as codified in the logical form(s) assigned to the sentence) vary with contingent fact.

No one who takes seriously the contention that syntactic processes have "psychological reality" need find this proposal startling. It is not surprising that performative prefaces affect syntactic derivations, since what one wants and intends to do with one's words, no less than the thought (so to speak) passing through one's mind, may certainly be expected to affect the causal processes issuing in one's actual speech. Likewise, we would expect the background beliefs stored in one's belief-stockpile to affect these processes too. So it is quite natural to suggest that sets of beliefs (on someone's part) should serve as input to syntactic transformations just as performative prefaces do, or at least that some transformations should be sensitive to them.

5.2. Alternative Analyses

We hypothesize that the transformations that are sensitive to contingent factual beliefs are relatively superficial. Consider case 3 above, that of presumptive intonation contours. Our inclination is to suppose that the relevant stress is functioning only conversationally in such cases; but, rather than put forward a Gricean theory applicable to stress phenomena, let us suppose for the sake of argument that stress contour cuts deeper than this, to the extent that a sentence uttered with inappropriate intonation relative to the contextually presumed beliefs is syntactically and not just conversationally unacceptable. If so, we suggest, the beliefs affect the syntactic process somewhere in the relatively superficial subprocess of lexicalization (if intonation is taken to be a lexical matter), or even in the phonological component (if we are careful to distinguish a theoretical level of "surface structure" from what is ultimately produced in the form of patterns of noises or marks). It seems clear that the truth-conditions of (222a) and (222b) are precisely the same--though of course this would be denied by someone who held that (222a) is ill-formed, and hence has no truth-conditions at all, in contexts in which it is presumed that it's good to be a lexicalist. Why not adopt the far more natural alternative of saying, not that in such a context (222a) has been produced from no logical form at all, but that it has been produced from a conjunctive logical form (the same one which underlies (222b)) by a syntactic process culminating in a regrettably defective lexicalization?

It is much more obvious that Lakoff's data concerning who (case 2 above) are lexical in nature. When a syntactic process requires the insertion of a relative pronoun, the syntactic component waits until

almost all its operations have been completed before deciding whether to lexicalize that pronoun as who or as which. The choice, to be sure, is dictated by a nonsemantic factor; but it is quite a superficial choice.

The insertion of even, too, and either (cf. cases 1 and 4) is, we should think, nearly as superficial, triggered rather late in the transformational process by items from whatever set of factual presumptions is in play. Since we want so far as possible to avoid resting our main contentions on substantive and probably controversial syntactic claims (not being in a position to defend such claims in any detail), we shall not try to flesh out an articulated theory of the sources of the Lakovian particles. But if a grammar is to be sensitive enough to factual presumptions to mark the Lakovian target sentences as being ungrammatical relative to the relevant presumptions, then that grammar must have some way of recording that relativity. We suggest that the most natural and appropriate procedure is simply to flag some transformations in such a way as to limit their operation to occasions of favorable conditions in a speaker's (or whoever's) belief-store.[27]

We are a little more troubled by example (225) above. The presumption of (225a) is evidently that going to the dentist is not enjoyable (that going to the dentist and enjoying oneself tend to preclude one another); and the (true) presumption relative to which (225b) is deviant is that taking a pleasant ride through the countryside, etc. are enjoyable (do not tend to preclude enjoying oneself). We are not sure exactly what is going on here, but we shall hazard some cautious preliminary syntactic remarks designed simply to illustrate the pattern of explanation that we find attractive.

It seems clear enough that instead, at least in sentences like (225a-b), contains a hidden reference back to a previously occurring item; instead cannot occur in the absence of any assumed antecedent:

(228) *The whale is a mammal instead.
(229) *Two and two is four instead.

Probably there is a deleted redundancy--viz. instead in (225) very likely comes from instead of NP where "NP" is replaced by a repetition of the original noun or nominal phrase. Thus, (225a) would come from

(230) Jane considered going to the dentist, but decided to enjoy her day off instead of going to the dentist.

the "instead of" clause being inside the scope of decided.[28]

It is less plausible here to say that instead is inserted superficially in response to the presence of a factual belief, if instead is indeed not a merely inserted item like even or too. If instead derives from an entire underlying clause, then it is less easy to fall back on our practice of saying that it is just kicked in lexically at the eleventh hour by a piece of background information.

What may possibly be happening here is that instead of in intermediate structure comes from a sentential connective, and is inserted when the connected sentences are nominalized (if the nominalizations do come from underlying sentences, as they may or may not). The connective in question may well be and not. If so, then it is plausible to suggest that instead of as a particular lexicalization of & ~ has a contrastive connotation (unlike other lexicalizations such as and not), just as but is a lexicalization of & which is distinguished from other possible lexicalizations in that it carries the suggestion of contrast. And this brings us to a brief discussion of the nature of "contrastive connotation" itself.

A naive theorist might demand that sentences whose main surface connective is and and those whose main connective is but be assigned different logical forms. E.g. since

(231) George believes in semantic presupposition but he's smart.

suggests in whatever sense that we don't expect believers in semantic presupposition to be smart, while

(232) George believes in semantic presupposition and he's smart.

carries no such suggestion, it might be said that (231) and (232) have different underlying semantic structures. This, we believe, would be seriously mistaken. For, considered from the austere standpoint of truth-conditions alone, (231) and (232) would seem to be equivalent. Since (232) is true if George believes in semantic presupposition and George is smart, this commits us to saying that (231) is true in that circumstance as well.

Perhaps the contention that (231) and (232) have the same truth-conditions will be seen as simply question-begging. After all, if (231) is ill-formed in a context in which it is not presumed that belief in semantic presupposition tends to preclude being smart, then (231) and (232) cannot have the same truth-conditions, there being at least one possible state of affairs in which (232) is true but (231) is untrue (because ungrammatical). We shall argue against this last claim by considering that possible state of affairs a little more closely. Suppose we are in a seminar room full of semantic presupposition enthusiasts, and that these worthies have convinced us that the notion of semantic presupposition is not only viable but a sharp and indispensable tool for linguistic semantics in this century. No one in the room doubts this for a moment; any one of us, faced with a philosopher who failed to recognize the prevalence of truth-valuelessness, would conclude either that the philosopher's intuitions and a priori assumptions were badly soured or clouded by years of teaching introductory first-order logic, or that the philosopher was a jackass. Now suppose that someone in the company asserts (231), referring by his use of George to someone who is not present. It seems clear that, although the speaker's utterance is deviant in the context, nevertheless what he says has significant

implications. For example, he could justifiably be held to have asserted that George believes in semantic presupposition, and likewise to be held linguistically responsible for the truth of the claim that George is smart (the speaker did, after all, say that George is smart). If George turns out to be stupid despite his belief in semantic presupposition, then, it seems to us, the speaker has (inter alia) said something false. Now if even in a context elaborately safeguarded against the presumption that believing in semantic presupposition tends to preclude being smart, the speaker's utterance is held to have implications (it entails its conjuncts at least) and to be (even "in part") false, then it has semantic properties and hence is not meaningless or semantically ill-formed in the context.

The case is even clearer if we imagine that the speaker, rather than being one of our own number, has just entered from the outside. He may utter (231), believing that Boër and Lycan were right in "The Myth of Semantic Presupposition" and that they never should have been persuaded to recant. What are we (the occupants of the seminar room) to say about this utterance of (231)? Should we say that it is ungrammatical and hence meaningless, though the speaker remains gaily unaware of this? That the speaker's own apparent belief in (231)'s presumption suffices by itself to render his utterance meaningful? That (such matters being relative) the utterance is meaningful "for him" but not meaningful "for us", whatever that might mean? Whatever choice we make here, one thing that seems indisputable is that, as before, the utterance has implications and admits at least of the possibility of being false; and if so, then it is meaningful and hence grammatical in the context, period.

But isn't there something wrong with uttering (231) in a context in which no one believes or pretends to believe that believing in semantic presupposition tends to preclude being smart? Certainly there is, but not necessarily falsity, truth-valuelessness, or any other semantic defect. An utterance of (231) would be inappropriate. Why?

5.3. The Awfulness of (Relative) Deviance

It would be hard to explain the inappropriateness in Gricean terms, since there is nothing wrong with the literal locutionary content of (231)--it does not appear to violate any conversational maxim, and hence does not give rise to a Gricean argument on the part of the hearer. Nor, though the utterance of (231) in a hostile situation would certainly be infelicitous in some sense, would the infelicity be of any characteristic Austinian sort, for nothing would go wrong in any standard way with the speech act performed (qua speech act)--there is no temptation to accuse the utterer of having failed to make a statement, or of having stated defectively (except in a tautologously broad sense of "defective" that simply co-extends with the wholly general "inappropriate").

The problem seems intuitively to reside in the choice of the word but, and thus to be a lexical problem. This brings us back to the pattern of explanation employed in connection with who, even, too, and either. The lexicalizing transformation that produces English reflections of & is sensitive to factual presumptions: if it is

presumed (by whomever) that the truth of S_1 tends to preclude that of S_2, then the occurrence of & in $\ulcorner S_1$ & $S_2 \urcorner$ will be lexicalized as but; otherwise not. And what is wrong with (231) in a context in which no one has the relevant belief is that But-Lexicalization has operated on its own, without the appropriate trigger. A parallel account may explain the behavior of instead: We have suggested that instead reflects a shallowly underlying instead of, and the latter appears to be a specialized lexicalization of & ~ (waiving questions of how and where in the derivation lexical insertion occurs), properly triggered only when the speaker's store of presumptions includes the belief that one of the relevant alternatives excludes the other. The string

(233) *Jane thought of going swimming, but decided to go swimming instead.

is completely unacceptable because the presumption that going swimming tends to preclude going swimming is self-contradictory.

A similar if slightly extended strategy may suffice to account for the presumptive behavior of counterfactuals. Our account of counterfactuals in Section 3.8 above, unlike our other explanations of "presupposition" phenomena, rested on a highly substantive piece of theory (David Lewis') and so was introduced only as an attractive possibility; what we shall point out here is another.

Our feelings about counterfactuals with true antecedents are very strong, and (to report our own case) they bear interesting introspective similarities to our feelings about even, but, instead, etc. It is possible that the deviance of a counterfactual with a true antecedent is, like theirs, lexical. Notice that the problem arises only in connection with the superficial subjunctive mood. Even when a conditional expresses a speculative hypothesis, its antecedent may acceptably be true if it is couched in the overtly indicative mood, as

(234) If it turns out that Haj comes to the party, there'll be a volleyball game.

which is perfectly acceptable even when it does turn out that Haj attends. Now it is interesting that the subjunctive mood (excluding the hortatory subjunctive) is in a way not on a par with the other moods of a traditional English grammar: indicative, interrogative, imperative. Each of the latter corresponds to a general type of speech act (stating, asking, ordering, etc.), and is produced at the surface presumably by transformations which are triggered by the corresponding performative prefaces in syntactic deep structure. The subjunctive mood, by contrast, corresponds to no familiar general type of speech act and is presumably not so produced. Our suggestion (only that) is that the superficial subjunctive mood is a lexical item, introduced by a lexicalizing transformation, and that this lexicalizing rule is a factually restricted one, like But-Lexicalization. One further small piece of evidence for this is the fact that, while the transformations

which produce surface interrogatives and imperatives reorder structural elements of underlying forms, whatever produces surface subjunctives changes only individual words. To make a subjunctive, one need only change does to should, was to were, will to would, etc. If all this is right, then the deviance of a counterfactual with a true antecedent is of just the same sort as that of (231) tokened in a hostile context; a sentence of the form (175) above presumes (we might say, lexically presumes) the falsity of S_1.

5.4. Narrow Grammaticality and Broad Grammaticality

A serious objection to our program comes to mind. We have conceded that the failure of a Lakovian or lexical presumption has syntactic repercussions, insofar as lexicalization is a syntactic matter, and we have suggested that the resulting odd utterance is the product of illicit lexicalization. Now to say that the lexicalization of but in a hostile context is "illicit" is presumably to say that the appearance of but at the surface is not the result of a correct application of But-Lexicalization. But (so the objection goes) there is no such thing as an incorrect application of But-Lexicalization--a syntactic rule either applies or does not apply. Consequently, the surfacing of but is not the result of an application of But-Lexicalization at all. And it certainly is not the result of an application of any other syntactic rule; so it is not generated by the set of syntactic rules taken as a whole, i.e. not generated by the grammar. But a grammar is (among other things) a recursive device that delineates the notion of grammaticality. So our string whose factual presumption has failed is ungrammatical (in the context in which the failure occurs). Moreover, since it is not the output of any syntactic rule(s), and since our syntactic rules (run in reverse) are what assign semantic representations to surface structures, it seems we are forced to the conclusion that our defective string has no semantic interpretation, and hence expresses no logical form, and hence is assigned no truth-conditions, and hence cannot be either true or false! In short, in offering our account of but and other particles, have we not almost explicitly conceded Lakoff's claim in its strongest form, and opened the door to semantic presupposition after all?

This argument is impressive, and, though we believe that it fails due to several crucial oversimplifications, we shall be able here to offer only a rough sketch of a reply. But we can begin with a datum that is tolerably clear and points toward complexities unrecognized by the argument:

There is a substantial intuitive difference between the sense in which (231) is "ungrammatical" relative to the fact that believing in semantic presupposition does not tend to preclude being smart--at best a somewhat attenuated sense, we believe--and that in which (236) or even (237) is ungrammatical.

(236) *Good of believe off table the the the why.
(237) *Bertrand believes who Gottlob is.

What we want to maintain is that (231) is "grammatical" enough to have truth-conditions, and indeed to be true even when lexically inappropriate. The utterer of (231) (in the hostile circumstances) has violated a rule of grammar, but it is not a rule whose violation produces semantic anomaly. We propose the hypothesis that, even though the rule in this case has not been properly triggered, it can still be run backwards as a semantic-interpretation mapping in such a way that (231), even in our hostile context, will be assigned a (truth-conditional) semantic interpretation and hence can be understood in a rather narrow sense (for what that is worth). Thus, to address the formidable objection raised a few paragraphs above, the factual restriction on our But-Lexicalication rule does not serve as an impenetrable filter. That is, it is not an absolute restriction which, if violated, prevents the rule from operating at all; rather, it functions (if you like) as a strainer--the product succeeds in coming through, but not in a very appetizing form. It is, we shall argue, grammatical in a broad but useful sense, though deviant in a considerably narrower sense.

If there are (as we contend, contrary at least to the letter of Generative Semantics) several disparate sources of input to the transformational component, at least two of which must function jointly to produce a particular string that is grammatical in the context in which it occurs, then it is (though perhaps unfamiliar) not at all surprising that there should be more than one sort of syntactic or quasi-syntactic "deviance", corresponding to failures of various sorts of triggers. The deviance of (231) in our hostile context is due, not to any malfunction or misuse of the rules which rearrange elements of logical form to produce surface form, but to the unlicensed application (nevertheless, an application) of a presumption-sensitive lexicalizing rule which has nothing to do with structuring. The form is the same, and it is this form for which truth-conditions are defined. Thus, a sentence uttered in a context may be lexically deviant without being semantically deviant or uninterpretable. In this quaint sense, the sentence may (somewhat paradoxically) be both "ungrammatical" in its context and true, unlike (236) or (237), which simply have no semantic interpretation. And, a fortiori, the sentence can be both "ungrammatical" in this way and meaningful. This suffices to turn aside the Argument from Meaningfulness, since that argument baldly assumed, equivocating on grammatical, that ungrammaticality entails meaninglessness.

What is to become, then, of Lakoff's claim that "a sentence will be well-formed only with respect to certain presuppositions about the nature of the world"? We have distinguished two notions of "grammaticalness" which might paraphrase well-formed here, a broad notion and a narrow notion. A sentence is "grammatical" in the broad sense if it is assigned a semantic interpretation, whether or not it has been appropriately lexicalized (alternatively, if it is the product of some application of the relevant syntactic rules, even if one or more of the rules has been applied in violation of a "strainer"-style restriction). A sentence is "grammatical" in the narrow sense, however, only if it is not only semantically interpretable but correctly lexicalized given the factual presumptions that in fact obtain in the context in which it is uttered. Thus, a sentence in vacuo is "grammatical" in the broad

sense, or else it is not; it is "grammatical" (or "ungrammatical") in the narrow sense only relative to a set of contingent beliefs.

To be semantically interpretable is to have a specific logical form or forms. In view of this, we prefer to reserve the term well-formed as a synonym for "grammatical" in the broad sense. (Thus, some well-formed sentences are lexically improper.) We may relate well-formedness in this sense to "grammaticalness" in the narrow sense in the way suggested by Lakoff himself (1969:115): A string S is well-formed (= "grammatical" in the broad sense) iff there is at least one set of factual presumptions relative to which S is "grammatical" in the narrow sense. The well-formedness of S, on this usage, does not vary with contextually specified sets of beliefs.

Lakoff writes,

> However, if a speaker is called upon to make a judgment as to whether or not S is 'deviant', then his extra-linguistic knowledge enters the picture.

On our usage, deviant here is to be read as "not 'grammatical' in the narrow sense"; a sentence's being "deviant" in this sense is (contrary to Lakoff's usage) compatible with that sentence's being well-formed (semantically interpretable).

The contrast between the broad and narrow senses of "grammatical" has so far been highlighted only by the behavior of words of a certain class (even, too, either, instead, but, ...), which (so to speak) themselves carry connotations of various kinds. If we are right in supposing all this, then possibly other syntactic phenomena will be seen to point toward the distinction as well. And it should be added that there are probably lots of different senses (or kinds, or grades) of grammaticality besides these two; grammatical, deviant, OK, and other evaluative predicates applied by linguists to strings mask many different kinds of linguistic (and sometimes nonlinguistic) goodness and badness, and someday these must all be straightened out.

Lakoff anticipates and disparages our suggestion of defining "grammaticality" in the broad sense in terms of "grammaticality" in the narrow sense and reserving "well-formedness" as a synonym for the former:

> Such a definition would define a field of presupposition-free syntax. One might ask then what would be the content of this field, what phenomena would it deal with, would it be interesting? Such a field of presupposition-free syntax would deviate from the traditional study of syntax in that it would no longer involve the study of the distribution of all grammatical morphemes. As we have seen, the distribution of grammatical morphemes like who versus which cannot be stated in terms of presupposition-free syntax...It is not even clear that principled grounds could be found for motivating the notion of grammatical transformation within the bounds of such a field...In fact, it may well turn out that such a field would be limited to the study of the well-

> formedness conditions on possible surface structures of a language. Such a field might well be no more interesting than traditional phrase structure grammar. At present, there is no reason to believe that it would be. (pp. 115-6)

Lakoff seems to concede here that our distinction between well-formedness and "grammaticality" in the narrow sense is tenable; what he doubts is that, as a matter of empirical fact, a "presupposition-free syntax" or recursive characterization of (what we call) well-formedness would be able to explain many of what are traditionally taken to be syntactic phenomena--or so we read the quoted remarks.

He points out that "presupposition-free" syntax would fail to account for the distribution of all grammatical morphemes, e.g. for that of who and which. This is correct; on our account, a recursive grammar of (mere) well-formedness would not predict whether who or which was correct in a given context--obviously, since it would not be context-relative at all. But this consequence is entirely congenial to us. Whether one uses who or which in a given context is not a matter of form or structure, and, so far as we can see, has nothing to do with truth-conditions in the semanticists' sense of the term. It is a matter of the appropriateness of a single word. Possibly appropriateness-conditions should be built into an adequate semantics in the form of nonlogical axioms or "meaning postulates", for those linguists and philosophers who countenance such things (and it seems clear that our syntax will have to countenance them, though philosophers may go on to argue over their logical or epistemic status). But axioms, for those who appeal to them, serve strictly to account for (or "account for") those semantic phenomena that are nonstructural, that turn on particular information about particular morphemes or semantic primes. Thus, it seems to us that a recursive theory of well-formedness should fail to predict the behavior of all morphemes.

A more serious question is that of whether a "presupposition-free" syntax would be interesting or important. Lakoff contents himself with giving a few examples of allegedly interesting phenomena that would fail to be treated by such a syntax. That in itself is unexciting. What makes Lakoff's examples more interesting is that the phenomena in question are ones which have been thought of by linguists specifically as syntactic phenomena. And data of this sort drive home our earlier contention that syntactic rules operate on something in addition to semantic representations or logical forms.

However (assuming that Lakoff's points concerning selectional restrictions, coreference and identity, etc. can be dealt with independently), we have found only one class of syntactic phenomena that require us to posit input from the belief-store, and the hypothesized syntactic effect of such beliefs is (so far as has been shown) quite superficial. There seems to be a group of morphemes whose distribution, rather late in the transformational process, is indeed governed by background beliefs. But that in itself hardly warrants Lakoff's grandly skeptical predictions quoted above. He would have to find much more evidence, and many more different kinds of plainly syntactic but equally plainly context-bound data, in order to make a case for

doubting the importance or interest of "presupposition-free" syntax.

Two final replies:

1. Lakoff says, "It is not even clear that principled grounds could be found for motivating the notion of grammatical transformation within the bounds of such a field." His reason for this (deleted from the foregoing quotation) is that

> since selectional restrictions in general involve presuppositions, any such restrictions could not be used to motivate transformations. If such grounds for motivating transformations were taken away, it is not clear that very many, if any, of the traditionally assumed transformations could be motivated within a presupposition-free syntax. (p. 116)

Two dubious claims are involved here: that "selectional restrictions in general involve presuppositions", and that most of the "traditionally assumed" transformations are assumed largely on the basis of arguments from selectional restrictions. The first of these claims is entirely unclear as it stands, though it is likely to yield a truth upon clarification, since "selectional restrictions" rather obviously depend on the beliefs of speakers and hearers and consequently may be expected to vary considerably with those beliefs (this is one reason for supposing that "selectional restrictions", contrary to the intentions of Gilbert Ryle, should play only a minor role in syntax). The second claim is much more striking. Doubtless Lakoff knows far more of the history of syntax than we. But (i) we have never noticed that appeals to selectional restrictions loomed particularly large in syntactic argumentation that we have come across, and (ii) we should regard such appeals as argumentatively suspect, since (intuitively speaking) they bear not on formal structure, but on what we say about the meanings of words. Only much further work can settle these issues.

The matter of selectional restrictions aside, it is easy enough to provide "principled grounds" for motivating the notion of a grammatical transformation within the bounds of presupposition-free syntax. The job of a presupposition-free syntax as limned above is, given semantic representations or logical forms written in a logicians' canonical idiom, to map these forms onto well-formed (i.e. in Lakoff's phrase, possible) English surface structures. A syntax of well-formedness is needed (whether or not it is as "important" as some other branches and sub-branches of semiotics); and it is hard to see how such a mapping would be able to function in the absence of grammatical transformations--it seems, indeed, to require them by definition.

2. Lakoff says, "[Presupposition-free syntax] might well be no more interesting than traditional phrase structure grammar. At present, there is no reason to believe that it would be." If what Lakoff is looking for is an a priori reason to believe that presupposition-free syntax would be interesting, in addition to the rather obvious fact that both logic and grammar require some notion

of abstract structure (however unimportant that structure might turn out to be in comparison to other features of a natural language), he can find that reason in his own remark about "well-formedness conditions on possible surface structures". For we have the notion, marked vividly in intuition, of a possible sentence, a string which has a possible use in English, though of course not every possible sentence is appropriate in every (or even any) context. There is a firm distinction between strings which are possible sentences of English and strings which simply have no semantic interpretation. (We would be the last to rule out the possibility that this distinction masks further and more refined distinctions as well.) It is precisely the job of "presupposition-free" syntax, as Lakoff sees, to mark this distinction and thereby to delineate the class of strings that are candidates for lexically correct, felicitous and conversationally acceptable utterance. And that is interesting enough for us.

Footnotes

[1]Keenan (1972) provides a good example of the theoretical complications attending the acceptance of presuppositions.

[2]Wilson (1975) makes a valuable step towards discrediting presuppositions, albeit from a somewhat different standpoint from the one adopted here. Boër and Lycan (1974) attack presuppositions in the form of "invited inferences" (Geis and Zwicky 1971).

[3]Langendoen and Savin (1971); Karttunen (1973).

[4]Karttunen's more recent writings display increasing sophistication in these matters (1973; Karttunen and Peters 1975).

[5]This formulation is our reconstruction (Boër and Lycan 1974) of Geis and Zwicky's text.

[6]The following point has been made independently and somewhat differently by Katz (1973).

[7]Thus, Lakoff (1972) cannot (contrary to his explicit statement in footnote 2 to Section V) have been speaking of semantic presupposition when he wrote, "...in certain cases [sic] the presupposition relation is transitive...[But] transitivity of the presupposition relation fails in [other] cases" (575, 576).

[8]This is not to say that stress does not sometimes have semantic significance as well.

[9]The treatment of it as a "surface marker" for a bound variable in deep structure figures prominently in the version of Montague Grammar formulated by Cresswell (1973:178-9), obviating the need for a rule of clefting.

[10]Reis (1973) pursues this line in a rejoinder to Wilson (1972).

[11]Notice that this is slightly paradoxical in itself: (74b), when uttered (as is more common) with rising stress on know, suggests or implies that Sam is a Martian, even though (74b) itself is entailed by the claim that he is not!

[12]In a system of Montague Grammar, the distinction between internally and externally negated factive constructions can be made explicit at the level of deep structure, in terms of variations in the scope of negation relative to the scope of the nominalized sentential complement (regarded as a functor which forms sentences from monadic predicates). Given an appropriate semantical rule for a factive complementizer that, factive constructions and their internal negations can both be shown to entail their sentential complements (Cresswell 1973:165-9). If negated factives are thus syntactically ambiguous, there is yet another explanation of the temptation to invoke semantic presuppositions here, viz. failure to distinguish the genuine entailment which attached to internal negations in deep structure from the merely pragmatic implication attaching to external negations. This explanation would in turn neatly account for the fact that the factive suggestion carried by a negated epistemic sentence is obliterated when that is replaced by whether.

[13]Compare also As soon as Smedley arrived at the party, he managed to slip and fall on his face, though some hearers might insist on understanding this as irony.

[14]The actual semantics and syntax of (103a) are mysterious to us. If (103a) is equivalent to some conjunction, as we suppose, is it itself derived from some conjunction in semantic structure? Is there any syntactic evidence to indicate that manage undergoes lexical decomposition? These are matters we shall have to leave. But our data concerning (119)-(121) suffice to make the preliminary point that (103a) is simply stronger than (103c), and this point yields a natural explanation of Karttunen's phenomena, obviating any need to invoke semantic presupposition.

[15]For some speakers, actually, our technician's opening-and-shutting action verifies (147b) as well as (147a). For these speakers, the following account is unnecessary. The oddity of (142a) when (142b) is false is due simply to the statistical rarity of actions relevantly like John's.

[16]Of course, this kind of situation almost never actually occurs. When vacuous names occur in ordinary English, they do so attributively. See Boër (to appear).

[17]The distinction between referential and attributive uses of singular terms, originally introduced by Donnellan (1966) as a pragmatic matter, has subsequently been given both a semantic dimension (Boër, to appear; Boër and Lycan, in press; Devitt 1974) and a syntactic dimension (Stampe 1974; Bell 1973).

[18]However, see Harman (1975).

[19]For what we take to be the reason for this lack of success, however, see Lycan (1970).

[20]Chiefly Lakoff (1969 and 1972). See also Fillmore (1971) and Langendoen (1971).

[21]Horn argues for related conclusions concerning only; these, we believe, are easier to explain away in terms of quantificational structure.

[22]Data of this sort were called to our attention by Jon Schonsheck in an unpublished note.

[23]He also offers examples concerning selectional restrictions, and some which depend on claims about coreference and identity; but we find these far less convincing than those we have listed.

[24]Of course, this is not to say that sentences could have meanings at all in the absence of speakers who use them in certain ways in certain situations.

[25]See McCawley (1968); Ross (1970); Lakoff (1972); Sadock (1975).

[26]The point, however, is not entirely uncontroversial; an opposing view is taken by Lewis (1972) and by Cresswell (1973).

[27]Cresswell (1973:235-6) seems to endorse a similar proposal for Montague Grammar, for he remarks on the "elegance" of incorporating "use-dependent acceptability principles" and notes that such principles can be generalized to include beliefs as well.

[28]Actually, there is a relatively useless alternative reading of (225) and (230) according to which what Jane did instead of going to the dentist was to make a decision, one which may or may not have been carried out.

References

Atlas, J. 1975. A new principle for linguistic semantics: Do not multiply scope ambiguities beyond necessity. 5th International Congress of Logic, Methodology and Philosophy of Science. London, Ontario.

Austin, J. L. 1962. How to Do Things with Words. Oxford: Oxford University Press.

Bach, E. and R. T. Harms, eds. 1968. Universals in Linguistic Theory. New York: Holt, Rinehart and Winston.

Bell, J. M. 1973. What is referential opacity? Journal of Philosophical Logic 2:155-80.

Bierwisch, M. and K. Heidolph, eds. 1970. Progress in Linguistics. The Hague: Mouton.

Boër, S. (to appear) Attributive names. Notre Dame Journal of Formal Logic.

Boër, S. and W. Lycan (1974) Invited inferences and other unwelcome guests. Papers in Linguistics 6:483-505.

Boër, S. and W. Lycan (in press). Knowing who. Philosophical Studies.

Cresswell, M. 1973. Logics and Languages. London: Methuen.

Davidson, D. and G. Harman, eds. 1972. Semantics of Natural Language. Dordrecht, Holland: D. Reidel.

Davidson, D. and G. Harman, eds. 1974. Logic and Grammar. Encino and Belmont, Calif.: Dickinson.

De Rijk, R. 1974. A note on prelexical predicate raising. in Seuren (1974).

Devitt, M. 1974. Singular terms. Journal of Philosophy 71:183-205.

Donnellan, K. 1966. Reference and definite descriptions. in Rosenberg and Travis (1971).

Fillmore, C. and D. Langendoen, eds. 1971. Studies in Linguistic Semantics. New York: Holt, Rinehart and Winston.

Fillmore, C. 1971. Types of lexical information. in Steinberg and Jakobovits (1971).

Garner, R. 1971. 'Presupposition' in philosophy and linguistics. in Fillmore and Langendoen (1971).

Geis, M. and A. Zwicky. 1971. On invited inferences. Linguistic Inquiry 2:561-6.

Grice, H. P. 1961. The causal theory of perception. Aristotelian Society Supplementary Volume 35:121-68.

Grice, H. P. 1974. Logic and conversation. in Davidson and Harman (1974).

Harman, G. 1975. Moral relativism defended. Philosophical Review 84:3-22.

Heringer, J. 1972. Some grammatical correlates of felicity conditions and presuppositions. OSU WPL 11.

Horn, L. 1969. A presuppositional analysis of 'only' and 'even'. Papers from the Fifth Regional Meeting of the Chicago Linguistic Society. Chicago, Ill.: University of Chicago Dept. of Linguistics.

Jacobs, R. and P. Rosenbaum, eds. 1970. Readings in English Transformational Grammar. Waltham, Mass.: Ginn and Company.

Karttunen, L. 1971a. Counterfactual conditionals. Linguistic Inquiry 2:566-9.

Karttunen, L. 1971b. Implicative Verbs. Language 47:340-58.

Karttunen, L. 1973. Presuppositions of compound sentences. Linguistic Inquiry 4:169-93.

Karttunen, L. 1974. Presupposition and linguistic context. Theoretical Linguistics 1:181-94.

Karttunen, L. 1975. On pragmatic and semantic aspects of meaning. Texas Linguistics Forum 1. Austin, Texas: Department of Linguistics, University of Texas.

Karttunen, L. and S. Peters 1975. Conventional implicature in Montague Grammar. presented at the First Annual Meeting of the Berkeley Linguistics Society, Berkeley, Calif.

Katz, J. 1973. On defining 'presupposition'. Linguistic Inquiry 4:256-60.
Keenan, E. L. 1971. Two kinds of presupposition in natural language. in Fillmore and Langendoen (1971).
Keenan, E. L. 1972. On semantically based grammar. Linguistic Inquiry 3:413-61.
Kiparsky, P. and C. Kiparsky 1970. Fact. in Bierwisch and Heidolph (1970).
Kripke, S. 1972. Naming and necessity. in Davidson and Harman (1972).
Lakoff, G. 1969. Presuppositions and relative grammaticality. in Todd (1969).
Lakoff, G. 1972. Linguistics and natural logic. in Davidson and Harman (1972).
Lambert, K., ed. 1970. Philosophical Problems in Logic. Dordrecht, Holland: D. Reidel.
Langendoen, D. 1971. Presupposition and assertion in the semantic analysis of nouns and verbs in English. in Steinberg and Jakobovits (1971).
Langendoen, D. and H. Savin. 1971. The projection problem for presuppositions. in Fillmore and Langendoen (1971).
Lewis, D. 1972. General semantics. in Davidson and Harman (1972).
Lewis, D. 1973. Counterfactuals. Cambridge, Mass.: Harvard University Press.
Linsky, L. 1967. Referring. London: Routledge and Kegan Paul.
Lycan, W. 1970. Hintikka and Moore's paradox. Philosophical Studies 21:9-14.
Marsh, R., ed. 1956. Bertrand Russell: Logic and Knowledge. New York: Macmillan.
McCawley, J. 1968. The role of semantics in a grammar. in Bach and Harms (1968).
Munitz, M. and P. Unger, eds. 1974. Semantics and Philosophy. New York: New York University Press.
Reis, M. 1973. Entanglement in factives. Linguistic Inquiry 4:261-71.
Rosenberg, J. and C. Travis, eds. 1971. Readings in the Philosophy of Language. Englewood Cliffs, New Jersey: Prentice-Hall.
Ross, J. 1970. On declarative sentences. in Jacobs and Rosenbaum (1970).
Russell, B. 1905. On denoting. in Marsh (1956).
Sadock, J. 1975. Toward a Linguistic Theory of Speech Acts. New York: Academic Press.
Searle, J. 1969. Speech Acts. Cambridge: Cambridge University Press.
Seuren, P. 1974. Semantic Syntax. London: Oxford University Press.
Stalnaker, R. 1972. Pragmatics. in Davidson and Harman (1972).
Stalnaker, R. 1973. Presuppositions. Journal of Philosophical Logic 4:447-57.
Stampe, D. 1974. Attributives and interrogatives. in Munitz and Unger (1974).
Steinberg, D. and L. Jakobovits, eds. 1971. Semantics. Cambridge: Cambridge University Press.
Strawson, P. F. 1950. On referring. in Rosenberg and Travis (1971).

Thomason, R. 1973. Semantics, pragmatics, conversation and presupposition. presented at Performadillo (University of Texas Conference on Pragmatics), Austin.

Thompson, S. 1971. The deep structure of relative clauses. in Fillmore and Langendoen (1971).

Todd, W., ed. 1969. Philosophical Linguistics, Series I. Evanston, Ill.: Great Expectations.

van Fraassen, B. 1966. Singular terms, truth-value gaps, and free logic. Journal of Philosophy 63:481-95.

van Fraassen, B. 1968. Presupposition, implication, and self-reference. Journal of Philosophy 65:136-52.

Wilson, D. 1972. Presuppositions on factives. Linguistic Inquiry 3: 405-10.

Wilson, D. 1975. Presupposition, assertion, and lexical items. Linguistic Inquiry 6:95-114.

Woodruff, P. 1970. Logic and truth-value gaps. in Lambert (1970).