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Negation And The Strength Of Presuppositions
Or There Is More To Speaking Than Words

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1. The purpose of this paper is to try to explore parts of the interplay between some of the semantic factors that determine the actual meaning of utterances, i.e. the interpretation assigned to an utterance by a particular speaker or listener. This interpretation does not necessarily have to be identical with the conventional meaning of the utterance.

   In particular, I wish to consider the notion of presupposition which has been much discussed in recent literature. [1] But so far this notion has been described rather than explained.

   It is my contention that the time has come to consider how presuppositions fit into communication in general and to see if such considerations can help us to explain why there are presuppositions. This is the first task to which this paper is directed. The second task is to give an account of how the actual meaning of negative statements is determined. This is done in view of the importance of the notion of negation for attempted definitions of presupposition. [2] In connection with this, I would also like to make some comments on the logical consequences of presuppositional failure.

2 To start off with, I will give a general account of the factors which I believe contribute to giving an utterance its actual meaning as distinct from its literal conventional meaning. Consider (1).

(1) The bull will be here tomorrow.

(1) could, in an appropriate situation, be taken as a threat, a warning, a promise, a guess or as a simple statement of a future fact. The appropriate force of (1) would be part of its actual meaning, but not of its literal meaning. Literally, (1) is only a prediction about a certain bull's location at a certain time. In fact, it is reasonable to view actual meaning as a function of literal meaning in combination with certain other factors among which we find features of the

[1] See Russell 1969, Strawson 1969, Keenan 1971 and Garner 1971.
[2] See Keenan 1971.

speech situation (for example, features as those that determine the actual meaning of deictic expressions), explicit rules for certain institutionalized speech acts [3] shared background knowledge and finally certain general rational and ethical norms that hold for all human communicative interaction. It should perhaps be added that in making the distinction between literal and actual meaning, it is by no means denied that a speaker sometimes actually means what he literally says. What is claimed is that this is not always the case and further that, where he does not, this is very often a regular and quite predictable phenomenon. (For a somewhat different view, see Searle 1969).

3 In this paper, I want to consider a part of the interaction between speaker's and listener's meaning and literal conventional meaning. My first task will be to try to explicitly state the most important of the general norms of communication. The norms will be stated so as to delineate an ideal communication situation with maximally effective exchange of information. This situation is of course only approximated in ordinary speech situations, but this need not concern us since what we propose to do is build a model of the ideal communicative competence of speaker and listener. Whether the norms stated are actual conventions for (speech) communication or just tendencies that every rational (speech) communicator would tend to approximate is not critical. The main point is that people actually do try to communicate in accordance with these norms. The norms may seem very much like platitudes; this, however, I think is no sign of danger, it only shows how pervasive they are. On the contrary, if they were not like platitudes, there would perhaps be reason to worry. It goes without saying that a more complete theory of communication will need several auxiliary hypotheses to explain why people do not communicate in the ideal way. In describing the norms for ideal communication, I initially exclude such types of communication as telling jokes, telling stories , being sarcastic and lying. These types of communication I will regard as partly explainable as breaches of patterns of normal communication. They should therefore not be taken as paradigms of what normal communication is.

A basic assumption behind the norms is that communication always involves a joint effort. The speaker tries to communicate in such a way that the listener will be able to understand him and the listener, in trying to understand, assumes that this is the speaker's purpose. Thus, communication always involves a certain amount of cognitive cooperation. Besides such mutual cognitive consideration, there is also usually a number of ethical expectations that come into play between speaker and listener. Communication will therefore often involve ethical as well as cognitive consideration. The following principles are an attempt to capture some of the general norms that seem to underlie most human communication. The norms apply both to speaker and to listener. The speaker tries to act in accordance with them and the listener assumes that the speaker acts in accordance with these norms.

[3] Cf. Searle 1969, esp. Chapters 1 and 2.

3.1 The principle of agenthood

'A person's behavior is normally voluntary and governed by intention and purpose'.

The purpose commonly associated with communicative behavior is to convey new information. This means that a person's communicative behavior normally is supposed to convey new information and to avoid already shared information.

3.2 The principle of naturalness

'A person's behavior is normally dependent on external causal connections and certain internal psychological and physiological states'.

In communication, such external and internal connections are regularly assumed by both speaker and listener. For example, emotions like anger need not be explicitly expressed since both speaker and listener know that a certain tone of voice normally is connected with anger. Anger can therefore quite adequately be implicitly expressed through that tone of voice. Cognitive attitudes also correspond to external behavior in this way: a statement is an expression of belief, a question expresses curiosity or wonder and an imperative a desire.

3.3 The principle of rationality

'A person's behavior is normally adequate and competent'.

By adequate behavior, I mean behavior that achieves the purpose for which it is intended as efficiently as possible. For communication, this means that the information sent and the way in which it is sent should be as relevant and adequate as possible. Superfluous or insufficient information should be avoided.

By competent behavior, I mean behavior that is undertaken only when its purpose has a chance of being achieved. For communication this means, for example, that a question should not be asked unless it has a chance of being answered or that a statement should not be made unless there is some evidence that it is true.

I believe these three principles in conjunction with an ethical principle like the 'Golden Rule' and a number of specific conventions for various types of communication can contribute substantially to our understanding and ability to explain communicative interaction. For further discussion, see Allwood 1976.

4[4] I now want to consider how the principles outlined in the preceding question can be used to throw light on some aspects of the analysis of statements.

A statement usually consists of a number of referring expressions indicating referents of which some property or relation is predicated. The predicate is ordinarily a complex, not necessarily continuous expression. This characterization of a statement is of course insufficient but will suffice for the points I wish to make.

Reference and predication can be viewed as two basic communicative acts that together constitute a statement. An act of reference can occur on its own, as in pointing, but an act of predication cannot. Predication presupposes reference. There has to be something of which to predicate.

Further, a predication can be asserted in isolation as in (2) below, or embedded in a larger assertion, as in (3).

(2) The beer is cool.
(3) The beer is cool and the night is hot.

Only if the predication is directly asserted (not embedded) are the general principles fully operative.

Much of what is involved in successful reference and predication can be made clear by studying the conditions which the principles require should be met in order for a statement to be made.

A successful predication can be said to establish a bond at a certain time and place between something which is predicated and something which the predication is made of. Very often the term 'comment' is used for what is predicated and the term 'topic' for that of which we predicate. If there is to be a purpose in asserting a particular predication at a certain time **t** and place **p**, we have to presuppose certain things about the topic and comment involved. I will only deal with certain types of predication, namely those that involve a topic which consists of a definite, indefinite or quantified referring expression. What then is presupposed by successful predications of these types?

Since a predication always involves reference, we can first say that the predication presupposes successful reference. The next question we have to deal with therefore is, what is involved in successful reference?

First and foremost, there must be something to refer to. The intended referent(s) must exist in the universe of discourse that my predication is tied to.

[4] What follows heavily draws on work by the following authors: Austin 1962, Furberg 1971, Grice 1975 and Searle 1969.

(This universe can, if nothing to the contrary is said, be taken to be identical with our own real world (whatever that is)).

I think this requirement must be met, whether we have a definite, indefinite or quantified referring expression in the singular or plural. However, there are some significant differences between the definite and indefinite or quantified expressions. In the case of the indefinite or quantified expressions, we only presuppose the existence of a non-empty domain corresponding to the predicate involved in the referring expression. The quantifier then picks out some number of arbitrary individuals (all or none included) from this domain for predication.

For definite referring expressions, a stronger presupposition holds: here, we do not only presuppose the existence of an arbitrary individual in the domain, but we presuppose that the speaker has in mind some specific individual or group of individuals in the domain, which, if need be, he could identify. In this sense, the individual or group of individuals picked out by the definite referring expression is unique. (Whether something similar also holds for indefinite and quantified referring expressions when they are taken in the sense of *a (certain) boy was here yesterday* need not detain us here)

These conditions can be related to the principles of agenthood and rationality. The purpose of referring would be lost if there was nothing to refer to. The principle of rationality requires a competent person only to perform actions he believes can succeed. Before a speaker refers, he should therefore have evidence that the purported referent exists. In the case of definite referring expressions, we further have the right to take for granted that the speaker knows exactly whom he is speaking of, that there is a definite unique individual or group of individuals to whom he is referring. [5]

This requirement on definite referring expressions has the effect of making it possible for us to assign a definite truth-value to each statement token containing a definite referring expression. For what we in fact are requiring is that the speaker be able to supply the space-time coordinates for this referent, thereby making it possible to assign the statement about the referent a truth-value. The fact that we take it for granted that statements can be assigned truth-values of course greatly increases their informative value and thereby also the point of making statements.

These facts can perhaps be expressed in the following way: Referring expressions presuppose the existence of their intended referents. Definite referring expressions further presuppose the identifiability and uniqueness of their intended referents.

[5] The preceding account owes much to Searle 1969, esp. Chapter 4

After having studied how successful predication also involves successful reference, we now turn to the predicate side of the predication.

In order to predicate successfully, it must be possible at the time and place in question for the referents to possess the property which is predicated of them. 'Possible' can here be taken in a logical or in an empirical sense, depending on the view one has of the relation that holds between a property and the bearer of the property.

This condition on successful predication can also be related to the principle of rationality. We can alternatively express it as follows: Predication presupposes categorical compatibility between predicate and referent.

What is meant by this is something like the following: The predication presupposes that the individual(s) picked out by the referring expression of the topic is a member of the domain corresponding to the predicate of the comment. (By domain, we simply mean those individuals which could possibly, but which do not necessarily factually have the property corresponding to the predicate). So, what a predication does is to claim that a possible argument of its predicate at time **t** and place **p** is also an actual argument at the same place and time.

I shall refer to the conditions discussed with regard to reference as the existential, uniqueness and identifiability presupposition, of reference and I shall refer to the condition discussed with regard to predication as the categorial presupposition of predication. Consider the following example:

(4) My car is green

The referential presuppositions of (4) implicate that there exists a unique and specific car which is mine and the predication categorially presupposes that cars can be green.

By the competence requirement of the rationality principle, the listener is entitled to think that the presuppositions for reference and predication are filled. Often he will himself possess sufficient knowledge to know that they are, but this is not necessary. Whether he knows or not, he will have a right to suppose they are.

But the principle of agenthood still remains to be dealt with. If what is presupposed is common knowledge, then this is not usually communicated by a statement. This is not the purpose of the statement. The purpose of a statement instead is to communicate something within the background framework created by the presuppositions. I usually don't refer just to refer, but to predicate.

However, there are, as has been noted above, cases of more or less pure reference. Pointing is the paradigm of such cases. Cases of naming, existential and demonstrative statements are also closely related to pure reference. But the fact that existence, identifiability and uniqueness are directly asserted rather than being presupposed in these statements creates an important difference between these statements and the statements in which we refer in order to predicate.

This account of the presuppositions of referring expressions is lacking in at least one important respect. It should include some mention of the expressions that qualify a referring expression. Two common examples of such qualifying expressions are adjectives and restrictive relative clauses. *The big boy., The boy who is big.* The information given in such qualifying expressions is also presupposed in the sense that it is not part of what is directly asserted: *The boy who is big has long hair*. The difference between this type of presupposition and the ones previously discussed is that in the latter cases, we were discussing presuppositions of all referring expressions, while here we are discussing the presuppositions of certain particular definite referring expressions . If existence and uniqueness which are general presuppositions of all definite referring expressions are added to a definite referring expression as qualifying expressions, we either get the uneasy feeling associated with *redundancy* or else we get the feeling the speaker is not sure whether the presuppositions really are satisfied, e.g. that the referent perhaps does not exist or is not uniquely identifiable. Consider: *The one and only queen of England who exists lives in Buckingham Palace.*

In the same way, we don't usually predicate just to indicate categorial compatibility, but to indicate that a certain referent or group of referents have a definite property.

Just as with reference, there are ways of explicitly indicating categorial compatibility linguistically. Examples are generic statements and different types of modal statements. However, again we must remember that in these statements, categorial compatibility is directly asserted rather than presupposed. Consider some examples of negative and affirmative assertion of categorial compatibility.

(5) Cars have color.
(6) Electrons do not have color.
(7) Cars can be green.
(8) Electrons can't be green.

Let us recapitulate - by the competence requirement of the rationality principle, we assume the reference and predication involved in a statement to be correct and therefore also the corresponding presuppositions to be true. As these presuppositions mostly are common knowledge, they cannot be the

point of the statement, rather they are the background against which the actual statement is made.

This analysis I think captures some of the basic features of statements and shows some of their connections with other communicative phenomena.

5. The special types of statements that I want to deal with in this paper are negated statements or simply negations. Negations share most features with ordinary statements, that is the postulates and the presuppositions that have to do with reference and predication are true of them too.

But I think that in addition we have to acknowledge at least one further specific constraint for negative statements. It can be stated as follows: A negative statement is appropriate when its affirmative complementary is in some way expected. This is especially true when the negation is of the type *it is not the case* that or *it is not true that*, but it also holds true for most cases of not. Standardized phrases of the type *not bad* are exceptions.

The constraint is related to the principle of agenthood. In order for a negative statement to be of reasonable interest and newsvalue for the listener, it must be nonobvious. A good way for it to be non-obvious is for it to deny an in some way expected affirmative statement. The constraint is therefore completely parallel to the corresponding general condition for affirmative statements. Let us study some examples:

(9) The barber did not have lunch today.
(10) The captain is not drunk today.

I think it obvious that these statements are pointless even if trivially true if the said gentlemen never eat lunch or drink.

An interesting thing to note is that this constraint, which I will call the expectedness constraint on negations, is not restricted to negative statements but seems to carry over to negative questions and requests as well. Compare the following sentences:

(11) Bill smokes.
(12) Bill doesn't smoke.
(13) Does Bill smoke?
(14) Doesn't Bill smoke?
(15) Smoke, Bill!
(16) Don't smoke, Bill.

It seems clear that (12), (14) and (16) are all alike in that they in some way signify expectance of the affirmative complementary statement. (12) is a straightforward denial of a purported fact. (14) in contrast to (13) could be an

expression of surprise at the expected not being true. (13) has a more straightforward relation to (11), asking if (11) signifies a fact or not. (16) is a countercommand to a purported action and therefore has an immediate relation to (15) and a more indirect relation to (11).

It is always bad to speculate about phrases of politeness because of their idiomatic character, but I would still like to suggest that the difference we perceive between (17) and (18), (19) and (20) below (if we perceive any) is largely due to the purpose requirement of the principle of agenthood, with its expectedness constraint on negations:

(17) Could you pass the salt?
(18) Couldn't you pass the salt?
(19) Would you like to go to the movies?
(20) Wouldn't you like to go to the movies?

The fact that (17) and (18) are literally questions but here function as requests can be given a relatively satisfactory analysis through the principles of agenthood and rationality. (See Searle 1975).

The expectedness constraint for negation can also be used to explicate a notion of foolish questions and superfluous orders. Imagine (21) below asked about a man who never drinks and (22) as an order to a man who is just about to open the door anyway.

(21) Is the captain sober today?
(22) Open the door!

Part of what the purpose requirement of the principle of agenthood implicates for requests and questions is that what is requested or questioned must not be completely obvious and expected, which of course is also part of what it implicates for statements. Let us consider some more examples:

(23) There was no grass growing on that lady's head.
(24) That man has no fins.

These sentences are queer not only because they violate the expectedness constraint but also because they are on the verge of breaking the competence requirement of the rationality principle. In particular, they come close to breaking the categorial presuppositions that have to be satisfied for successful predication. It is highly doubtful whether a man can have fins at all and still remains a man or a lady can have grass growing on her head and still remain a lady.

6 In the discussion of affirmative statements with definite referring expressions as topic, we claimed that such statements consist of two parts, one with a

referring function and one with a predicating function. The competence requirement implicates that to successfully perform these functions, two presuppositions must be filled: what is referred to must exist and be uniquely determinable and what is predicated must be categorially compatible with what is referred to.

These conditions related to the competence requirement hold for all statements including negative statements, so long as they are not existential or categorial. The point of stating is not to assert the presuppositions of the statement, these we take to be true anyway via the competence requirement. Concerning negative statements, one could put this another way by saying that the negation usually denies what its affirmative complementary states rather than its possibility of stating this.

We now see still more clearly why the inappropriateness and trivial truth of (23) and (24) is slightly more upsetting than the inappropriateness of (21) and (22). In all four cases, we would be violating the purpose requirement, but in addition the competence requirement might be violated in (23) and (24).

Usually, however, the principles of normal communication are so strong that we are not willing even to recognize that they might be violated. Consider (25) and (26).

(25) Electrons don't have color.
(26) The electrons are not green today.

Obviously, if (25) is true, (26) must be so also. But notice the outrageousness of someone using (26) to convey (25). It's outrageous because if (26) appeared out of the present deductive context, we would naturally take the requirements of competence, adequacy and purpose to be met. What would be the purpose otherwise of asserting (26) when generic and categorial statements are also available in the language? We see here how the adequacy requirement of the principle of rationality in combination with the other requirements effectively excludes certain interpretations. Why say x which implicates *a* and *b* - which are not true - to say *y* if you can use *z* - which does not implicate *a* or *b* - to say the same thing? The adequacy requirement usually prevents the above from happening.

It might be worthwhile to remark in passing as this is not the main topic of the present paper that the principles implicate very similar things for statements, questions and imperatives. We can here explicate a notion of misleading questions and impossible orders parallel to the above given notions of foolish questions and superfluous orders. Consider (27) and (28).

(27) Is the number five red?
(28) Bill, would you please be exactly 52 years old!

The competence requirement implicates that questioning whether a certain predicate holds of a certain referent implicates that it is possible for that predicate to hold of the said referent. For requests, it implicates that it is possible for the addressee to perform the action requested. These implications are obviously not fulfilled in (27) and (28), therefore they are misleading and impossible respectively. In addition, the adequacy requirement says that this is not a permissible way of asking whether numbers have color or for requesting Bill to undergo plastic surgery.

Sometimes, the purpose requirement makes utterances of the type discussed here acquire a type of meta or second-order point. (28) could perhaps function this way. But there are clearer cases.

(29) Roses are not elephants.

The competence requirement is so obviously violated in (29) that the purpose requirement makes it clear that what is intended in (29) is not to assert something about elephants and roses, because this is trivial and besides it violates the competence requirement. Instead, the point of the statement is to assert its own triviality. This trick is often used when one does not directly want to tell somebody that what he is saying is trivial. I believe meta-points of this type are also what is behind some types of irony and sarcasm.

7 Some of the properties we have noted in negative statements seem in an interesting way also to apply to the negations of terms or opposites.

In traditional semantic theory, one usually distinguishes between several different types of opposites. One talks of complementary, antonymous and incompatible terms. [6] Underlying these different types, there is the more general difference between contrary and contradictory terms. I want to discuss this latter distinction in relation to complementary terms.

For a start, let us consider some examples of opposites that are complementary terms:

(30) alive (living) ~ dead
(31) married - unmarried
(32) male - female

The negative term of the opposition also very often occurs as a straightforward negation of the positive term: *not alive, not married. not male.*

One way of looking at complementary opposites would be to say that they are terms of a binary property dimension - a dimension that we in the above cases

[6] Cf. Lyons 1969. 458 ff.

could designate by the terms *life state, marital status* and *sex.* This would be a trait that would clearly separate them from other terms such as color terms of a greater than two valued dimension.

Another way of looking at complementaries is to say that we have a single property that is either affirmed or not affirmed of a specific range of referents. One could say that the terms were limited in their application to a restricted universe of discourse. For example, if we speak of students and non-students, by non-students we designate individuals who could have been students, but in fact are not.

We see that what is going on here is something very similar to what we noticed in regard to negated predication, namely that the negative terms seem to be interpreted with categorial presuppositions. Terms opposing each other, with categorial presuppositions intact, within a limited universe of discourse are said to be contraries. If the universe of discourse is unlimited and there are no categorial presuppositions, they are said to be contradictories.

It should not surprise us that most complementaries are contraries, not contradictories, because it is reasonable to assume that they are derived from negative statements, where they of course would acquire this restricted sense, due to the general norms of communication. The negative complementary terms so to speak carry over their sense in negative statements to their occurrence as isolated terms.

Even if this second way of looking at the problem of complementary terms gives the best picture of what is going on, the first way suggested to describe the facts also captures an important aspect of the problem. The tendency for negatives to become restricted is very much strengthened if there is a possibility to view the complementary terms as two positively distinct values of a single property dimension. In fact, I think that this is a necessary requirement for the appearance of special terms to replace the negative complementaries; it might also be a requirement for negative affixation (e.g. *unmarried*).

Negative complementary terms are used restrictively both when they have a predicative function and when they have a referential function.

(33) They are unmarried (not married).
(34) The unmarried are to be envied (those who are not married) .

The categorial presuppositions of *married* prevent both (33) and (34) from being used to say something about stones. This is so both in (33) where *unmarried* has a direct predicative function and in (34) where it functions predicatively within a definite description with referential function. However,

it seems to me that it would be more odd to use (34) than (33) to say something about stones.

The reason for this I think has to do with what the competence requirement implicates for reference. We must refer to some specific referent or group of referents. This requirement can only be met if the categorial presupposition of *unmarried* is taken to be valid. The negative term without any categorial presuppositions would not refer to any group of referents in particular, but to all referents that are not included in the extension of *married.* There is also some evidence that presuppositions are stronger when they are connected with the topic rather than the comment of a sentence. (See below p.39).

We have previously observed that categorial presuppositions are usually not valid in negative generic sentences; we would therefore expect this to be true also when negative complementaries are used in such sentences.

(35) Stones are not alive (animate)
(36) Stones are dead

While 7, (35) is fully acceptable, (36) is perhaps somewhat queer [7] but to my mind still acceptable. In generic statements I think it is very common for people to use *dead* in this negative unrestricted sense. However, when there are positive characteristics connected with both of the complementary terms, such a substitution is not possible.

(37) Stones are not male.
(38) Stones are female.

While (37) is barely acceptable as a true sentence, (38) is both unacceptable and false. An additional difficulty here which is creating low acceptability is the implicatory relations that hold both between positive and negative predicates, i.e. *not alive→ not male,* and *male→ alive.* This makes it redundant to speak of stones as not male.

8 I am aware that much remains to be said about opposites, but hope at least to have shown that considerations of general speech restrictions is relevant to their semantic functions.

We will now return to the issue raised earlier of meta or second-order points. This issue brings up the interesting question of whether there are circumstances in which one can obviously violate the restrictions imposed by the principles of communication and still manage to convey reasonably clear information. I

[7] It is probable that the ordinary categorial presuppositions for *dead* and *not alive* in non-generic contexts are stronger than mere compatibility between referent and positive complementary term. *Dead* seems to presuppose not only that it is possible for the referent to be alive. but also that the referent has in fact been alive.

think this is so and hope to demonstrate some such instances. Furthermore, I think that the fact that this is so (if indeed it is a fact) can be explained by reference to the basic assumption of joint effort (see above) and a second-order application of the postulates themselves.

As my particular interest in this paper is negation, the examples I want to consider are all cases of negation. But in order to do this, I first want to make some further general remarks about negation. We have already seen what the principles of communication implicate about the function of negation in statements. What I now want to consider are some remarks on the logical force of negation and some facts of common usage about negation.

There are very many expressions in natural language that can be used to deny or negate a statement. Among these are the following which I think are more or less synonymous: *not, it is not the case that, that's false, that's not so, that's not true, that's wrong* and *that's not correct.*

The first point to note is that all these expressions could just as well be said to be expressions of negation as of falsehood. They could be used with equal right to negate or to falsify a statement. This, of course, is no accident: by negating a statement, one says that the statement is false and by claiming a statement to be false. one says that the state of affairs described by the statement is not a fact. There might be some idiosyncratic occurrence restrictions on the different expressions, but I think it is pretty clear that they all express the same basic notion.

This basic semantic function which I take to be the logical force of negation can be characterized as follows: To negate a statement is to say that the state of affairs described by the statement is not a fact. To assert a predication is to claim that the state of affairs it describes is a fact, while to assertively negate the same predication is to claim it is not.

Negative statements are subject to the restrictions that hold in general for all statements. Therefore we have seen that a negative statement does not usually just claim that what is stated is not a fact. It disqualifies the purported factual status in a specific way, a way that is consistent with what the postulates of communication require of statements as to the fulfilment of categorial and referential presuppositions. So the actual meaning of a negative statement is produced by the logical force of negation subject to restrictions imposed by general norms of communication.

Having made clear how the actual meaning of a negative statement is a function of at least the logical force of negation and general constraints on statements, we are now in a position to discuss the problem posed earlier. What happens to the actual meaning of negative statements when the general restrictions governing statements are violated? Do they become nonsensical or, as in the

example above (see (29) p.2 7), can some new and different actual meaning be conveyed through the interaction and extension of the general norms. I think the latter can be the case and will attempt to show that this is the case, by systematically trying to pair a violation of presuppositional restrictions with a compensatory context.

Let's start off by reconsidering sentence (26) which, as we remember, violated a categorial presupposition. Consider the following compensatory context for (26).

Smith is starting to teach his class sub-molecular physics and carefully explains that electrons do not have sensory qualities such as color. The following lesson is spent in the physics lab working with electron microscopes. Suddenly Sam, who had been asleep the previous lesson, shouts: 'I see an electron - a little green one! To this Smith indignantly replies: 'I had expected you to know at least one thing today and that is that - *if that is an electron it is not green'*.

Although what Smith wants to express with the last remark normally would involve a breach of presupposition, it does not do so here. The explanation I think is something in the following vein.

If it is true that electrons don't have color, it is of course trivially true that they are not green. So the negated predication without any assertive force is true. Normally, it would be inappropriate if uttered as a negative statement because of the categorial presuppositions implicated by the competence requirement. But in this case, the context has cancelled the normal categorial presuppositions by explicitly invalidating the implicatures of the competence requirement. In fact, this invalidated implicature is part of the point of the utterance. The teacher wants the student to realize the triviality involved in the truth of his statement. Finally, it is worthwhile adding that with the situational background we have constructed, the normal categorial presuppositions of questions could also be cancelled. Consider the following dialogue a couple of lessons after the lesson we have just discussed.

(39) Now Sam, are electrons green?
(40) No, electrons don't have color.

Normally, an answer of this type negating the presuppositions of the question would be inappropriate, but here it is OK, because the presuppositions are precisely what is at issue.

Next, let us try to construct a similar cancelling of the referential presuppositions of a statement.

Jones, who has a bad case of paranoia, repeatedly assures his doctor that the czar of Russia is waiting on the lawn to kill him. The doctor says, to calm him:

'No, that's not true, the czar of Russia is not on the lawn. You know very well that there is no czar of Russia'.

Here again, we notice that a statement which normally would be very misleading because of discourse implicature, can be used appropriately when that implicature is explicitly invalidated.

When the implicature is invalid, the presupposition is cancelled and it becomes possible to express the normally trivial truth that non-existent entities have no properties. Again, the very obviousness of this truth is the point of the statement. So when it is common knowledge that what is normally taken for granted no longer can be taken for granted a negative statement acquires the new point of pointing this out to those who are not aware of it. Because of the comparative nature of speech communication, the purpose requirement so to speak forces a point out of the seemingly pointless.

Again, there is a parallel in questions. When Jones has almost recovered, the doctor asks him:

(41) Is the czar of Russia still waiting to kill you?
(42) No, he doesn't exist, doctor.

To sum up, we can say that the presuppositions of negative statements can be cancelled if the normal implicatures of the relevant postulates of communication are commonly acknowledged to be explicitly invalidated.

9 The cases we have studied so far have all depended on extralinguistic context to be accepted. The next question will be whether there are any ways of linguistically marking that implicatures are changed or cancelled. We have already noted negative existential, generic and modal statements. Statements containing *never*, *no more*, *not any more* and *no longer* are ambiguous in an interesting way.

(43) The Georgian seminarist is not the dictator of Russia any more.
(44) Smith will never write any novels.
(45) Hitler will not scream again.

I think all of the above statements can be taken in two senses, one with referential presuppositions intact and one where they are altered or cancelled.

(43a) He lives the quiet life of an old age pensioner.
b He is dead.

(44a) The promising young genius was killed.
b He is so untalented that it would be impossible.

(45a) He has caught chronic laryngitis.
b He is dead.

Never, not any more and *not again* are very strong semantically. By the postulates of competence and adequacy, there must be some good reason for using these expressions. The non-existence of the referent would be such a reason.

Here we see how the actual interpretation (meaning) of a statement must be viewed as a function of both literal meaning and general discourse norms. These factors jointly determine whether normal presuppositions hold and when the result is indeterminate we get several different possible interpretations as in the cases above.

There are some interesting examples in Russian where case is used to mark a change in the presuppositional status of a referent. In Russian, the direct object of negated statements can either be in the accusative or in the genitive, but there is a tendency to semantically differentiate the two.

(46) Ja ne cital knigi (accusative)
(47) Ja ne cital knig (genitive)

(46) usually means *I haven't read the books* (certain particular books) and (47) usually means *I have not read any books at all.* What is at stake here is primarily a change of the referential uniqueness presupposition. The distinction in Russian is evidently related to the difference in English between the definite and indefinite article. Compare:

(48) I have not seen the book for a year.
(49) I have not seen a book for a year.

But I will not speculate here on the precise nature of this similarity.[8]

10 Another Phenomenon that affects the meaning of a negative statement is contrastive stress. It is probable that its effects are the same in negative and positive complementary statements, so that the negative statement is the negation of an affirmative statement with contrastive stress applied.[9]

Let us therefore first study how stress affects the presuppositions of a positive statement. (The stressed word is underlined).

[8] For a more thorough discussion of this, see Dahl 1971.
[9] Cf. Chomsky 1971 and Dahl 1969.

(50) Bill broke the window.
(51) Bill broke the *window.*
(52) Bill *broke* the window.
(53) *Bill* broke the window.

The contrastive stress has the effect of changing what is asserted in the statement. In (54) the whole VP is asserted of Bill. In (51) we know or presuppose that Bill did something to the window, what is asserted is that he broke it. Finally, in (53) we presuppose that someone broke the window; what is asserted is that it was Bill.

We see that what is asserted and what is presupposed changes simultaneously. So although contrastive stress only directly affects what is asserted, it indirectly also affects what is presupposed. (50-53) have different presuppositions in each of them; what is not directly asserted is presupposed. If this is correct, it should be verified by checking the presuppositions of the negative complementaries of (50-53).

(50') Bill did not break the window, he was in France.
(51') Bill did not break the *window,* he broke the door.
(52') Bill did not *break* the window, he smashed it.
(53') *Bill* did not break the window, John did.

If we now compare (50-53) with (50'-53'), I think it is clear that complementary sentences have the same presuppositions. This verifies the claim that contrastive stress changes presupposition and also makes clear that its effects are the same in positive and negative sentences.

Stress often has the effect of making what is asserted more specific, thereby increasing the amount of material in the sentence that is presupposed. This of course restricts the applicability of the stressed sentences to a more narrow range of circumstances than the unstressed ones. So for an example (50) can be used about Bill any time he breaks a window**,** but (51) would only be applicable when we already know things have been broken and that Bill is responsible for one of the breakings. Similarly, this is also true of (52-53). We see that in every case the stress raises the presuppositional requirements on appropriate situations.

The connection between what is asserted and contrastive stress I think ultimately can be derived from the requirements of purpose and adequacy (no superfluous or insufficient use of language). A perfectly good and sufficient reason to highlight a part of an assertion is of course that we want to restrict the assertion to the highlighted part.

The way negation is affected in (50'-53') also shows the very strong tie between what is directly asserted and what is negated. In other words, the

'scope' of the negation changes in (50'-53') because negation is normally tied to direct assertion.

It is instructive to observe that the same phenomenon appears in existential statements,

(54a) It's snowing.
b It's *snowing* .
c It's not snowing. (The sun is shining).
d It's not *snowing* . (it's raining).

In (54b), we presuppose some unusual meteorological state and what we are asserting is its precise nature. In (54c) and (d), we first have to deal with the expectedness constraint that holds for negative statements in general. But keeping this in mind, I still think there is a subtle difference between (c) and (d), which follows from the difference between (a) and (b). The difference comes out clearly if we add the qualifying clauses to (c) and (d).

It's raining would be appropriate for both (c) and (d) but *The sun is shining* would not be appropriate as a qualifying statement for (d). In other words, (d) is applicable in a more narrow range of situations than (c), due to the fact that its assertion is more specific and its presuppositions stronger than those of (c). More precisely, one might say that the range of situations in which (d) is applicable is properly included in the range of situations in which (c) is applicable.

11 We have already seen how the topic of a statement is tied to certain referential presuppositions. But how do nontopical referring expressions function in this respect?

A referential expression acting as topic in a sentence almost invariably keeps its referential presupposition in negations, while a referential expression occurring as comment very often is taken to have no such presuppositions. [10]

Speaking about the archbishop, we say:

(55) The archbishop visited Brighton Cathedral.

To which a reply which is entirely in order is:

(56) No, he did not, as there is no cathedral in Brighton.

Or, speaking of Cologne Cathedral we say:

[10] Cf. Strawson 1971.

(57) Cologne Cathedral was visited by the archbishop of Scotland.

To which again an entirely adequate reply would be:

(58) That's false - there is no such man.

The negative existential comments are here in no way experienced as strange.

My feeling is that the difference between topic and comment in this respect can be nicely accounted for by viewing the comment as a complex predicate expression in the form of a *one* or *many-place sentential function* with an empty place for the topic. [11]

Anything that invalidated the sentential function would then be equivalent to a falsification of the assertion. This would correspond nicely to our finding above that negation and thereby also falsification are closely tied to what is asserted rather than to whatever the assertion is being made about.

A breach of the referential presuppositions of the topic makes us more uneasy, because the topic provides the base for the assertion (that of which we speak). And in view of the close connection between falsification, negation and the asserted part of a sentence, it is also natural that we are less inclined to call a statement false when its topical presuppositions are broken than when those of its comment are broken.

12 Finally, I want to consider the so-called factive presuppositions of verbs like *realize* and *know*.

In order to realize or to know something, what we know or realize must be a fact. This is part of the requirement we put on knowledge. Other requirements are that we must be informed of and that we must have good evidence for that which is to count as knowledge. At least the first requirement distinguishes *know* and *realize* from other verbs of propositional attitude such as *think, believe, suspect, be sure of* and *be certain that.*

The adequacy and competence requirements of the principle of rationality implicate that when we state of *x* that he has knowledge of *y,* it is taken for granted that *y* is a fact and that the information we want to convey is that *x* has now knowledge of *y.*

As in the case of referential and categorial presuppositions, factive presuppositions carry over into negatives, questions and even imperatives.

[11] See Allwood-Andersson-Dahl 1972, 92.

(59) Bill doesn't know that there are black holes in the universe.
(60) Do you know that 1968 was a leap year?
(61) Come on Bill, will you please realize that two plus two makes four!

In all three sentences, the object for realization or knowledge is taken to be a fact. In (59) and (60), we are concerned whether someone has information of that fact and in (61) (which perhaps is a little odd) we want the evidence at hand to convince Bill.

However, factive presuppositions can also be cancelled by a compensatory context changing the normal implicatures of the postulates of communication. Consider the following context:

Smith has through careful observation and computer work determined that there must be 10 planets in the solar system. Armed with this knowledge, he goes to an astronomical congress where Jones, another astronomer, presents a theory based on our supposed knowledge that there are nine planets. When the presentation is over, Smith stands up and says:

(62) I think Jones' theory is incorrect, because we don't know that there are nine planets. (There are in fact ten) [12]

The point of this utterance could not be to assert that we do not have information or evidence of there being nine planets, we obviously do. There must be some other point then, namely the trivial point that one cannot know what is not a fact. This is of course always true, but normally the principles of communication prevent us from interpreting a negative *know*-sentence this way. Here, the normal implicatures are invalidated so by the purpose requirement, there must be some other point.

Even though other factives are more difficult than *know* when it come to finding compensatory contexts, I think the following sentences could probably be made to pass with a little imagination.

(63) We will never realize what Jesus strove for us to realize, because his whole theory was based on a misunderstanding.

(64) Molly is not $\left[\begin{array}{l}\text{astonished}\\ \text{surprized}\\ \text{amazed}\end{array}\right]$ that there are only ten million people on earth. Why should she be, when it is not true?

[12] Many people find it easier to accept 62 if they stress *know* but personally I don't find this necessary. However, one would in fact predict that the stressed case would be easy to accept from what has been said about stress above. This holds true also of sentences 63-68.

In fact and *really* are often inserted in *know* sentences to cast doubt on the factive presuppositions.

(65) Chomsky doesn't really know that linguistic competence is biologically determined.
(66) Does Chomsky really know that linguistic competence is biologically determined?

The competence and purpose requirement (our knowledge of Chomsky's position on this question) in combination with the morpheme *really* in my opinion rather heavily biases the interpretation in favor of one without factive presuppositions.

We have already noted that factive presuppositions can be cancelled by what could be called commentary clauses (cf. (63) and (64)). Here are a few more examples:

(67) Dante didn't of course know that the earth was flat. He only thought so.
(68) One could say about Newton that he did not (really) know that there was an absolute time and an absolute space, he only had very good reasons for believing it.

The commentary clauses here point out the incorrectness of the usual assumptions about lack of knowledge, leaving the falsity of what is normally presupposed as the only reasonable way for these statements to satisfy the purpose requirement.

13. I now want to draw some conclusions of the discussion so far, pertaining to the logical implications of presuppositional failure. We have seen that the actual meaning or interpretation of a negative statement depends on many factors. In the present discussion, we have prominently featured literal meaning, general norms of communication and extra-linguistic context.

We have in all cases taken negation to be the same basic semantic operation indicating that a certain state of affairs is not a fact. We have taken negation to have exactly the properties of logical negation: always giving the predication it operates on an opposite truth-value. The difference in the actual force of negative statements has been explained by factors such as stress and topicality, as well as the above-mentioned three things.

Let us now deal specifically with the consequences for logic of the preceding discussion. First let us note that one of the most important tasks for logic is to explicate the notion of valid inference. Roughly, a valid inference is an inference that lets us infer in a truthful way what is and what is not the case.

To claim that a statement is false is to claim that the state of affairs described in the statement does not obtain. This and only this I claim is the logically interesting property of falsity. This is the logical force of falsity. How and why the state of affairs fails to obtain is of course very interesting from a communicative point of view but logically it is irrelevant.

The general norms of communication usually preclude certain types of falsehood, e.g. falsehood depending on reference failure or categorial incompatibility. Such norms are rational and facilitate communication, but they have no logical import. A breach of these norms leads to failure and confusion in communication - but should not lead to a similar confusion in logic. Truth and falisty in the logical sense have only to do with WHETHER a certain state of affairs does or does not obtain and not at all WHY it does not obtain.

A statement can be deviant in relation to general norms of communication without therefore losing its truth value as a result. Logical force must be differentiated from communicative force.

'True' and 'false' - the two fundamental concepts of logic - are used only to indicate whether something is the case or not. The inferences of logic are based only on this information, no other information is needed. There is no reason why the logical notions should be subject to the general norms of communication, which tell us not only THAT a statement is false, but also WHY it is false.

Negation has the same basic function as falsity. To negate a certain statement or to say of the same statement that it is false is logically to do the same thing, namely to claim that the state of affairs described in the statement does not obtain.

However negative statements are of course subject to the general norms of communication. In negative statements, we therefore know not only that a certain state of affairs does not obtain, but also why it fails to obtain, in the sense that certain reasons for why a statement could be false are ruled out by the presuppositions of statements in general.

That the norms of communication enable us to extract this extra information from most negative statements should not lead us to believe that this extra information, also is constitutive for the logical force of these statements. It is unfortunate that this simple point has not been observed by those who have discovered and made the notion of presupposition into the important concept it is in the semantics of natural language. [13] These people are of course completely right in insisting on a distinction between what is presupposed by a statement and what is stated by it. Russell was here strangely blind to the

[13] For a good summary, see Garner 1971.

subtleties of natural language. [14] I think one of the reasons Russell went wrong and that those who have come after him also have gone partly wrong, is that they all hold a far too parsimonious view of what enters into linguistic communication.

Russell thought that one could only assign falsity to a statement if that which was actually explicitly claimed by the statement failed to obtain. He therefore thought that all the ways in which the state of affairs described by a statement could fail to obtain had to correspond to explicit assertions. On these grounds he created a conjunctive set of assertions to guarantee that a state of affairs could not fail to obtain without falsifying its corresponding statement. Thus, for whatever reasons a state of affairs asserted by a statement did not obtain, there would be a corresponding statement which could be explicitly and directly falsified. The doctrine that only what is directly asserted can falsify a statement led Russell to the belief that everything that goes into the making of a statement is in fact asserted.

This doctrine is held also by the followers of Frege and Strawson, who in their denial of Russell's claim that far more than meets the eye is asserted by a statement, have been led to revise the law of the excluded middle either directly by postulating a third truth value [15] or by claiming that the question of truth or falsehood does not arise [16] that there are truth-value gaps [17] that there are different truth and falsity conditions [18] or finally that there are two different types of falsehood and negation (internal and external) [19].

In all of these doctrines (and here I include those propounded by the followers of Frege and Strawson) one of the following two in my opinion correct common sense opinions are denied:

1. Only that which is directly asserted by a statement is in fact asserted (denied by Russell).
2. Every statement is either true or false (denied by Frege-Strawson).

As we have seen, the reason for both types of denial is the (non-common sense?) view that only what is directly and explicitly asserted can be falsified or negated. However, our preceding discussion has shown this to be false for two reasons: First, it is by no means always the case that only what is directly asserted can be falsified or negated. Compare what happens when the direct assertion is cancelled by the context: What is normally presupposed then becomes the point of the statement and can naturally be negated and falsified (cf . pages 33 -39)

[14] Cf. Russell 1969.
[15] Cf. Keenan 1972.
[16] Cf. Strawson 1969.
[17] .Cf. Quine 1960.
[18] Cf. Keenan 1972
[19] See White 1970 who comes closest to this position.

Secondly, the view in question involves a misunderstanding of the logical role of negation and falsehood. That role is, if we are allowed to repeat, purely factual. The only thing that is claimed logically in negating or falsifying is that the state of affairs described by a statement fails to obtain. Why it fails to obtain is irrelevant for logical inferences (concerning which states of affairs obtain given certain other states of affairs), but is very relevant to the analysis of what is ordinarily communicated by negating a statement or claiming it to be false, because here we have to take the general norms of communication into full account.

To my mind, it is the addiction to Occam's razor with a corresponding unnecessarily frugal view of what goes into linguistic communication that is responsible for the prolonged discussions of the consequences of presuppositional failure. We must learn that there are a multiplicity of factors involved in linguistic communication (this paper has only begun to explore a few) and we must learn to carefully separate these from each other in order not to jump to hasty and unwarranted conclusions. We must learn that there is more to language than words. [20]

I think that in the long run my account for the diversity of actual meaning will be simpler than that of the above-mentioned theories, although it may not look so at present. I think many of the factors I have used in the analysis of negation will be seen to reappear in the analysis of many other linguistic phenomena. [21]

POSTSCRIPT

This is a revised version of a paper written in 1972 and published then in the form of a working paper. I would like to thank Östen Dahl for rewarding discussions of many of the points treated in the paper. I would also like to thank Lars-Gunnar Andersson for reading the paper. Naturally, this does not mean that their views coincide with mine in every respect. In fact, since the article was written five years ago, the views expressed in it no longer coincide even with my own ideas on all points. But rather than revising the article entirely, I have let some of these points remain as they are.

[20] However, I am not claiming that actual meaning is not amenable to logical analysis. On the contrary, I think it is, especially if one uses a possible world semantics and some form of modal logic. In particular, I think e.g. that the connection between material and strict implication can be nicely accounted for within a framework of communicative postulates. (See Grice 1975).

[21] So far, the most interesting work in this direction is presented by Grice 1975.

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