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COMMON GROUND

1. INTRODUCTION

When speakers speak they *presuppose* certain things, and what they presuppose guides both what they choose to say and how they intend what they say to be interpreted. So much is obvious, but what does it mean to say that someone presupposes something? Speaker presupposition is a propositional attitude of the speaker, but I and others who have emphasized the role of speaker presupposition in the explanation of linguistic phenomena have been vague and equivocal about exactly what propositional attitude it is. To presuppose something is to take it for granted, or at least to act as if one takes it for granted, as background information – as *common ground* among the participants in the conversation.[1] What is most distinctive about this propositional attitude is that it is a social or public attitude: one presupposes that ϕ only if one presupposes that others presuppose it as well. But while the social dimension plays a prominent part in the informal explanation of speaker presupposition, it is not usually made explicit in formal models of context, in which the information presupposed at a particular point in a conversation is often represented simply with a given set of possible worlds labeled the *context set*. My aim in this paper is to try to be more explicit about the abstract structure of speaker presupposition in order to get clearer about the relations between the presuppositions of different participants in a conversation, about the relation between the speakers' presuppositions and their beliefs, and about the way that what is presupposed changes in the course of a conversation.

Discussions of speaker presupposition began as a reaction to the then prevailing view that the notion of presupposition that is used to describe

[1] I believe that the expression "common ground", as a term for the presumed background information shared by participants in a conversation has its origin in Paul Grice's William James lectures. He did not define or explain the term in the published text, but described certain propositions as having "common ground status". See Grice (1989, pp. 65 and 274).

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a range of linguistic phenomena (for example, that "The present king of France is bald" presupposes that France has a unique king, or that "Sam does not regret voting for Nader" presupposes that Sam voted for Nader) was a semantic relation that should be defined in terms of the truth conditions of the sentence in something like the following way: A sentence S presupposes that ϕ if and only if S is either true or false only if it is true that ϕ. Against this received view, it was argued that the facts to be explained in such cases were not facts about the truth-conditional content of the sentences, but instead facts about what speakers took for granted – what *they* presupposed – when they used certain sentences.[2] It was acknowledged that facts about what speakers took for granted might, in some cases, be explained in terms of semantic presuppositions, since it seems plausible to assume that speakers who speak appropriately take it for granted that the contents of their speech acts are either true or false. But this was just one possible explanation for phenomena of this kind; there might in some cases be explanations that were compatible with saying that sentences were false (or true) when something false was presupposed. The facts about presupposition, it was argued, were pragmatic facts to be explained, not semantic facts that provided the explanation. Different cases of presupposition might be explained in different ways.

The motivation for focusing attention on the notion of speaker presupposition went beyond simply the attempt to explain the range of phenomena that linguists used the word "presupposition" to describe. The broader motivation was to extend the general strategy that Paul Grice had set out in his William James lectures in 1967.[3] Grice's idea was that if one could provide a framework for the description of discourse as a sequence of intentional actions with a certain recognized purpose and direction, then some superficially complex and apparently arbitrary facts about the use of language – about what expressions can be appropriately used in what contexts, and about what information can be conveyed with what linguistic means – might be explained more simply with the help of independently motivated truisms about how rational agents choose the means to accomplish their ends. The problem that was known as "the projection problem" for presupposition seemed to be a paradigm example of a problem to which this strategy could be fruitfully applied. The projection problem, which has

[2] This was the line I took in three papers written in the 1970's: Stalnaker (1970), (1973) and (1974). The first and the third are reprinted in Stalnaker (1999). At about the same time, Lauri Karttunen was developing a pragmatic account of the presuppositions of a sentence as constraints on the contexts in which the sentence can be felicitously uttered. See Karttunen (1974).

[3] Chapters 1–7 of Grice (1989).

been the focus of most of the discussion of presupposition in the linguistics literature, is the problem of explaining the relation between the presuppositions of complex sentences and the presuppositions of their sentential components – for example, the relation between the presuppositions of the complex sentences, "France is a monarchy and the king of France is wise", and "It may be that the king of France is wise" and the presuppositions of the embedded sentences "France is a monarchy" and "the king of France is wise".[4] If one assumes, in the statement of the problem, that the facts to be explained are facts about semantic presuppositions (presupposition explained in terms of truth-value gaps), then the projection problem will be the problem of giving the compositional rules saying how the truth value (or lack of truth value) of a complex sentence is a function of the truth values (or lack of truth values) of the component clauses. It is clear enough what the truth value of a sentence of the form (ϕ and ψ) should be, when both ϕ and ψ have truth values, but what should the rule be in case one or the other of the components has a false semantic presupposition, and so lacks a truth value? Intuitive judgments about what was presupposed by conjunctive statements suggested that when the problem is framed this way, the solution will be quite complicated. The evidence, interpreted in this way, suggested, for example, that the appropriate three-valued semantics for conjunction would not be truth-functional, and that in the three-valued case, conjunction is not symmetrical. But if one re-described the problem as a problem about what speakers tend to take for granted when they use compound sentences, and how it relates to what they tend to take for granted when they use the component sentences alone, then the facts could be explained, with the help of some natural and independently motivated pragmatic principles, on the assumption that "and" has the simple truth-functional semantics.

It is important for the general Gricean strategy that the pragmatic notions developed to explain the linguistic phenomena be notions that help to connect the practice of speech with purposes for which people engage in the practice. The reasons people talk to each other are of course varied and complex, but it seems reasonable to assume that there are some kinds of purposes that are essential to the practice, and that are the principal reasons for speech in the most straightforward kinds of conversation. In a simple exchange of information, people say things to get other people to come to know things that they didn't know before. They utter certain noises with the expectation that someone hearing them will thereby acquire certain particular information. Grice's analysis of *speaker meaning* began with the

[4] The projection problem for presupposition was first posed in Morgan (1969). Langendoen and Savin (1971) is another early statement of the problem.

idea that a speech act, or more generally an act of meaning something, is a particular way of accomplishing this kind of purpose.[5] One thing, according to Grice, that is distinctive about speaker meaning, as contrasted with other ways of getting people to believe something, is a kind of openness or transparency of the action: when speakers mean things, they act with the expectation that their intentions to communicate are mutually recognized. This idea leads naturally to a notion of common ground – the mutually recognized shared information in a situation in which an act of trying to communicate takes place. A representation of the common ground helps to clarify both the *end* of the communicative action by representing the possibilities among which the speaker intends to distinguish, and the *means* available to the speaker to distinguish between them – the information that must be available in order that the act of uttering certain noises reasonably be taken as an act of trying to get someone to acquire certain information.

In the simple picture, the common ground is just common or mutual belief, and what a speaker presupposes is what she believes to be common or mutual belief. The common beliefs of the parties to a conversation are the beliefs they share, and that they recognize that they share: a proposition ϕ is common belief of a group of believers if and only if all in the group believe that ϕ, all believe that all believe it, all believe that all believe that all believe it, etc.

Common belief is the model for common ground, but discussions of speaker presupposition have emphasized from the start a number of ways in which what is presupposed may diverge from what is mutually known or believed. One may make *assumptions*, and what is assumed may become part of the common ground, temporarily. One may *presume* that things are mutually believed without being sure that they are. That something is common belief may be a *pretense* – even a mutually recognized pretense. The divergence between speaker presupposition and what the speaker believes to be actual common belief reflects a general pattern essential to a practice of speech that Grice's analysis brought out and helped to explain. Speech, on Grice's picture, is a conventional practice whose function is to facilitate acts of meaning things. But once it is mutually recognized that a certain utterance type is standardly used to mean something, it becomes possible to exploit that recognition to mean something more than, or different from, what the utterance was designed to be used to mean. *Saying* is explained in terms of speaker *meaning*, on the Gricean picture, but inevitably has the potential to diverges from speaker meaning. The same pattern gives rise to a divergence between a notion of speaker presupposition and the speaker's

[5] See Grice's classic paper, "Meaning" (reprinted as Chapter 14 of Grice (1989)), first published in 1957.

beliefs about the actual common beliefs. If it is mutually recognized that a certain utterance type is standardly used, in some conventional linguistic practice, only when some proposition is (or is not) common belief, it will be possible to exploit this recognition, sometimes to bring it about that something is (or is not) common belief, sometimes to create a divergence between a conventionalized common ground and what speaker and hearer take to be the beliefs that they actually hold in common. The phenomenon of *presupposition accommodation*,[6] much discussed in the literature about presupposition, is like the phenomenon of *conversational implicature* in that it is an inevitable feature of any practice the point of which is to mean things.

Although we want ultimately to consider the ways that common ground may diverge from common belief it will be useful to begin, in Section 2, by getting clear about the structure of common belief and about the relation between what is actually common belief in some group and what the members of the group believe to be common belief. Then in Section 3, I will consider some of the ways that the common beliefs of the members of a group change in response to their interaction. We will see that at least one kind of accommodation is a natural kind of belief change, and need not involve any divergence between common belief and common ground. In Section 4, I will look at the role of accommodation in the explanation of the linguistic phenomena that are described in terms of presupposition, responding to a widely expressed worry that appeal to accommodation is a methodologically suspect way of avoiding counterexamples to definitions of sentence presupposition in terms of shared background information, and to pragmatic explanations of presuppositional phenomena. This kind of objection raises an important general methodological issue about the role of Gricean explanations, but I will argue that it misconstrues the character of this kind of explanation. Finally, in Section 5, I will consider a kind of accommodation that brings about a divergence between common ground and common belief, and at how a notion of common ground that allows for this divergence might be defined.

[6] David Lewis gave the phenomenon its name. He formulated what he called "the rule of accommodation for presuppositions": "If at time t something is said that requires presupposition P to be acceptable, and if P is not presupposed just before t, then – *ceteris paribus* and within certain limits – presupposition P comes into existence at t. Lewis (1979, p. 340.)

2. Common Belief

Let's start with the simplifying assumption that the common ground of a conversation is just what is common belief among the participants in a conversation. The assumption will be appropriate for the most straightforward, naive conversations, and it will not be unreasonable to assume that the essential structure of a more general concept of common ground will be the same as that of the simpler notion of common belief. To try to get clear about the logic of common belief, I will use a highly idealized formal semantic framework – a Hintikka or Kripke-style relational structure in which belief is identified with truth in all doxastic alternatives (all possible worlds that are compatible with the subject's beliefs), and the doxastic alternatives to any given possible world are represented by a binary accessibility relation on the possible worlds in the model.[7] To model the beliefs of the members of a group, we need an accessibility relation of this kind for each believer. It will be assumed that each subject's beliefs are transparent to the subject in the sense that a believer has introspective access to her own beliefs. That is, it will be assumed that if Alice believes that ϕ, then she believes that she believes that ϕ (positive introspection), and that if she does not believe that ϕ, she believes that she does not believe that ϕ (negative introspection). These assumptions are made by requiring that the accessibility relations for the different believers all be *transitive* (which implies positive introspection) and *euclidean* (which implies negative introspection). The relations need not be reflexive (because beliefs may be false), but it will be assumed that they are *serial*, which is equivalent to assuming that believers have consistent beliefs, or that the set of possible situations compatible with a believer's beliefs is always nonempty.[8] A notion of *common belief* can be defined for any group of believers in the following way: it is common belief that ϕ among a group of believers iff all believe that ϕ, all believe that all believe that ϕ, all believe that all believe that all believe that ϕ, etc.[9] In a semantic model, we can define a doxastic accessibility relation for common belief in terms of

[7] Modal logics of knowledge and belief, and the semantic interpretation of knowledge and belief as truth in all epistemic or doxastic alternatives began with Hintikka (1962).

[8] A relation R is euclidean iff $(x)(y)(z)(xRy \,\&\, xRz \supset yRz)$ and it is serial iff $(x)(\exists y)xRy$. The logic of belief that is validated by these assumptions is KD45. See Fagin et al. (1995), ch. 3 for axiom systems and completeness results for this and other logics of knowledge and belief.

[9] Common knowledge was defined in terms of knowledge in this way in Lewis (1969). Stephen Schiffer discusses this notion of common belief, which he calls "mutual belief", in Schiffer (1972). The notions of common knowledge and belief have been widely applied in theoretical computer science and in game theory. See Fagin et al. (1995).

the accessibility relations for the members of the group: it is the transitive closure of those relations.[10] The properties of the accessibility relation for common belief are different from the properties of the individual accessibility relations, and the logic of common belief is different from the logic of individual belief. Specifically, the positive introspection property is preserved, but negative introspection is not. If it is common belief that ϕ, it will be common belief that it is common belief that ϕ, but the fact that it is not common belief that ϕ does not imply that it is common belief that it is not common belief that ϕ.[11]

Common belief is a property of a group, definable in terms of the individual beliefs of the group, but speaker presupposition is a propositional attitude of the individual speaker. If the common ground of a conversation is identified (on our simplifying assumption) with the common belief of the participants, then the presuppositions of an individual speaker can be identified with what the speaker believes to be common belief. If, in a formal language for representing the attitudes of the participants in a conversation, 'B_a' is the belief operator for Alice, and 'C' is the common belief operator (for the parties to the conversation), then the complex operator 'B_aC' will be the operator for Alice's speaker presuppositions. The presuppositions, in this sense, of the members of the group may be different from each other, and from what is actually common belief among them, though any difference requires that at least one member of the group have a false belief. The semantic relation between this notion of presupposition and common belief is a simple one: the set of possible worlds compatible with the actual common belief is the union of the sets compatible with what each member of the group believes to be common belief. This implies that it is common belief that ϕ among the members of group G if and only if each member of G believes that it is common belief that ϕ. When one is mistaken about the common ground, one may presuppose things that are not actually common belief, but it is a logical truth that anything that is actually common belief will be believed to be common belief by all members of the group.

[10] That is, if G is a group of believers and R_b is the accessibility relation for a believer $b \in G$, then R^* – the accessibility relation for common belief among G – is defined as follows: xR^*y iff there is a sequence of possible worlds $z_1 \ldots z_n$ such that $z_1 = x$ and $z_n = y$, and for each i from 1 to $n - 1$, there is an $b \in G$ such that $z_i R_b z_{i+1}$.

[11] Though one consequence of the negative introspection axiom will be a theorem of the logic of common belief, as well as of individual belief: While beliefs may be false, believers believe that what they believe is true. The corresponding principle for common belief will also be valid: it is common belief that if something is common belief, then it is true. (where C is the common belief operator, $C(C\varphi \supset \varphi)$). Semantically, this corresponds to the fact that the accessibility relation is *quasi-reflexive*: $(x)(y)(xRy \supset yRy)$.

Although presuppositions in this sense (subject's beliefs about common belief) can diverge from actual common belief, the logic of presupposition will be exactly the same as the logic of common belief. So the logic of presupposition obeys positive introspection, but not negative introspection: if Alice presupposes that ϕ, then she presupposes that she presupposes that ϕ, but the fact that she does not presuppose that ϕ does not imply that she presupposes that she does not presuppose it. For even if Alice does not herself believe that ϕ is common belief, she may believe that Bob mistakenly believes that ϕ is common belief. In this case, Alice will realize that it is not common belief that it is not common belief that ϕ.[12]

3. Belief Change and Accommodation

Since common beliefs and beliefs about common beliefs are derivative from individual beliefs, the way they change in the course of a conversation will be determined by ordinary belief changes. In a conversation, the beliefs of the participants that are relevant to it will include both beliefs about the subject matter of the conversation, and also beliefs about the ongoing conversation itself. As the conversation proceeds, beliefs of both kind will normally be constantly changing, and so common belief, and each person's beliefs about common belief, will change as well. Even the most closed-minded party to a conversation – one who is unmoved by the arguments of his interlocutor to change any of his beliefs about the subject matter of the conversation – will still change his beliefs about the ongoing conversation itself: when something is said, he will come to believe that something has been said.

The occurrence of a speech act is, in the normal case, a *manifest event*, by which I mean an event that, when it occurs, is mutually recognized to have occurred. A simple example: two Californians are sitting in a room together in the evening, and suddenly there is an unexpected power outage, and all the lights go out. Assuming that the two are initially mutually aware of each other, when the event happens it will immediately be common belief that it has happened. Furthermore, obvious consequences of the new information, conjoined with prior common beliefs, will also become common belief. So if it was a background common belief among the two

[12] In an earlier paper, I mistakenly said something incompatible with this last point: that the accessibility relations for the speaker presuppositions of two speakers, a and b in the same conversation should be related in this way: if $xR_a y$, then $yR_a z$ iff $yR_b z$. This implies, incorrectly, that speakers always *believe* that the context is nondefective – that everyone is presupposing the same things. See Stalnaker (1999, p. 100).

Californians that when the lights go out, the clocks stop, then when the lights go out, it will become common belief that the clocks have stopped.[13]

Now suppose that a speaker says something using a sentence that, for whatever reason, is appropriately used only in a context in which a certain proposition is common ground. For example, suppose that the sentence "I have to pick up my sister at the airport" is appropriately used only if the speaker is presupposing that she has a sister,[14] and that Alice says "I can't come to the meeting – I have to pick up my sister at the airport". Assume in addition that the following are standing common beliefs at the time: that Alice and Bob are competent speakers of English, and that they expect each other to speak appropriately. Since the utterance was a manifest event, it will follow from these background common beliefs (assuming they persist when the manifest event takes place) that it becomes common belief that Alice believes that it is common belief that she has a sister. (Common belief when? Not before the occurrence of the manifest event, the making of the assertion, but after it had occurred.) Now it does not immediately follow from this that it will actually be common belief that Alice has a sister, or that Bob will believe that it is common belief. But the following is a valid inference in the logic of common belief (where the relevant group consists of Alice and Bob):

> It is common belief that Alice believes that it is common belief that ϕ.
> Bob believes that ϕ.

Therefore, it is common belief that ϕ.

So if the proposition that Alice has a sister is something that Bob comes to believe on becoming aware that the speech act has taken place, then it

[13] In a realistic situation, we will have to worry about the obviousness and the salience of the consequence. Even if I see that something follows, I may not be sure that you will, or that you think that I will, or. . . . But in our idealized model, we are assuming that agents believe all the consequences of their beliefs, from which it follows that the consequences of common beliefs are common beliefs, and that agents presuppose the consequences of their presuppositions.

[14] Three remarks about this supposition: First, I am only supposing, not asserting, this condition on the appropriate use of this sentence. Second, exactly what is being supposed depends on what is meant by "appropriately". All that matters, for the argument, is that it means the same thing as it means in the statement of the assumption that it is a standing common belief that Bob and Alice will speak appropriately. Third, as will become clear, the timing of the relevant beliefs is a delicate matter. Exactly when must Alice have the relevant beliefs (according to the assumption) in order to be speaking appropriately? (Since her beliefs about what Bob believes will be changing as she speaks.) The relevant time is a (perhaps somewhat idealized) point after the utterance event has taken place, but before it has been accepted or rejected.

will indeed be common belief that Alice has a sister: Alice's belief that this is common belief will be correct.

But suppose Bob had no idea, prior to the speech act, that Alice had a sister, and that Alice knew that Bob did not know about her sister. Was it in this case *reasonable* for her to make this presupposition – to believe that it would be common belief that she had a sister? That depends on whether it was reasonable for her to believe that Bob would come to believe that she had a sister. Suppose Alice believed, and was reasonable to believe, that Bob was "prepared to add it, without objection, to the context against which [the utterance] ... is evaluated".[15] It would be reasonable for her to believe this, since in a normal situation it will be a prior tacit common belief that Alice knows whether or not she has a sister. This will give Alice the second premise of the above inference,[16] and so suffices to make it reasonable for her to believe that it will be common belief, at the appropriate point in the conversation, that Alice has a sister.

I have argued that, in general, if it is common belief that the addressee can come to know from the manifest utterance event both that the speaker is presupposing that ϕ, and that ϕ is true, that will suffice to make ϕ common belief, and so a presupposition of the addressee as well as the speaker. But it does not follow that this will suffice to make it appropriate for the speaker to say something that requires the presupposition that ϕ. There may be other constraints on appropriate assertion – other considerations that count in favor of *stating* that ϕ rather than informing the addressee that ϕ by manifestly presupposing it. A successful assertion may change the context in other ways than by simply adding its content to the context, for example by influencing the direction of the subsequent conversation. Suppose ϕ is not something that the addressee will dispute, but that it is a noteworthy piece of information that the addressee might be expected to want to comment on. Then it might be inappropriate to convey the information in a way that keeps it in the background. An example of Kai von Fintel's illustrates the point: A daughter informs her father that she is getting married by saying "O Dad, I forgot to tell you that my fiancé and I are moving to Seattle next week".[17]

Notice that the kind of accommodation, or informative presupposition illustrated by Alice's reference to her sister does not involve any pretense,

[15] Cf. Soames (1982, p. 430), where the quoted phrase is part of a definition of utterance presupposition.

[16] Since it follows from the first premiss that Bob believes that Alice believes she has a sister, which together with the standing assumption that it is common belief that Alice knows whether she has a sister, entails Bob that believes she has a sister.

[17] von Fintel (2000, p. 9).

or any divergence between what is presupposed and what is believed to be common belief. It does involve adjusting a context, but need not involve repairing it; the adjustment is the normal adjustment that must take place as events take place, and people become aware that they have. And there is nothing abnormal about a speaker relying, for the interpretation or evaluation of what is said in a speech act on information that has its source in the speech act event itself. Suppose Alice says "She is the senior senator from California", pointing to a woman standing in the corner. A certain woman must be salient for her use of "she" to be appropriate and successful (where salience is presumably to be explained in terms of common belief), but it was Alice's speech act, and the accompanying gesture, that made her salient.

4. A Worry About Accommodation

The phenomenon of *accommodation*, in general, is the process by which something becomes common ground in virtue of one party recognizing that the other takes it to be common ground. According to the account sketched above of Alice's speech act, what she did was something that was appropriate only if she had a certain belief, and it was because of the fact that what she did would be appropriate only if she had that belief that it was reasonable for her to have it, provided she performed the action. And it was appropriate for her to perform the action because if she did, it was reasonable for her to have the belief that made it appropriate. This pattern may seem to involve some kind of problematic circularity. There is nothing wrong, in general, with making something true by doing something that indicates that one believe that it is true, or with expressing a belief that one would not have if one did not express it. (A father says to his son, "I believe that you are about to apologize to your sister". His expression of belief may be sincere if he is sufficiently confident in his influence.) But a number of linguists and philosophers have taken the phenomenon of informative presupposition, and the appeal to accommodation to explain it, to pose a problem for an account of presupposition in terms of shared beliefs and assumptions. Gerald Gazdar, for example, complains that strategies that appeal to accommodation to defend the identification of presuppositions with what is entailed by a context "have a number of methodologically undesirable features: They involve treating the bulk of the data (i.e. ordinary conversation) as something special, they circumvent any possibility of counterexamples and, concomitantly, they render the inclusion of a notion like 'appropriacy' in the definition wholly vacuous". Rob van der Sandt worries that the appeal to accommodation, or what he

calls "contextualization", precludes the possibility of taking the identification of presuppositions with shared background information as the basis for a definition of sentence presupposition.[18] These objections raises an important methodological issue, so let me try to spell out in more detail the way I think these critics, as well as some of the targets of their criticism, see the general problem of presupposition.

We begin by identifying a general linguistic phenomenon – the phenomenon of presupposition. We are not sure what it is, but we have a list of standard paradigm examples ("the king of France is wise" presupposes that France has a unique king, "John does not regret voting for Nader" presupposes that John voted for Nader, "It was Harry who solved the problem" presupposes that someone solved the problem, etc.) and some rough criteria (for example, if sentence S presupposes that ϕ, then the negation of S also presupposes that ϕ). As Kripke said about the phenomenon of presupposition, "to some degree Justice Stewart's comment about pornography holds here: we all recognize it when we see it even if we can't say exactly what it is".[19] Let's label this mysterious phenomenon "relation X". The theorist searches for a theoretical relation that provides an analysis of relation X – a definition of *utterance* or *sentence* presupposition – which can then be evaluated against our intuitive judgments. *Semantic* presupposition theorists propose the hypothesis that relation X holds between sentence S and proposition ϕ if and only if ϕ must be true for S to have a truth value. *Pragmatic* presupposition theorists argue that relation X should be analyzed in terms of common ground, or speaker presupposition. Various alternative definitions were proposed. For example, "Sentence A pragmatically presupposes B iff it is felicitous to utter A in order to increment a common ground C only in case B is already entailed by C".[20] "Sentence x presupposes that Q just in case the use of x to make a statement is appropriate (or normal, or conversationally acceptable) only in contexts where Q is presupposed by the speaker".[21] The critic of one or another version of the pragmatic analysis then proposes a counterexample: Using the Justice Stewart criterion, he judges that the sentence "I can't come to the meeting; I have to pick up my sister at the airport" stands in relation X to the proposition that the speaker has a sister. But (it is argued) this sentence is appropriate even in contexts in which

[18] Gazdar (1979, p. 107), and van der Sandt (1988, p. 33). See also Burton-Roberts (1989, p. 26), who simply dismisses pragmatic accounts that explain presupposition in terms of "assumption sharing between speaker and hearer" on the basis of examples like the sister example.

[19] Kripke (1990, p. 1).

[20] Karttunen and Peters (1975, p. 268).

[21] Stalnaker (1974, p. 50).

the speaker has no reason to expect his addressee to have prior knowledge of the fact that she has a sister. In response to the counterexample, the defender of the pragmatic analysis appeals to the phenomenon of accommodation. But, the critic complains, this maneuver empties the analysis of its empirical content. The analysis seemed to imply that under certain conditions, certain sentences would be inappropriate – a consequence that can be tested against the data. But as Lewis said when he introduced the notion of accommodation, "it's not as easy as you might think to say something that will be unacceptable for lack of required presuppositions" since the required presuppositions "spring into existence, making what you said acceptable after all".[22] Accommodation seems to make the appropriateness constraint vacuous.

If the phenomenon of accommodation is a genuine phenomenon, it is not clear why this should be an objection. But the main problem with this criticism is that it puts the emphasis on the wrong question – the question of defining, or analyzing, sentence presupposition. I have my suspicions about relation X; in general, I think appeals to the Justice Stewart criterion for any concept (including pornography) should raise eyebrows. I suspect that linguists' intuitions about the phenomena of presupposition are intuitions about a number of different things, some more theoretical and some more descriptive. In any case, it is not an urgent task of linguistic theory to explain linguists' intuitions about some unidentified relation. The pragmatic account of presupposition was not intended (by me at least) to be taken as an analysis of relation X that was an alternative to the analysis in terms of truth value gaps, but instead as a way of providing a redescription of the phenomena to be explained. The proposal was that one should describe the phenomena to be explained in terms of what speakers tend to take to be common ground when they use certain expressions, or what can normally be inferred about the common ground from the use of certain expressions, and then try to explain (perhaps in different ways for different cases) why the phenomena are as they are. We don't need the mysterious relation X to describe the phenomena, and it does not make any contribution to explaining them.[23]

Suppose we assume that the semantics tells us exactly this about the sentence "I have to pick up my sister at the airport": it is true if and only if the speaker has a sister whom he or she has to pick up at the airport, and

[22] Lewis (1979, p. 416).

[23] I do not mean to suggest that there is no notion of sentence presupposition that might play a useful role in the theoretical explanation of the phenomena. A concept of semantic presupposition, explained in terms of truth-value gaps, may help to explain some of the facts. The mistake is to try to characterize the phenomena to in terms of such a relation.

false otherwise. So we are supposing that the semantics tells us nothing either about relation X, or about what speakers must take to be common ground. Are there facts about the use of the sentence that cannot be explained by this semantic hypothesis, together with general conversational rules? In particular, is it a fact about the sentence that a speaker who use it generally takes it to be shared information that she has a sister? If so, then on this semantic hypothesis we will need a conversational explanation for this fact. But the sentence was presented as a counterexample to the thesis that relation X should be identified with a speaker presupposition requirement, so it is supposed to be an example of a sentence that does *not* require the speaker to take it to be shared information that she has a sister. If this is true, what fact do we have to invoke accommodation to explain? The fact that it will normally be common ground, *after* the statement is made, that the speaker has a sister is explained (on the semantic hypothesis in question) by the fact that what was said *entails* that proposition.

One might respond that the facts about usage to be explained – the facts that give us reason to say that relation X holds in this case – are these: normally, after the utterance of "I have to pick up my sister at the airport", it becomes shared information that the speaker has a sister *even if the statement itself is rejected*. (After Alice makes her statement, Bob might reply: "You don't have to pick her up – she can take a bus. This is an important meeting".) Furthermore, statements in which the sentence is negated, or otherwise embedded will also normally result in it becoming shared information that the speaker has a sister. ("I may not be able to come to the meeting, I might have to pick up my sister at the airport". Or suppose Alice had previously said that she couldn't make the meeting, without saying why. Now she says: "I can come to the meeting after all – I just learned that I don't have to pick up my sister at the airport".) But if the simple semantic hypothesis were right, one would expect these facts to be just as they are.[24] If we assume, as is obviously reasonable, that it is common belief, prior to Alice's statement, that she knows whether or not she has a sister, and common belief that she is being honest, then the fact that she says something that entails that she had a sister is enough to account for it becoming shared information that she does, even if the

[24] The general pattern of Gricean conversational explanation is articulated very clearly in Kripke (1979, p. 85) in a proposed test for alleged counterexamples to a linguist proposal: "if someone alleges that a certain linguistic phenomenon in English is a counterexample to a given analysis, consider a hypothetical language which (as much as possible) is like English except that the analysis is stipulated to be correct. . . . *If the phenomenon in question would still arise in a community that spoke such a hypothetical language . . . then the fact that it arises in English cannot disprove the hypothesis that the analysis is correct for English"*.

statement itself is rejected. And there will be straightforward explanations for the fact that the negative and modal statements would violate Gricean conversational maxims if the speaker did not have a sister, and this will suffice to explain why it becomes shared information that she does when one of those statements is made. The Gricean explanations will depend in part on factual assumptions that are specific to the example (for instance that one can infer from the fact that Alice isn't sure whether she has to pick up her sister at the airport that she knows that she has a sister). But this is as it should be, since the facts to be explained also depend on these factual assumptions. (To take a case that is parallel, except that the corresponding factual assumption fails to hold, consider the indulgent grandson who says "I shouldn't complain – I may someday bore *my* grandchildren with the kind of stories my grandfather bores me with today". This won't license an inference that makes it common belief that the speaker has, or will ever have, grandchildren – only that he *may* someday have grandchildren.)

When we give such conversational explanations, are we explaining the false appearance that relation X holds between the sentence and the alleged presupposition, or are we explaining why it is that relation X *does* hold? I will leave that question to those who think that it matters, and who know better than I how to apply the Justice Stewart test in the case of sentential presupposition.

5. Acceptance and Belief

I began by making a simplifying assumption that the common ground could be identified with common belief, and that what a speaker was presupposing could be identified with the speaker's beliefs about common belief. My point was to argue that the phenomenon of presupposition accommodation can occur even in situations that satisfy this simplifying assumption. The phenomenon is a result of the dynamics of discourse – of the way that the common ground changes in response to what happens in a discourse. Despite what is usually assumed, accommodation need not involve a pretense that something was part of the common ground all along; it need not involve any divergence between what is presupposed and what is believed to be common belief (at the appropriate time). But the pretense that new background information was old information will be a feature of some cases. Von Fintel's example mentioned above ("O Dad, I forgot to tell you that my fiancé and I are moving to Seattle next week".) may be such a case. The subtext may be something like "You should know that we are engaged, but I don't want to talk about it, so let's pretend that it's old news". And this is just one of the ways that the common ground

that defines a context may diverge from the actual common beliefs of the parties to the conversation. In this concluding section, I will consider some of the ways that divergence arises, and how general notion of common ground and speaker presupposition might be defined. The idea will be that the common ground should be defined in terms of a notion of *acceptance* that is broader than the notion of belief.

Acceptance, as I have used the term[25] is a category of propositional attitudes and methodological stances toward a proposition, a category that includes belief, but also some attitudes (presumption, assumption, acceptance for the purposes of an argument or an inquiry) that contrast with belief, and with each other. To accept a proposition is to treat it as true for some reason. One ignores, at least temporarily, and perhaps in a limited context, the possibility that it is false. Belief is the most basic acceptance concept: the simplest reason to treat a proposition as true is that one believes that it *is* true. But there may be various reasons to ignore the possible situations in which some proposition is false even when one realizes that one of those possible situations may be the actual one. One may simplify or idealize in an inquiry, one may presume innocence to ensure fairness, one may make assumptions for the purpose of contingency planning, one may grant something for the purpose of an argument. In cases where communication is facilitated by accepting propositions that one or the other of the participants don't believe, we need a notion of common ground based on a notion of acceptance that may diverge from belief.

The more general notion of common ground should not be just an iterated version of a broader notion of acceptance. Successful communication is compatible with presuppositions that are recognized to be false, but the information that they are being presupposed must be actually available, and not just assumed or pretended to be available. Even the liar, if he really intends to communicate, has to believe that the information needed to interpret his lies will really be common ground. So we might identify the common ground with common *belief* about what is accepted. That is, we might define common ground in the following way:

It is common ground that ϕ in a group if all members *accept* (for the purpose of the conversation) that ϕ, and all *believe* that all accept that ϕ, and all *believe* that all *believe* that all accept that ϕ, etc.

[25] Cf. Stalnaker (1984, pp. 79–81).

Then the speaker presuppositions will be, as before, the speaker's *beliefs* about the common ground.[26] This is still, of course, an idealization, but it seems reasonable to assume that the logic of the more general concept of acceptance will be the same as the logic of belief, and so that the logic of a notion of common ground (and of presupposition) that is based on the broader notion of acceptance will be the same as the logic of common belief (and of belief about common belief).

One of the ways that a divergence between acceptance and belief may arise is by accommodation in response to the recognition that a context is defective. A *nondefective* context is a context in which the participants' beliefs about the common ground are all correct. Equivalently, a nondefective context is one in which each of the parties to the conversation presuppose the same things. A defective context may go unnoticed; that is, it can happen that all participants believe that the context is nondefective even when it is defective. But it can also happen that one or more parties to the conversation are aware that the context is defective, and in this case some kind of corrective action is called for. One way for a defective context to reveal itself is for the speaker to say something that shows that she believes that it is (or will be) common belief that ϕ where the addressee does not believe that ϕ, even after recognizing that the speaker is presupposing it. For example, Alice says to Bob, who is holding his baby daughter, "how old is he?" Or Alice, talking to Bob at a cocktail party, says, "the man drinking a martini is a philosopher", intending to refer to a man that Bob knows is in fact drinking Perrier from a cocktail glass.[27] In both cases, Bob recognizes that Alice is taking something to be common belief that he knows to be false. How should he respond? The most straightforward response would be for Bob to correct Alice. In the first example, he might simply say "it's a girl", or he might say something that shows that he is presupposing that the baby is a girl ("*She* is ten months old."), requiring Alice to accommodate. Either way, the common beliefs will be brought in line with what both are presupposing. But if the false presupposition is irrelevant to the purposes of the conversation (The man's drinking habits are not at issue – the reference to the alleged martini was just a way to identify him.), Bob might decide to ignore the matter, tacitly *accepting* what Alice is manifestly presupposing for the purpose of facilitating communication

[26] There may in some cases be a divergence between presupposition and belief at the other end of the iteration as well. A speaker may *presume* that something is common ground, even when he is only hoping that it will become common ground. Suppose I am in a country whose language I do not speak. I have no reason to think that the person I approach on the street speaks English, but I am desperate, so I try: "Is there a public toilet nearby?" If I am lucky, it will soon become common belief that we both speak English.

[27] The martini example has its origin in Donnellan (1966, p. 55).

without disrupting the conversation with a distracting correction. That is, Bob accommodates, not by coming to *believe* the false proposition that Alice is presupposing, but by accepting it as part of the common ground. This kind of accommodation resolves the defect in the context, aligning the presuppositions of the participants, but it does it by bringing about a divergence between the common ground and common belief.

In this example, it could be the speaker who is the one doing the accommodating. Perhaps Alice knows that the man is drinking Perrier, but believes that Bob believes that it is a martini, and so believes that the best way to identify her intended referent is to use this description. Perhaps both are accommodating – both truly believing that it is Perrier, but both falsely believing that the other believes it is a martini. Or perhaps it is mutually recognized that it is not a martini, but mutually recognized that both parties are *accepting* that it is a martini.[28] The pretense will be rational if accepting the false presupposition is an efficient way to communicate something true – information about the man who is falsely presupposed to be the man drinking a martini.

In noting that one may communicate a true proposition (that the man in question is a philosopher) using a definite description that is false of him, we need not say that the statement itself ("The man drinking a martini is a philosopher") expresses this true proposition. If Donnellan's account of referential descriptions is right, then it does, but even if one accepts a Russellian analysis of definite descriptions,[29] it still will be true that if Bob believes what he is told, then he will come to believe the true singular proposition, and he will recognize that Alice intended him to come to believe it. Whatever Alice *said*, the true proposition will be among the things that she *meant*.

The case of the man drinking an alleged martini illustrated the kind of defective context that is most easily remediable: a case where one party not only recognized that the context was defective, but also recognized exactly how the presuppositions of the two parties diverged, and so knew how to repair or accommodate. But not every defective context is so easily corrected: there are cases where accommodation is impossible. It may happen that while one party recognizes that the other is presupposing something that is not part of the common ground, she does not know what it is that the other is presupposing. Suppose that when Alice said "she is the senior senator from California", gesturing at a woman standing in the corner, her gesture was not as clear as she thought it was, or perhaps Bob's view was

[28] Cf. the example of the king in his counting house in Donnellan (1966, p. 57).

[29] Arguments that the Russellian account is compatible with the facts about the way definite descriptions are used are given in Grice (1989), Ch. 17 and Kripke (1979).

obscured, so that he did not know which of several women Alice meant to be referring to. Alice took it to be common belief (after her speech act and gesture) that a certain person was uniquely salient, and was therefore the referent of her "she". Bob recognized that she was presupposing something of this kind, but didn't know the specific proposition of this kind that she was presupposing, and so did not know what Alice meant to say. Obviously, in this kind of case, Bob cannot accommodate by accepting what the speaker was presupposing.

Another example of this kind is an inappropriate use of the word "too". It has often been noted that to use a sentence like "tonight Sam is having dinner in New York too" appropriately, it is not enough to presuppose that someone other than Sam is having dinner in New York tonight. That would be common belief in any normal context, but the use of that sentence would be odd in any context in which there has been no prior discussion of others having dinner in New York (or alternatively, of Sam doing something else in New York, such as having lunch). Kripke presented this example as a counterexample to what he described as "the usual view" that *the* presupposition of the sentence is that someone other than Sam is having dinner in New York tonight.[30] If the usual view is that this is the *only* thing that the utterance requires a speaker to presuppose, and that the utterance will be appropriate, provided that the speaker is appropriately presupposing it, then this example is a counterexample, though I am not sure who holds this view. Perhaps the view being criticized is one that tries to force all the presuppositional phenomena into the sentence-presupposition mold. If one asks, what proposition can we infer that any competent user of this sentence will be presupposing, the answer will be that he will be presupposing that someone other than Sam is having dinner in New York tonight. There is no stronger proposition that we can tell must be presupposed, and so one might be tempted to conclude that the sentence will be acceptable in any context in which that proposition is common ground. But if one asks *why* appropriate use of the sentence requires this presupposition, the answer will explain both why more is required for the use of the sentence to be appropriate, and also why accommodation will not be a way to bring the context into line when the required presupposition is not part of the prior common ground. The semantics for "too" will presumably say that it means something like "in addition to x", with the x being anaphoric to something made salient by the prior context. The sentence is inappropriate, when no other prospective New York diners have been made salient because the information required to interpret the sentence will not be available to the addressee.

[30] Kripke (1990, p. 13).

The semantics for "too", need make no mention of presupposition requirements. There is a general expectation that cooperative speakers will take the information needed to interpret their utterances to be available to the addressee (after the addressee recognizes that the utterance event has taken place), and this obvious truism is enough to explain why anaphoric references constrain the common ground in the way they do, and so why uses of "too" require the presuppositions that they require.

What one says, according to the Gricean story, may differ from what one means, but saying is to be explained in terms of speaker meaning, and speaker meaning is to be analyzed in terms of the intentions of the speaker. The social and conventional character of the practice of communication, the story goes, can be explained in terms of the contents of the intentions and beliefs of the individual participants: they are beliefs and intentions about the beliefs and intentions of those with whom one is interacting. I have been arguing that context – common ground – the field on which a language game is played – can also be analyzed in terms of the beliefs or presumptive beliefs of the individual participants. The way contexts change in response to the moves that get made in a language game can be explained in terms of the contents of the beliefs that define the common ground, and the speakers' presuppositions. If we understand contexts, and the speech acts made in contexts, in terms of the speakers' beliefs and intentions, we have a better chance of giving simpler and more transparent explanations of linguistic behavior.[31]

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