For a volume on Lewis edited by Barry Loewer and Jonathan.Schaffer

Craige Roberts
Accommodation in a language game

…
His argument true, his tone light.

from Seamus Heaney, "Saint Francis and the Birds"

1) Introduction

The conventional content of a typical linguistic utterance underdetermines the speaker's
intended meaning. In cases involving anaphora, indexicals, and ellipses, the problem for
a compositional theory of semantic interpretation is generally more or less resolved with
the use of contextual indices, their use triggered by elements of the conventional content
of an utterance. Where there are no overt triggers, theorists posit covert variables in the
logical form of the utterances in question (see the papers and references in section 7 of
Partee 2004). But it's one thing to deal in this way with cases where a free variable will
suffice, treating the context-sensitivity as effectively indexical. It's quite another to
address phenomena like conversational implicature which intrinsically involve abductive
inference based on rich contextual information. Most often, such contributions to
intended meaning are shuttled off to a post-semantic enrichment phase: Gricean icing—
after the fact—on a truth conditional cake. But when we look carefully at a wider variety
of context-sensitive factors and how they interact with truth conditional interpretation,
this neat division becomes problematic. So is it possible to say anything interesting, in
the scientific sense of *falsifiable*, about such contextual factors in interpretation?

David Lewis' work in this area has been very influential not only in the
philosophy of language, but also in the linguistic literature on formal semantics and
pragmatics. "Scorekeeping in a Language Game" (1979) is the article by Lewis which is
most often cited in the linguistic literature. In it, he tackles presupposition, vagueness,
performatives, and other messy phenomena that don't fit readily into the neat indexical
box. And against the backdrop of his earlier work on language games, linguistic
convention and compositional syntax/semantics, he presents two new theses which are
intended to contribute to a framework for addressing such sticky issues in the study of
semantics:

- Linguistic context is best modeled as a **scoreboard** in the language game.
- Unlike in competitive games, **accommodation** is a regular component of the
  dynamics of score change in the language game: "conversational score…tend[s] to
  evolve in such a way as is required to make whatever occurs count as correct play."

Lewis says little about the actual content of the scoreboard, beyond a few hints at
possible elements of the score: "The rules specifying the kinematics of score thereby
specify the role of a scoreboard; the scoreboard is whatever best fills this role; and the
score is whatever this scoreboard registers" (p.346). He says nothing about how the score

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might facilitate or constrain accommodation. But I think we can glean a great deal from the scoreboard metaphor itself, given how his earlier work used game theory to characterize linguistic convention.

In that work, the language game is essentially a cooperative endeavor (Lewis 1969), whose participants have common goals—roughly, the accurate sharing of information. Hence, they are motivated to behave in an accommodating fashion:

> If at time t something is said that requires component s_n of conversational score to have a value in the range r if what is said is to be true, or otherwise acceptable; and if s_n does not have a value in the range r just before t; and if such-and-such further conditions hold; then at t the score-component s_n takes some value in the range r.   (Lewis 1979:347)

This first, general definition is subsequently modified to yield a number of more specific types of accommodation, including presupposition accommodation (below).

One of the most straightforward conversational circumstances in which accommodation commonly occurs is that involving a so-called *performative speech act*, as in the following (Lewis 1979:355, with my glosses):

(1)   I hereby name this ship the *Generalissimo Stalin*.
                compositionally asserted: 'the speaker names this ship the *Generalissimo Stalin*'
                verified by proper performance: 'this ship is named the *Generalissimo Stalin*'
(2)   I now pronounce you man and wife.
                compositionally asserted: 'the speaker pronounces the addressees to be man and
                        wife'
                verified by proper performance: 'the addressees are man and wife'

Utterance of such a performative is a certain type of socially licensed act. When various preconditions hold—e.g. the locution is performed by a speaker who is empowered by the appropriate authorities to perform the speech act in question, there is a marriage license, etc.—then as a consequence of the performance another proposition is verified, in the etymological sense of 'made true'. The verified proposition is neither the compositional meaning of the utterance (what it asserts), nor the usual secondary contribution of an assertion to the interlocutors' common ground (the proposition that the act itself was performed, Stalnaker 1979), but the proposition that the addressees are married. Note that the felicity of the act itself seems to require that this proposition was *not* true prior to the act; so this is not accommodation of a presupposition. But by virtue of the authority vested in the speaker, the act *makes this proposition true in the actual world*. Since that is so, the competent, cooperative interlocutor, when confident that the preconditions of authorized performance of the act are satisfied, then accommodates the truth of the conventional result to the conversational score.

Lewis presents a number of other types of circumstances in which accommodation is called for in conversation, including domain restriction (instantiated by his "Relative Modality" case), and the interpretation of definite descriptions. But

surely the most influential idea in this paper is the application of accommodation to cases involving presupposition (p.340):

> *rule of accommodation for presupposition*:
> 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.

Presupposition accommodation bears directly on a central problem for the classical theory of presupposition and of presupposition projection due to linguist Lauri Karttunen (1974) and philosopher Robert Stalnaker (1973), the general view of presupposition which Lewis adopts (footnote 1, p.358). On that account, a speaker in making a given utterance presupposes proposition P just in case the felicity of the utterance necessitates that P be entailed by the interlocutors' common ground at the time of utterance. For convenience, let's informally call this a requirement that P be contextually *given* (at the time of utterance). This is intended to explain the fact that when a speaker uses a factive verb like *regret* in (3), he seems to presume the truth of the proposition denoted by the complement ('Susan bought a ferret') rather than asserting it.

(3)   Susan regrets that she bought a ferret.

Among other virtues, this approach offers a simple, intuitive approach to the problem of presupposition projection, wherein the presumption of the truth of the complement persists ("projects") in a number of embedding contexts where other aspects of the conventional content of the clause do not survive: under negation, interrogation, a modal auxiliary, or in the antecedent of a conditional. Hence, in (4) the proposition that Susan bought a ferret seems to be implicated in each variant of (3), despite the fact that the proposition that Susan regrets something does not survive the embedding.

(4)   Variants of (3) under embedding:
        negation: Susan doesn't regret that she bought a ferret.
        interrogation: Does Susan regret that she bought a ferret?
        modal auxiliary: Susan may regret that she bought a ferret.
        conditional antecedent: If Susan regrets that she bought a ferret, she can sell it.

If felicitous utterance of these forms requires that the complement proposition 'Susan bought a ferret' already be contextually given, this would explain why it seems to project from under the scope of these operators: If the utterance of one of the forms in (3)/(4) is felicitous, the complement just re-capitulates something we already took to be true. So in (4), the negation, interrogation or hypotheticality can only felicitously pertain to Susan's regret.

But there is a problem widely acknowledged in the literature: This theory appears to falter in accounting for examples wherein an utterance containing content that projects seems to be perfectly acceptable despite the fact that the projective content is clearly

novel information in the context of utterance. With factive verbs like *regret* the complement is often new information, even explicitly so. Consider (5):

(5)   I regret that I must inform you that Susan bought a ferret.

Here, use of *inform* implies that so far as the speaker knows the information conveyed is novel to the addressee, whereas *regret* supposedly presupposes that the addressee already knows that the speaker must so-inform her. Thus, the theory predicts that a pragmatic contradiction should arise here. But none is attested by native speakers: The utterance is deemed felicitous in the context described, where the speaker's obligation is news, along with the information it pertains to.

I don't have the space here to discuss the virtues of the Karttunen/Stalnaker approach to presupposition (see Beaver 2001 for a detailed critical review). But its elegance has motivated many to attempt to save it in the face of such *prima facie* counter-evidence by appeal to Lewis' accommodation. For example, the prominent theories of presupposition and presupposition projection due to Heim (1982,1983) and van der Sandt (1999) make extensive use of this principle. But there is a growing literature debating the role and nature of accommodation (Thomason 1990, Thomason Stone & DeVault 2006, Gauker 2008, von Fintel 2008, Abbott 2008, Stalnaker 2008); and some of these authors (see also Simons et al. 2010) suggest that the high frequency and felicity of utterances which, according to these accounts of presupposition, require accommodation undercuts the foundations of this approach to explaining projection. It is my contention that all parties to this debate would benefit from taking a broader look at the phenomenon of accommodation and its role in discourse *in view of the nature of the language game*, and that this, in turn sheds light on the nature of both linguistic presupposition and presupposition projection.

In this essay, I'll focus on four questions which I take to be useful in understanding presupposition accommodation as Lewis defines it above: The first is a question about how we recognize that an utterance involves a presupposition. The first conjunct of the protasis of Lewis' conditional assumes that accommodation kicks in when something has been said that "requires presupposition P to be acceptable". But in the general case, it turns out to be non-trivial to say (a) how we recognize that something has been presupposed, and (b) how we retrieve *what* is presupposed. How *do* interlocutors retrieve P? We'll explore this in section 2.

The second question is about what it is to accommodate. We would expect an adequate answer to this question to shed light as well on the question of why interlocutors are inclined to do it. In section 3 we'll consider a characterization of accommodation due to Thomason (1990), and argue that it appropriately extends the range of phenomena taken to involve accommodation, while shedding light on the kinds of cases Lewis considered, and in particular on presupposition accommodation narrowly.

The third question has to do with the role of the scoreboard in accommodation. It seems reasonable to assume that in keeping with Lewis's general program for a natural

language semantics, his scoreboard is intended to provide us with a model of the context of utterance with respect to which the proposition P is "acceptable" but "not presupposed" just before the utterance. In section 4, I'll discuss a theory of the scoreboard building on Lewis' characterization which crucially reflects the interlocutors' recognized goals and plans in the language game, and argue that this type of scoreboard plays a natural role in facilitating and constraining accommodation.

The fourth question has to do with Lewis' *ceteris paribus* condition: What are the limits on accommodation in discourse? When does infelicity result from presupposition failure, despite the cooperative intentions of the interlocutors? Again I will argue, in section 5, that some strong limits are a natural consequence of the nature of the language game and its scoreboard. Some conclusions are drawn in section 6.

The general strategy I adopt here is only partially exegetical. It is just as much an attempt at explication of the notions Lewis sketches in this paper, and at an exploration of the general methodology for pragmatics it suggests. I'm not sure that Lewis himself would agree with all I have to say. But I believe the proposed strategy is consistent with the general program for semantics he lays out, and certainly with the direction in which contemporary research on semantics and pragmatics influenced by Lewis is proceeding.

2. Presupposition recognition

> Presuppositions can be created or destroyed in the course of a conversation. This change is rule-governed, at least up to a point. (Lewis 1979:339)

Even the most cooperative interlocutor can only accommodate something presupposed by a speaker if she recognizes (a) *that* something has been presupposed, and (b) *what* that presupposition is. The discussion of accommodation often seems to take it for granted that presupposition recognition has taken place, but several kinds of examples illustrate why this is not generally a reasonable assumption, and that the problem of presupposition recognition can be at least as challenging as that of presupposition accommodation.

A good deal of the literature on presupposition accommodation tends to focus on informative factive verbs and novel possessive descriptions, as in the following:

(6)   We <u>regret</u> that children cannot accompany their parents to commencement exercises. (Karttunen 1974; Gauker 2008)

(7)   I can't come to the meeting—I have to pick up <u>my cat</u> at the veterinarian. (Stalnaker 1998; von Fintel 2008)

The underlined expressions in these examples have been taken to trigger presuppositions—the truth of the complement of *regret*, or with possessive *my* the existence (and possibly uniqueness) of an entity having the property denoted by the noun, in (7) a cat owned by the speaker. As the reader can verify, the factive implication in (6) does project in the classical contexts used to test projection, illustrated in (3) above. The

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same tests show that the existence implications triggered by possessive N(oun)P(hrase)s tend to project, as well. Since they trigger projective implications, *regret* and other factives, and possessive NPs are said to trigger presuppositions. Then according to the classical theory due to Karttunen and Stalnaker, we would expect them to impose a condition on felicitous utterance: that of givenness in prior context, requiring prior knowledge on the part of the addressee(s).

Yet, as with (5) above, (6) can be quite felicitously, even politely used to knowingly *inform* the addressee(s) that children cannot accompany their parents, and (7) may be cooperatively uttered to a near-stranger who (as the speaker is aware) doesn't know that the speaker has any pets. Those who adopt classical presupposition theory then attempt to explain the very common informative use of such utterances by claiming that they involve accommodation. But if accommodation is so common, doesn't that undermine the theory of presupposition and projection whose proponents must appeal to it in so many cases? I.e., if accommodation can save the day when presuppositions fail to be given in context, how can the classical theory be falsified?

The debate about accommodation focuses on examples like (6) and (7). Among the most prominent participants in the debate, Stalnaker (1998) and von Fintel (2008) have proposed ways of characterizing the timing of the requirement of presupposition satisfaction that would save the classical approach in the face of the problem of informative presuppositions, minimizing the necessity for accommodation. In the other camp, Abbott (2000) has used examples like (7) to argue that possessive definites are not presuppositional; Simons (2003) has argued much the same for factives like (6); and Gauker (1998,2008) has used examples involving factives and definites to argue against the classical approach altogether, rejecting as inadequate the Stalnaker/von Fintel strategy for dealing with the problem.

But while factive verbs and possessive descriptions have often been taken to be canonical presupposition triggers, there is good reason to question whether that is the case. There is a long thread in the literature, beginning with Wilson (1975) and Boër & Lycan (1976), which argues against the assumption that factives conventionally trigger presuppositions. Recent work on projection by Simons et al. (2010) argues that while it is true that these triggers all tend to yield projective implications because they impose a felicity condition on the context of utterance, the classical theory assumes the wrong felicity condition: What characterizes projective meaning triggers as a class, and the factives and possessives in particular, is not that their felicitous use requires that the relevant proposition be contextually given *prior* to utterance—i.e. entailed by the interlocutors' common ground, but instead that what is presupposed be *not at issue* relative to the question under discussion at the time of utterance.

What is crucial for our purposes is that there is clear empirical evidence that native speakers do *not* take factives and possessives to be presuppositional in the way assumed in the classical theory, placing a givenness requirement on prior context. Tonhauser et al. (2012) report detailed, methodologically controlled cross-linguistic fieldwork which argues for a distinction between two classes of projection triggers: those

which impose a givenness requirement on prior context —especially the anaphoric triggers (e.g. pronouns and adverbials like English *too*)—and those which tend to trigger projection without necessarily imposing givenness—including the factives and possessive NPs. The robustness of this distinction has been corroborated experimentally by several other researchers, both for English and in other languages (Amaral, Cummins & Katsos 2011, Xue & Onea 2011, Smith & Hall 2011). Hence, there is now a growing body of evidence that a givenness requirement is not a general property defining the class of projective triggers, those that display the behavior we saw in (3) above. So although factives like *regret* and possessive definites do regularly trigger projection, from this it does not follow that they are presupposed *in the sense of being entailed by prior context*. This then argues that informative factives and possessives need not require accommodation for their felicity.

Simons et al. (2010) also note that there are several other kinds of expressions with projective content (that which tends to project) which clearly do not impose a givenness requirement. These include the conventional implicature triggers of Potts (2005), illustrated with the non-restrictive relative clause in (8), where the NRRC projects in the test contexts. (We can tell that it is non-restrictive because proper names may not be modified by restrictive relative clauses.)

(8)   Georgina, who hails from Alabama, won a Pulitzer this year.
        It's not the case that Georgina, who hails from Alabama, won a Pulitzer this year.
        Did Georgina, who hails from Alabama, win a Pulitzer this year?
        If Georgina, who hails from Alabama, won a Pulitzer this year, that proves they
             don't discriminate against southerners.

But such clauses in fact have an anti-givenness condition: Any of the utterances in (8) would be infelicitous in a context in which someone has just asserted that Georgina hails from Alabama. Of course, one might say that just as in the performative utterances (1) and (2) with which we began, (8) *does* involve accommodation. But this is not *presupposition* accommodation, since in neither case is what is accommodated taken to be true *prior to the utterance*.

Anaphoric expressions, like pronouns, constitute the clearest cases of presupposition triggers, and they are generally the least amenable to accommodation. Consider the opening sentence of Tom Wolfe's *The Right Stuff*, cited in this connection in Thomason (1990:332):

(9)   Within five minutes or ten minutes, no more than that, three of the others had
        called her on the telephone to ask her if she had heard that something had
        happened out there.   [Tom Wolfe *The Right Stuff*, cited in Thomason 1990:332]

We do not know who these people are, or where *out there* might be. Nonetheless, in the context of the novel, where this ignorance is used as part of a particular stylistic ploy, we are willing to be patient and accommodate that there are some relevant people—one (a woman) on the phone, others in the same group of some sort—biding our time to

discover more about them. But that's as far as we can get. That is, accommodation here does not involve satisfying what is presupposed by adding information to the context about the identities of the women referred to—something one cannot yet reasonably do—but merely a willingness to wait and see.

What the speaker intends as the denotation of an anaphoric expression like a pronoun or *too* must be retrieved from the context of utterance, via a prior linguistic antecedent or other highly salient information in the interlocutors' common ground. If there is no evident antecedent—as at the beginning of a novel—or there are several possible antecedents with no obvious way to exclude all but one as the speaker's intended antecedent, then accommodation is not usually possible because the descriptive content of the trigger is so impoverished: Pronouns and particles like *too* don't themselves give us many clues about who or what is presupposed. About these, von Fintel notes (p.154):

> [T]here cannot be accommodation with presuppositions that do not just target what is in the common ground but concern facts in the world that no manner of mental adjustment can bring into being. A particular case of that is the actual history of the conversation (the conversational record), as Beaver and Zeevat [2007] suggest. Consider Kripke's famous example (Kripke 1990[/2009]):

[(10)] Tonight, John is having dinner in New York, too.

> In a context in which nobody else is salient who is having dinner in New York tonight, [(10)] is unacceptable and accommodation cannot come to the rescue. Why not? Whether or not the conversation has made someone salient who is having dinner in New York tonight is part of the common ground. If the conversation hasn't made such a person salient, then it is common ground that there is no such person. And so, accommodation cannot help.

That is not to say that accommodation is never possible when anaphoric presupposition is triggered by a pronoun with no overt antecedent NP:

(11)   Jacqueline's getting married. He's a soccer coach.

In (11), it seems that the retrieval of the intended antecedent for *he* proceeds via practical reasoning. *Jacqueline* is a woman's name. Until recently, if a woman was getting married, one could expect that there was a male fiancé. If interlocutors are talking about the impending marriage, in the absence of explicit mention of other men, the most relevant male would arguably be that fiancé. And resolving *he* in this way would also make the second sentence relevant to the first. Hence, reasoning to the best explanation, an addressee can abductively infer that the antecedent must be the implicitly assumed husband-to-be, and accommodate accordingly. The difference between (11) and Kripke's (10) is that in (10) we have no clues with which to infer the intended antecedent event.

Resolving anaphora in (11) involves *bridging* via Jacqueline's impending marriage,[1] whereas in (10) there is nothing to permit such a bridge.

The following illustrates how accommodation may play a role in the derivation of an implication triggered solely by prosodic prominence (linguists' *focus*):

(12)   (No prior discourse on a related subject)
        Cecil: When are you going to China?
        Lucian: Well, I'm going to [CHINA]$_B$ in [APRIL]$_A$.   (Roberts 1996)

Lucian answers Cecil's question, but his reply does more than that. He uses a prosodic focal structure with heavy emphasis both on *China* and *April*. (The annotations *B* and *A* indicate particular tonal contours typically used by native English speakers.) This implicates that Lucian is not only going to China, but to some other location as well. Here is roughly how Roberts and Büring (2003) take this to work: Rooth (1992) has convincingly argued that prosodic focus triggers an anaphoric presupposition—it presumes some relevant alternative set of the appropriate type. The classic literature on the semantics of questions (Hamblin 1973, Karttunen 1977, Groenendijk & Stokhof 1984) takes them to denote a set of propositions, roughly, those which are possible answers to the question. Roberts argues that the alternative set presupposed for a clause is a question under discussion derived via abstraction on the focused constituents. The prosodic contour in (12) thus conventionally presupposes that the question of interest isn't really the one Cecil asked, which would be answered merely with emphasis on *April*, but a more general one: *When are you going where?* This, in turn, implicates that the answer to Cecil's question doesn't yield a complete answer to the more general question. Otherwise, why insist on addressing the more general question? This then implicates that Lucian is going somewhere other than China; and a cooperative interlocutor, accommodating the presupposed general question and resultant implication, and taking this to be something the speaker wants to discuss, might accommodate her by asking:

(13)   Oh? Where else are you going?

Practical reasoning is involved in another very common kind of case involving accommodation, the implicit contextual restriction of the domain of an operator—a quantificational determiner (*every, few, no*, …), adverb of quantification (*always, usually, rarely,* …) or modal (*would, could, should, possibly,* …). It has been argued that such domain restriction is presuppositional (Roberts 1989, 1995), perhaps anaphoric (von Fintel 1994, Stanley & Szabo 2000), in the latter case triggered by an implicit variable of the appropriate type at Logical Form. Domain restriction is like pronominal anaphora in that unless the addressee can retrieve the intended restriction, s/he cannot grasp the speaker's intended truth conditional meaning for the utterance. Consider:

(14)   The birds will get hungry (this winter).

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[1] Bridging (Clark 1996) is anaphora resolution via a pragmatically related, salient, but non-coreferent entity—here the man and marriage.

(15)   If Edna forgets to fill the birdfeeder, she will feel very bad.
         The birds will get hungry.   (Roberts 1989)

Unlike (14), where (without additional prior context) the speaker is committed to a prediction that the birds will get hungry, in (15) the prediction is understood to be conditional on Edna forgetting to fill the feeder. In order to understand how the second utterance of (15) is relevant to the first, the addressee must take the modal operator which is part of the meaning of *will* to only range over worlds in which the antecedent of the preceding conditional comes to pass, so that Edna forgets.

        In all the above, the reasoning involved is largely abductive: Reasoning to the best explanation for the speaker's behavior, for what she said in that context. Abduction has been argued to be central to the pragmatic enrichment of utterance in general (Hobbs et al. 1993, Thomason 1990, Stone & Thomason 2002). Such reasoning is *holistic* in that it aims to provide a "unifying explanation" for all the puzzles involved in recognizing the speaker's intended meaning (Thomason, Stone & Devault 2006): See (12) and (15) above, and consider (16), in which the presuppositions in question are recognized partly on the basis of an assumption of relevance of the conditional to the first sentence:

(16)   Stefanie often eats out when she's travelling on business. If she doesn't know the
         city well, where is usually influenced by the latest Zagat ratings.

The presupposition triggered by *where* is satisfied by restricting the domain of *usually*. We bridge *the city* in the *if*-clause to some arbitrary instance of the business trips made relevant by the first utterance—reasoning that most such trips are to cities and hence taking the city in question to be Stefanie's destination away from home on an arbitrary instance of those trips. Accordingly we restrict *usually* to those occasions on which she makes such a trip. Since we have just been informed that one thing Stefanie does on such trips is eat out, and since one always eats out at some specific location, the ellipsis following *where* ("sluice") is resolved to *where she eats out*. So the interpretation must simultaneously resolve anaphora, domain restriction, and sluicing, each independently but conventionally triggered, all resolved via reasoning on the basis of the content of the conditional clauses with respect to the previous context—where the relevant content itself was not asserted but only hypothetically entertained under the scope of *often*. One might add, as well, the resolution of the Reference Time for *influence*, if one takes those to be generally assumed. More elaborate examples can be constructed. See Roberts (1995,1996b).

Summarizing: Unlike what is often assumed in the literature, many projective triggers, including factives and possessive descriptions, are not *pre*suppositional but merely *suppositional*, backgrounding the content in question so that it is "not at issue"—merely explicitly assumed by the speaker without discussion. On the (very different) accounts of Potts (2005) and Simons et al. (2011), at-issue operators like negation, interrogation, etc., fail to interact with such not-at-issue content, which therefore projects—fails to be within the operators' scope. Crucially, in those cases the projective trigger together with its complement themselves identify the implication that projects. Hence, the occurrence of such triggers in contexts in which the projective implications are informative poses no

problem for the recognition of what is assumed by the speaker, and hence does not call for accommodation *in the sense of repair of a faulty context of utterance*. If there is accommodation in such cases, it is the willingness of the addressees to accept the supposition as uncontroversial, adding it to the Common Ground.

In contrast, accommodation is not usually available for anaphoric presuppositions like those triggered by pronouns or *too*, and by ellipses. This is because the descriptive content of a typical anaphoric trigger is not usually sufficiently rich to identify exactly what is presupposed—the intended antecedent, etc. Hence, their use presupposes salience in the actual discourse, which typically cannot be accommodated; as von Fintel notes, such salience is a fact about the world, which either does or does not obtain. Cases where anaphoric presuppositions *do* appear to be accommodable involve bridging on the basis of practical (abductive) reasoning, which identifies what is most likely presupposed *given the context of utterance*.

The problem of presupposition recognition is all the more challenging when there is no overt trigger, as is typical in domain restriction. Arguably, as we will discuss in section 4, the recognition in such case *that* the speaker presupposes a restricted domain arises via assumptions about the relevance of the utterance to prior context.

Hence, it seems that much of the debate over accommodation is mis-aimed. The central question about accommodation is not whether it can be used to save the theory of presupposition in the face of examples with informative presuppositions, but how addressees come to recognize exactly what a speaker presupposes in those cases where what is to be accommodated is merely implicitly triggered, or is explicitly triggered but with the presupposed content underdetermined by the trigger and no overt, sufficiently salient antecedent.

3. The character of accommodation

What is it to accommodate, and why do we do it? Though Lewis introduces *accommodation* as a term of art, it was surely chosen with a view to its ordinary meaning, to wit:

> *accommodate*:   (Merriam-Webster Dictionary on-line)
> 1 **:** to make fit, suitable, or congruous
> 2 : to bring into agreement or concord : reconcile

An extension of this sense noted by several dictionaries is something like 'to oblige', as in *the hostess was willing to accommodate her friend*. Near-synonyms for *accommodation* are given by the same dictionary as *adaptation*, *adjustment*.

All of these senses seem relevant to the technical notion of accommodation of interest to Lewis. Here is the characterization due to Thomason (1990:343-4):

…[A]ccommodation is a special case of obstacle elimination, a form of reasoning discussed in Allen 1983. Obstacle elimination consists in (1) recognizing the plan of your interlocutor; (2) detecting obstacles to the plan in the form of certain false preconditions of subgoals belonging to the plan; (3) adopting the goal of making these preconditions true; (4) forming a plan to carry this out; and (5) acting on this plan. Step (1) is plan recognition. Step (3) is cooperative goal adoption. The other steps employ forms of reasoning that figure in noncooperative planning by isolated agents.

….The principle behind accommodation, then, is this:

> Adjust the conversational record to eliminate obstacles to the detected plans of your interlocutor.

If the term hadn't already been claimed, this could well have been called the *cooperative principle*.

So accommodation takes place only in circumstances where one agent, recognizing the plans, goals and intentions of another, can adjust her plans so as to help further the other's goals.

It is not for nothing that Thomason invokes Grice. According to Grice (1957), meaning (his *meaning$_{nn}$*) involves a complex set of intentions on the part of the speaker. In sympathy with that characterization, we might informally characterize an utterance as linguistic behavior which implements a plan on the part of the speaker S to get her addressee A to recognize a certain content (propositional, interrogative, etc.), which is then to be considered by A for possible addition to their shared information. Since the conventional content of an utterance typically underdetermines its intended meaning, a cooperative addressee accommodates S's plan by filling in the blanks—adding content which is not explicit in the utterance as a function of its conventional form but which can be readily inferred to be part of S's intended meaning in so uttering, i.e. to be part of her plan. In this way, A—even if he ultimately rejects the intended content (as untrue, inappropriate, etc.)—cooperates with S in realizing her plan to *convey* that meaning. The first step is plan recognition—A must retrieve the intended extra-conventional content, as illustrated in section 2, partly as a function of grasping 'what S is getting at'. Should the plan involve goals which have unsatisfied preconditions, that is potentially problematic for S's realization of her plan. If it is within A's power to do so, A cooperatively rectifies this situation:

> Acting as if we don't have a flat tire won't repair the flat; acting as if we know the way to our destination won't get us there. Unless we believe in magic, the inanimate world is not accommodating. But *people* can be accommodating, and in fact there are many social situations in which the best way to get what we want is to act as if we already had it…. (Thomason 1990:342)

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Suppose the obstacle to conveying the intended meaning of an utterance is a problem with presupposition satisfaction: a pronoun fails to have an obvious antecedent. If bridging is reasonable in the context, as in (11), (12) or (16), A can accommodate S's plan by behaving as if the presupposition of an antecedent were satisfied. So long as the resulting interpretation is relevant and coherent with the rest of the text, the result is as good as if there were an overt antecedent to begin with, so there is no impediment to accommodation.

Thomason focuses on another type of accommodation, not involving presupposition, where in order to grasp the speaker's intended meaning a conversational implicature must be accommodated (p.354):

(17)   [husband to wife, preparing to leave in the morning:]
        I didn't tell you that I'll need the car this afternoon.

By his utterance, the husband in (17) manages to convey to his wife that he does need the car that afternoon—one might reasonably say that he *means* (in Grice's sense) that he needs the car. But how? Thomason points out that the conventional content of the utterance itself is trivial and obvious to both parties to the conversation. Given only this, one might ask whether the husband intends anything more than one's barber means by beginning a conversation with the trivial *Nice weather we're having*. But there is more to a conversation, any conversation, than that:

> In almost any sort of conversation we always feel compelled to reconstruct the plans of our interlocutors; and we want to see how the message we ascribe to them fits into a model of their purposes. If we can't do this, we are likely to resort to accommodation in order to make it fit. Triviality is one feature that makes it more difficult to achieve this sort of fit; and this is why an assertion that is literally trivial is likely to give rise to implicatures. . . The success of the discourse strategy [in (17)]…depends in part on the fact that the sentence is negative and comes at the beginning of a discourse unit. Such sentences invite the hypothesis that they express *a lack*, and in fact point to an obstacle in a plan (of the speaker's, or perhaps someone else). . . For instance, if I begin a conversational unit by saying "There isn't a doorstop in this room," it would be appropriate for you to say "Why would you want a doorstop?" and it would be disingenuous of me to say "I didn't say I wanted a doorstop." Thus, I can suppose that saying "I didn't tell you I'll need the car this afternoon" will launch a search on my wife's part for a plan of mine that would be thwarted by my not telling her that I needed the car. If she has a normal ability to recognize domain plans [those pertaining to objectives in the world], this should suffice to meet my discourse goal.
>   (Thomason 1990:353-4)

Hence, on the assumption that the husband's utterance of (17) plays a role in a larger plan—that he's getting at something of interest, the wife abductively infers that his plan requires the use of the car that afternoon, and accommodates this implication. Thomason takes the accommodated content to be a *conversational implicature*.

Though (17) doesn't involve presupposition, it is of interest here because, as in the cases of domain restriction noted in section 2, there is no overt trigger for the implication in question, and the question arises of how we recognize what the speaker means in that respect. It seems that the same kind of practical, abductive reasoning is involved as was observed in the domain restriction cases, arguing that there is some common denominator between the accommodation of implicatures, and presupposition recognition and accommodation.

Consider again the examples discussed in section 2. We saw three types of cases that might be argued to involve a cooperative adjustment of the context on the part of the addressee:

1) cases in which some explicit content is taken for granted without being asserted, but not presupposed—backgrounded implications like those triggered by the factives and possessive NPs;
2) cases involving true anaphoric presuppositions where a presuppositional trigger puts a conventional constraint on the kind of context in which the expression in question is felicitous and interpretable but that constraint is not satisfied in the context of utterance; and
3) cases without an overt trigger in which some additional content must be abductively inferred in order to make sense of why (or how) the speaker is saying what he's saying—implicit domain restriction and conversational implicatures.

Only in the first, backgrounded cases do we have explicit expression of what is to be accommodated. This type of accommodation doesn't involve repair, only cooperative acceptance of that content. The second and third types do involve repair: First, there is a recognition that something is "missing" (conventionally triggered in the first case, conversational in the third). Then practical reasoning based on abduction is used to (try to) ascertain what that missing content might be. This is Thomason's obstacle identification and elimination: detecting the speaker's plan (her meaning) and obstacles to that plan in the form of certain false preconditions of subgoals belonging to the plan (what's presupposed). And finally, *ceteris paribus*, willingness to act as if the missing implication were true: accommodation to remove the obstacles.

But in the third class, how do we recognize that these obstacles exist? And, in both the non-explicit classes, how do we retrieve what is to be accommodated to remove those obstacles?

4. The role of the scoreboard in accommodation

Lewis' view of the scoreboard is in keeping with the approach to philosophical analysis once disparagingly labeled the *Canberra plan* (O'Leary-Hawthorne & Price 1996:291,n23): Its content "depends on the history of the conversation in the way that

score should according to the rules" (p.346). I take it that this is a throw-back to Lewis' excellent advice in "General Semantics" (1972):

> In order to say what meaning *is*, we may first ask what a meaning *does*, and then find something that does that.

The scoreboard in Lewis (1979) seems to tell us something about what Lewis takes a context of utterance to be, following a paraphrase of his own advice in the earlier paper:

> In order to say what a context of utterance *is*, figure out what it *does*—how it interacts with the rules of the language game to yield attested interpretations—and then find something that does that.

The nature and role of accommodation is best appreciated in light of this general project. We begin by exploring what Lewis might have intended by using the scoreboard metaphor, considering in particular the function and "kinematics" of the type of scoreboard he uses as a concrete comparison: the scoreboard in a baseball game. My characterization may go beyond what Lewis himself envisioned, certainly beyond what he says in this paper. But that is perhaps to be expected: Insightful proposals often have broader implications than are initially recognized by the author.

The baseball scoreboard tracks several kinds of information, which change in different ways over the course of play. One bit tracks the length of a game, how many innings have elapsed; under most circumstances, after nine innings the game is over, each inning affording a turn to each of the two teams. But there are two other kinds of information tracked on the board: One is the current score in the narrow sense, pertaining to the essential goal of the game: the number of runs which each team has earned. At the end of play, the team with the highest score in this sense wins. This score is monotonic: Once a run is scored, it stays on the board for the duration of the game. The other type of information is useful for keeping track of which team is entitled to make which moves at that juncture in play. This second type of information is non-monotonic, reset at certain points according to the rules. It includes which team is at-bat; the number of players who have been struck out during that turn (after three outs the team loses its turn); and the number of balls and strikes during an at-bat by a single would-be hitter (the balls counting against the pitcher, the strikes against the hitter; three strikes and he's out).

Similarly (though Lewis doesn't explicitly explore this aspect of the analogy), the language scoreboard contains two kinds of information. The first, the Common Ground ("sets of presupposed propositions"), pertains to what is arguably the point of the language game. Stalnaker (1979) takes the goal of discourse to be to discover what the world is really like, and models this with the Context Set; this is the set of worlds compatible with the interlocutors' Common Ground. The goal is to figure out which world they are really in, ultimately reducing the Context Set to the unique actual world. Ideally the addition of information to the Common Ground is monotonic (ignoring the necessity for belief revision, a type of repair), and correspondingly, so is the reduction of

the Context Set. But there are other types of information which play a crucial role in interpretation but are non-monotonic, tracking the state of play itself. For example, salience shifts from move to move in the language game, a function of what's most immediately under discussion. Salience doesn't count in the final score, but like the number of strikes a batter has, it plays a crucial role in constraining play, here the interpretive process, notably for anaphora resolution.

Similarly, recent work (Ginzburg 1995, 2012; Roberts 1996, 2004) has argued that the (set of) question(s) under discussion (QUD) at a given point in discourse plays a central role in interpretation, in phenomena ranging from prosodic focus (Roberts 1996, Büring 2003), domain restriction (Roberts 1996, 2012b; Beaver & Clark 2008), ellipsis resolution (Anderbois 2010, Ginzburg 2012), rhetorical relations (Jasinskaja 2007), and implicature generation (van Kuppevelt 1995, van Rooij 2003) to presupposition recognition and projection (Simons et al. 2010) and the determination of salience (Roberts 2011b). To the extent that interpretation is influenced by the QUD across such a broad range of *prima facie* unrelated phenomena, this argues that it is a central part of what interlocutors track about the discourse in which they are participating.

Roberts' (1996, 2004) characterization makes this role intuitively natural for an approach like Lewis' game theoretical view of language by taking the immediate QUD to establish the immediate sub-goal (answering the QUD) of the over-arching discourse goal, answering the Big Question: *What is the way things are?* to enable the reduction of the Context Set. Questions propose new discourse goals for cooperative adoption. Imperatives are like questions in posing goals to the interlocutors—but these are domain goals, proposals for non-linguistic action. There are logical constraints on the relations between various questions under discussion and related domain plans of the interlocutors, so that not just any proposed QUD is felicitous in a given discourse context. Utterances, *qua* moves in the game, are felicitous to the extent that they are relevant to the adopted QUD: An assertion should offer a partial answer to the QUD; a question should suggest a sub-question of the QUD; a suggestion or order should propose an action which would further answering the QUD. If a group of collaborating agents are rational, the goals they adopt, and the plans they form to achieve them, are consistent, and in particular, discourse goals (QUD) should subserve over-arching domain goals.

Adopting a goal involves adopting an intention. Thus, collectively the questions under discussion and the domain plans they subserve place an intentional structure on rational discourse interaction. Participants engaged in this collaborative game cooperate by attempting to implement these plans, most immediately by addressing the QUD. So like balls and strikes, QUDs and associated domain plans and intentions are only temporarily on the scoreboard, removed once they have been achieved, at which point a new goal may be posted (or the game—the discourse—is over).

This conception of the scoreboard is consistent with what Lewis has to say about his "middle way" of modeling context. He tells us that on this conception:
▪ "[T]he components of a conversational score at a given stage are abstract entities. They may not be numbers, but they are other set-theoretic constructs" (345). The

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score, as in baseball, is a tuple of such abstract entities. Hence, rules for update (the "kinematics of score") are not themselves part of this abstract score so-defined, but "enter only in a roundabout way into the definition of score."

- The elements of the conversational score may include (among other things):
    - sets of presupposed propositions (p.346) [cf. the Common Ground in Stalnaker 1979, Clark 1996]
    - the interlocutors' plans (p.357)
    - comparative salience of the entities under discussion (p.349)
- The rules for updating context ("the kinematics of score") "underdetermine the evolution of score" (p.346), and hence the score includes non-linguistic, non-conventional content. This is implicit in the kinds of elements just listed: Sets of presupposed propositions are generally assumed to be those which, like Stalnaker's (1979) common ground (CG), the interlocutors all (purport to) take to be true for whatever reason, hence not only those propositions proffered in the current conversation. Certainly we do not usually directly discuss what is salient.
- "[I]t is possible that score sometimes evolves in a way that violates the rules." We may flout maxims, and even utter something denoting P when we mean not-P (sarcasm, irony), etc.

Including interlocutors' plans—especially in the guise of questions under discussion— on the scoreboard permits us to capture how those plans both drive and constrain the behavior of the participants in the game. In particular, it offers insight into the role of the scoreboard in presupposition recognition, identifying the obstacles to the inferred plan of the speaker. As we saw above, this depends on the ability to abductively infer what the speaker meant: to reason about the best explanation for her speech act, given its conventional content, in light of *what we already know of her plans and intentions.* This is key to abduction, as utilized extensively in Planning Theory in Artificial Intelligence (see Allen & Perrault 1980, Appelt 1985, Thomason & Hobbs 1997, Stone 2004). Thomason, Stone & DeVault (2006) apply this approach to extend Thomason's (1990) characterization of accommodation. For them (with my comments and glosses in square brackets):

- Meaning is a kind of complex intention. [Grice 1957]
- An intention is a kind of complex information state, including:
    - a goal   ['intend to…']
    - a plan   ['by…']
    - preconditions   ['what must be the case in order for the plan to succeed']
- Interpretation, or meaning-recognition, is plan-recognition. [Planning Theory]
- The preconditions in a linguistic meaning are the presuppositions of the relevant utterance.
- So presupposition recognition (including anaphora resolution) is a species of plan recognition: Recognizing or retrieving the preconditions on the meaningfulness or truth of the utterance in question.
- Accommodation itself is the "removal of obstacles"…..

The clearer one's interlocutors' plans and goals, the easier it is to bootstrap this process of obstacle identification and removal. Taking the resolution of the QUD as the

immediate cooperative goal of the interlocutors, one which defines what it is to be relevant, and hence felicitous, at that point in play, thus plays a central role in recognizing the probable plan of the speaker in making that particular utterance at that particular point in the game, the meaning he aimed to convey: If the speaker is competent (understands the rules of the game, including the requirement of relevance to the QUD) and cooperative, then whatever she said was intended to address the QUD. Then one should resolve anaphora, restrict quantificational domains, enrich with implicatures, etc., as necessary and reasonable in view of what's salient in such a way as to take her utterance maximally relevant to that question. Salience itself can be argued to be a function of the QUD. This gives addressees a lot of leverage in presupposition recognition, especially in the cases requiring accommodation where what is presupposed, and even *that* it is presupposed, is inexplicit.

Accommodation is natural to the extent that the meaning to be accommodated is the uniquely obvious abductively inferred means of making the utterance relevant to the interlocutors' goals at that point in play. **Accommodation in such a case is easy and natural**, not something the average interpreter even notices.

The theory of the scoreboard sketched here is a causally efficacious content theory of context, one in which the scoreboard contains not only the score in the narrow sense (the Context Set), but also that temporary information which reflects the way in which the scoreboard controls the language game, playing a role in the adoption of directives (queries posed by questions, suggestions by imperatives), in coordination (helping to track shared goals and background information), and in useful adaptation (accommodation). Through making clear the interlocutors' common goals, the scoreboard thus both facilitates and constrains accommodation.

5. Limits on accommodation

> It is not good conversational practice to rely too heavily on rules of accommodation. . . .[but] Confusing shifts of salience and reference are not as bad as falsity, trivial truth, or unwarranted assertion. (Lewis 350)

It has often been claimed that accommodation is too powerful. Can we offer a predictive theory of accommodation, one in which it is appropriately constrained and in particular accounts for presupposition *failure*? Yes, we can, in light of the characterization of the context of utterance sketched in the previous section. Quite simply, accommodation is constrained by requirements of consistency and coherence, these gauged with respect to the scoreboard.

We cannot always accommodate a speaker whose meaning fails to be clear, even if the failure to accommodate leaves the resulting utterance infelicitous or uninterpretable. In Kripke's example (10) repeated here, *too* is anaphoric, but we simply cannot retrieve an antecedent because the example is given more or less out of the blue:

(10)   Tonight, John is having dinner in New York, too.

Note that like the pronouns and ellipses in (11), (12) and (16), *too* can sometimes take an antecedent which is only implicitly available, as in (18):

(18)   [Two women are standing at a bus stop on a rainy day. A car drives through a
        puddle along with curb, splashing one of the women with muddy water. The
        second woman turns to her and says:] A car splashed ME this morning, <u>too</u>.

In (18), there *is* a relevant antecedent for *too*, albeit non-linguistically introduced: the proposition that a car just splashed the addressee, presumably an event still sufficiently distressing to be foremost in her mind. So it's not even clear that (18) involves accommodation. But in (10) there clearly *is* no antecedent for *too* that's relevant in the context of utterance. We have no clue about what the speaker may mean (in Grice's sense) in using *too* in his utterance.   In keeping with the observations of Thomason (1990:342) and von Fintel (2008:154) above, no amount of accommodation here can make true a presupposition (that there is a salient antecedent) which is manifestly false. Therefore, in such cases accommodation is not acceptable.

        Another type of example involves *only* (see Roberts 2011 for extended discussion). When we have an utterance of the form *only SUBJECT VPs*, as in (19), we call the result of removing *only* from that clause the *prejacent*:

(19)   Only Lucy came to the party.
        prejacent: Lucy came to the party.

        Only is a trigger for projection; i.e. its prejacent tends to project in the test contexts for projection, as we see in (20):

(20)   Projection tests for the prejacent of *only*:
        It's not the case that only Lucy came to the party./Not only Lucy came to the
            party.
        Did only Lucy come to the party?
        If only Lucy came to the party, it must have been pretty quiet.
        Maybe only Lucy came to the party.

All of the variants in (20) seem to implicate that Lucy came to the party. Hence, (21) (with a single speaker) sounds like a contradiction (marked as infelicitous: #):

(21)   Did only Lucy came to the party? #Of course, SHE didn't.

        But just like a possessive NP or the complement of a factive verb, the prejacent of *only* is pretty clearly not *pre*supposed, but only *supposed*, or backgrounded, so that the prejacent can be novel in the Common Ground. One argument for this is the felicity of B's response in (22), where the truth of the prejacent is the very question under discussion:

(22)   A: Did Lucy come to the party?
         B: Actually only Lucy came.

Then just like the outcome of a performative like (1) or (2), or after utterance of novel factive complements like (6) or (7), an addressee who finds the prejacent of (19) or (20) or that of B's answer in (22) uncontroversial will be inclined to accommodate it.

        But not always. When the prejacent is controversial, or, especially, would contradict information in prior context, it fails to project, i.e. is not accommodated to the Common Ground:

(23)   And contrary to what many say I found the level of violence high but not
         excessive. This isn't only a "shoot 'em up" pointless movie; there's more than
         just stage blood.   (web example reported in Beaver & Clark 2008:235)
(24)   [about a family where women generally have lots of kids]
         QUD: How many kids does each of these siblings have?
         Mary's the blacksheep. As far as I know she doesn't have any kids, but I can't
         remember for sure. Maybe she only has one kid? George, do you remember?

In (23), the writer is clearly arguing that the movie in question is worthwhile, hence it would be inconsistent for the prejacent of the second clause 'this is a shoot 'em up pointless movie' to project from under negation. In (24) the question of how many kids Mary has is under discussion, and the speaker makes it clear that for all she knows Mary may not have any; hence the prejacent 'she has one kid' doesn't project from under the modal in the third sentence. To sharpen our grasp of the flexibility of the projective behavior of the prejacent, see how it contrasts with that of the non-restrictive relative clause *who has one kid* in (25), which obligatorily projects, leading to a contradiction with the last sentence:

(25)   QUD: How many kids does Mary have?
         George told me that Mary, who has one kid, is the blacksheep of her family. She
         doesn't have any kids.

        These examples illustrate the requirement of **consistency**: The interlocutors' Common Ground must be logically consistent. Nothing can be accommodated which would make it inconsistent.

        Another kind of case where accommodation fails involves prosodic focus on the wrong word(s) in an utterance. In answering the question in (26), focus should fall on the object *the pasta*; while after a different question in (27), for an answer with the same propositional content as that in (26) to be felicitous, it should have focus on the transitive verb *ate*. In each case, focus should fall on that part of the answer which is informative with respect to the preceding question, correlating with the *wh*-word in the question:

(26)   What did Karen eat?
         A₁: She ate the PASTA.

A₂: #She ATE the pasta.

(27)   What did Karen do with the pasta?
        A₁: #She ate the PASTA.
        A₂: She ATE the pasta.

Note that focus in those examples doesn't mark what's new information in the sense of content not previous mentioned: In (28), both *praise* and the direct object *him* are already salient from the question. But here, too, it must be the direct object, correlating in its grammatical role with that of *who* in the question, which receives focus:

(28)   Who did John$_i$'s mother praise?
        A₁: She praised HIM$_i$.
        A₂: #She PRAISED him$_i$.

However, some felicitous answers are *prima facie* non-congruent with the preceding question in this respect, as we saw from (12), repeated here:

(12)   (No prior discourse on a related subject)
        Cecil: When are you going to China?
        Lucian: Well, I'm going to [CHINA]$_B$ in [APRIL]$_A$.

The difference, I have argued (Roberts 1996), is that in (12) the addressee can accommodate the question presupposed by the prosodic structure of Lucian's answer: 'when is Lucian going where?', taking both the accommodated question and Cecil's actual question to participate in a larger strategy of inquiry. But this is only possible because the resulting strategy is felicitous and coherent: The actual question is a sub-question of the accommodated question, hence poses a consistent sub-goal. In (26), by contrast, there is no obvious way to accommodate the question 'what did Karen do with the pasta', taking it to be part of a strategy of inquiry with the preceding overt question. Accordingly, the discourse fails to be coherent, and accommodation fails.

Roberts (2004) argues that the central feature of a coherent discourse is that it reflects a rational strategy of inquiry with respect to the questions under discussion. Various kinds of rhetorical strategies which also bear on cohesion (Asher & Lascarides 2003; Kehler 2002) can then be characterized as types of strategies of inquiry (see also the D-trees of Büring 2003), hence themselves a reflex of relevance to the topical structure of the discourse (Kehler 2009). Other features that have been argued (e.g. in Halliday & Hasan 1976) to play a role in cohesion—anaphora (including temporal anaphora), ellipsis, conjunction—can be argued to hinge on relevance, as defined in terms of addressing the QUD and broader strategy of inquiry.

This brief consideration of a few examples is intended to suggest that the rules that constrain accommodation are not particular to that function. Consistency and cohesion are general rules governing what constitutes a well-formed discourse. Both these requirements, in turn, arguably follow from the over-arching goal of the language

game and its intentional structure. If the goal is to figure out what world we're in, inconsistency, leading to an empty Context Set, is inconsistent with those goals. Then a rational agent who is committed to that goal will seek to avoid inconsistency. Similarly, if one intends to observe the rules of the game, in view of how they support the goal of sharing information, one avoids *non sequiturs*, since they yield incoherence, and incoherence makes it difficult to retrieve one's meaning.

6. Conclusion

In this essay I have aimed for:

- exegesis: What did Lewis mean, and how does it fit in his overall program for understanding linguistic meaning? I have argued that his proposals in "Scorekeeping…" are best understood in light of his larger program of illuminating the nature of linguistic convention and communication. In "Scorekeeping…" Lewis sketches a way of understanding how his earlier characterization of the language game can be extended to permit insight into complex, non-indexical context-sensitivity.

- explication: What is accommodation, especially presupposition accommodation, and what role does it play in interpretation? I have argued that presupposition accommodation, a kind of repair, is perhaps less common and more restricted than is sometimes assumed, but that the broader phenomenon, including *supposition*-accommodation, is far *more* common than is generally recognized. In keeping with Thomason (1990), accommodation to remove obstacles to the speaker's evident semantic goals is a natural part of the language game, of recognizing a speaker's intended meaning.

- explanation: What's the scoreboard of a language game, and what kind of role might it play in explaining the resolution of context-sensitive expressions? A causally efficacious model of context as scoreboard will crucially involve tracking the immediate discourse goals of the interlocutors' (the QUD). Such a model of context both drives accommodation—to permit utterances to be understood as relevant to those goals, and constrains it—to guarantee consistency and coherence, both these desiderata understood in terms of logical constraints on the elements of the score.

We began by noting that some see accommodation as too strong, making a theory which uses it unfalsifiable. But I have suggested here that an *appropriate, constrained notion of accommodation* is a *sine qua non* for progress in understanding not only presupposition, but phenomena like implicature generation, the recognition of intended lexical content in the face of vagueness and imprecise use, lexical coercion, and various types of semantic variation, including dialect variation and language change. The exploration of such matters is beyond our purview here, but I believe that in all these cases we accommodate—go along with, or accord our understanding with—the speaker's semantic intentions, so long as (a) those intentions are evident and (b) the resulting context is consistent and coherent. In fact, we cannot generally *understand* what a speaker means unless we are at least temporarily willing to be accommodating in this way, even if we ultimately reject the intended contribution to the score (e.g., as false).

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Accommodation so-described needn't be a repair, but is instead a natural, common feature of the activity of conveying linguistic meaning in context through underspecified conventional content.

References**:**

Abbott, Barbara (2000) Presuppositions as nonassertions. *Journal of Pragmatics* 32(10):1419–1437.

Abbott, Barbara (2008) Presuppositions and common ground. Linguistics and Philosophy 31:523-538.

Allen, James F. (1983) Recognizing intentions from natural language utterances. In M. Brady & R. Berwick (eds.) *Computational Models of Discourse*, pp.107-166. MIT Press, Cambridge, MA.

Allen, James F. & C. Raymond Perrault (1980) Analyzing Intention in Utterances. *Artificial Intelligence* 15:143—178.

Amaral, Patricia, Cummins, Chris, & Katsos, Napoleon (2011) Experimental Evidence on the Distinction Between Foregrounded and Backgrounded Meaning. *Proceedings of the ESSLLI 2011 Workshop on Projective Meaning*, Ljubljana, Slovenia.

Appelt, Douglas (1985) Planning English Referring Expressions. *Artificial Intelligence* 26(1):1-33. Also in Grosz, Sparck Jones and Webber (eds.) *Readings in Natural Language Processing*. Morgan-Kaufmann.

Asher, Nicholas & Alex Lascarides (2003) *Logics of Conversation*. Cambridge University Press.

Bach, Emmon (1989) *Informal Lectures on Formal Semantics*, State University of New York Press, Albany.

Beaver, David & Henk Zeevat (2007) Accommodation. In Gillian Ramchand & Charles Reiss (eds.) *The Oxford Handbook of Linguistic Interfaces*, 503–538. Oxford University Press.

Boër, S.E. & W.G. Lycan (1976) The myth of semantic presupposition. Mimeograph, Indiana University Linguistics Club.

Büring, Daniel (2003) On D-Trees, Beans, and B-Accents. *Linguistics and Philosophy* 26(5):511-545.

Chierchia, Gennaro & Sally McConnell-Ginet (1990) *Meaning and Grammar: An introduction to semantics*. MIT Press, Cambridge.

Clark, Herbert H. (1974) Bridging. In R. C. Schank & B. L. Nash-Webber (Eds.), *Theoretical issues in natural language processing* . New York: Association for Computing Machinery.

Clark, Herbert H. (1996) *Using Language*. Cambridge University Press.

Elbourne, Paul D. (2005) *Situations and Individuals*. MIT Press.

von Fintel, Kai-Uwe (1994) *Restrictions on quantifier domains*. Ph.D. dissertation, UMass, Amherst.

von Fintel, Kai (2008) What is presupposition accommodation again? *Philosophical Perspectives: Philosophy of Language* 22(1):137–170.

Gauker, Christopher (1998) What is a context of utterance? *Philosophical Studies* 91(2):149–172.

Gauker, Christopher (2008) Against accommodation: Heim, van der Sandt and the presupposition projection problem. *Philosophical Perspectives: Philosophy of Language* 22(1):171–205.

Ginzburg, Jonathan (1994) An Update Semantics for Dialogue. *Proceedings of the Tilburg International Workshop on Computational Semantics*.

Ginzburg, Jonathan (1995) Resolving questions, Part I and Part II. *Linguistics and Philosophy* 18:5:459-527 and 18.6:567-609.

Ginzburg, Jonathan (2012) *The Interactive Stance: Meaning for Conversation*. Oxford University Press.

Grice, H.P. (1957) Meaning. *The Philosophical Review* 66 (1957). Reprinted in Grice 1989.

Groenendijk, Jeroen & Martin Stokhof (1984) *Studies on the Semantics of Questions and the Pragmatics of Answers*. Ph.D. dissertation, University of Amsterdam.

Halliday, M.A.K. & Ruqaiya Hasan (1976) *Cohesion in English*. Longman, London.

Hamblin, C. (1973) Questions in Montague English. *Foundations of Language* 10:41-53. Reprinted in Barbara Partee (ed.) (1976) *Montague Grammar*, University of Texas Press.

Heim, Irene (1982) *The Semantics of Definite and Indefinite Noun Phrases*, Ph.D. dissertation, University of Massachusetts, Amherst.

Heim, Irene (1983) On the projection problem for presuppositions. WCCFL 2, Stanford University, 114-126.

Heim, Irene (1992) Presupposition projection and the semantics of attitude verbs. *Journal of Semantics* 9:183-221.

Hobbs, Jerry R., Stickel, Mark E., Appelt, Douglas E., and Martin, Paul (1993) Interpretation as abduction. *Artificial Intelligence* 63:69-142

Kamp, Hans (1981) A Theory of Truth and Semantic Representation. In Jeroen Groenendijk, Theo M. V. Janssen and Martin Stokhof (eds.) *Formal Methods in the Study of Language, Vol. I*, Mathematische Centrum, Amsterdam. Reprinted in Groenendijk, Janssen and Stokhof (eds.), 1984, *Truth, Interpretation and Information*, Foris, Dordrecht.

Karttunen, Lauri (1973) Presuppositions of compound sentences. *Linguistic Inquiry* 4:169-193.

Karttunen, Lauri (1977) Syntax and semantics of questions. *Linguistics and Philosophy* 1:3-44.

Kehler, Andrew (2002) *Coherence, Reference, and the Theory of Grammar*. CSLI Press, Stanford, CA.

Kehler, Andrew (2009) Ellipsis and anaphora in a QUD model of discourse. Talk presented at the University of Michigan Workshop in Philosophy and Linguistics.

Kripke, Saul A. (1990/2009) Presupposition and anaphora: Remarks on the formulation of the projection problem. *Linguistic Inquiry* 40.3:367–386.

Lewis, David (1969) *Convention: A philosophical study*. Harvard University Press.

Lewis, David (1979) Scorekeeping in a language game. In R. Baüerle, U. Egli, and A. von Stechow (eds.) *Semantics from a Different Point of View*. Springer, Berlin.

O'Leary-Hawthorne, John & Huw Price (1996) How to stand up for non-cognitivists. *Australian Journal of Philosophy* 74:275-92.

Partee, Barbara H. (2004) *Compositionality in Formal Semantics*. Blackwell Publishing, Malden, MA.

Potts, Christopher (2005) *The Logic of Conventional Implicatures*. Oxford University Press.

Roberts, Craige (1989) Modal Subordination and Pronominal Anaphora in Discourse. *Linguistics and Philosophy* 12:683-721.

Roberts, Craige (1995) Domain Selection in Dynamic Semantics. In Emmon Bach, Eloise Jelinek, Angelika Kratzer, and Barbara H. Partee (eds.) *Quantification in Natural Languages*, Kluwer, Dordrecht, 661-700.

Roberts, Craige (1996/2012) Information Structure: Toward an integrated theory of formal pragmatics. In Jae Hak Yoon and Andreas Kathol (eds.) *OSUWPL Volume 49: Papers in Semantics*, 1996. The Ohio State University Department of Linguistics. In press, with a new afterword, in *Semantics and Pragmatics*.

Roberts, Craige (1996b) Anaphora in intensional contexts. In Shalom Lappin (ed.) *Handbook of Semantics*. Blackwell.

Roberts, Craige (2004) Discourse context in dynamic interpretation. In Laurence Horn & Gregory Ward (eds.) *Handbook of Contemporary Pragmatic Theory*, Blackwell, pp.197-220.

Roberts, Craige (2010) Retrievability and incomplete descriptions. Ms., The Ohio State University. http://www.ling.ohio-state.edu/~croberts/Retrievability.pdf.

Roberts, Craige (2010b) Resolving Focus. Ms. of an invited talk at KogWiss, Pottsdam, Germany, October, 2010.

Roberts, Craige (2011) *only*: A case study in projective meaning. In Partee, Glanzberg & Skilters (eds.) *Formal Semantics and Pragmatics: Discourse, Context, and Models*, The Baltic International Yearbook of Cognition, Logic and Communication, Riga, Latvia.
http://thebalticyearbook.org/journals/baltic/issue/current

Roberts, Craige (2011b) Solving for interpretation. Ms. of a talk at the Workshop on Meaning and Understanding at the Centre for Advanced Study, Oslo.

Roberts, Craige, Mandy Simons, David Beaver & Judith Tonhauser (2009) Presupposition, Conventional Implicature, and Beyond: A unified account of projection. In *Proccedings of the Workshop on Presupposition*, ESSLLI '09, Bordeaux, July, 2009.

Rooth, Mats (1992) A theory of focus interpretation. *Natural Language Semantics*, 1(1):75-116.

van der Sandt, Rob (1992) Presupposition projection as anaphora resolution. *Journal of Semantics* 9:333-377.

Simons, Mandy (2003) Presupposition and accommodation: Understanding the Stalnakerian picture. *Philosophical Studies* 112(3):251–278.

Simons, Mandy, Judith Tonhauser, Craige Roberts & David Beaver (2010) What projects and why. In Nan Li & David Lutz (eds.), *Semantics and linguistic theory* (SALT) 20, 309–327. Ithaca, NY: CLC Publications.

Smith, E. Allyn & Hall, Kathleen (2011) Projection Diversity: Experimental Evidence. *Proceedings of the ESSLLI 2011 Workshop on Projective Meaning*, Ljubljana, Slovenia.

Stalnaker, Robert (1973) Presuppositions. *Journal of Philosophical Logic* 2:447–457.

Stalnaker, Robert C. (1974) Pragmatic presuppositions. In M. Munitz & P. Unger (eds.), *Semantics and Philosophy*, 197–213. New York University Press.

Stalnaker, Robert (1979) Assertion. In Peter Cole (ed.) *Syntax and Semantics* 9.

Stalnaker, Robert (1998) On the Representation of Context. *Journal of Logic, Language and Information* 7:3-19.

Stalnaker, Robert (2002) Common ground. *Linguistics and Philosophy* 25(5):701–721.

Stalnaker, Roberts (2008) A response to Abbott on presupposition and common ground. Linguistics and Philosophy 31:539-544.

Stanley, Jason & Zoltán Szabó (2000) On quantifier domain restriction. *Mind and Language* 15.2-3:219-261.

Stone, Matthew (1997) The anaphoric parallel between modality and tense. Technical report IRCS 98-6 and CIS 97-9. University of Pennsylvania.

Stone, Matthew & Richmond Thomason (2002) Context in abductive interpretation. In Bos, J., Foster, M. E., & Mathesin, C. (Eds.), *EDILOG 2002: Proceedings of the Sixth Workshop on the Semantics and Pragmatics of Dialogue*, pages 169–176. Edinburgh: Cognitive Science Centre, University of Edinburgh.

Thomason, Richmond (1990) Accommodation, meaning, and implicature: Interdisciplinary foundations for pragmatics. In P. Cohen, J. Morgan, and M. Pollack (eds.) *Intentions in Communication*. MIT Press, Cambridge, MA

Thomason, Richmond H., Matthew Stone & David DeVault (2006) Enlightened Update: A computational architecture for presupposition and other pragmatic phenomena. Ms., University of Michigan, Rutgers University, University of Edinburgh. Talk at the NSF-sponsored Workshop on Accommodation, OSU.

van der Sandt, Rob (1992) Presupposition projection as anaphora resolution. *Journal of Semantics* 9:333–377.

Wilson, Deirdre (1975) *Presupposition and Non-Truth-Conditional Semantics*. London: Academic Press.

Xue, Jingyang & Edgar Onea (2011) Correlation between presupposition projection and at-issueness: An empirical study. *Proceedings of the ESSLLI 2011 Workshop on Projective Meaning*, Ljubljana, Slovenia.