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Abstract

This paper discusses a recent opposition between the influential dynamic semantic account of presupposition projection and a recent Gricean-pragmatic theory. The Gricean-pragmatic theory is partly motivated by an influential objection to dynamic semantics based on the compatibility of dynamic systems with connectives and operators exhibiting deviant projection behaviors. By identifying key features of the role of prediction and explanation in semantics, it is argued that the objection is based on a mistaken conception of the involvement of empirical foundations in semantic theories. The paper shows that the dynamic paradigm does not suffer from either predictive or explanatory inadequacy. The chapter concludes that while it is too early to decide in favor of either approach, the Gricean alternative to dynamic semantics cannot be seen as motivated by a flaw in the latter theories.

Keywords Presupposition, presupposition projection, dynamic semantics, Gricean maxims, prediction, explanation

1   Introduction

Here is a familiar dialectic. Attention is drawn to a phenomenon in natural language that apparently defies treatment from within classical semantics. Two choices emerge. Either abandon classicism to predict the data directly by semantic means. Or keep the classical semantics and account for the data pragmatically. Grice's 'Logic and Conversation' (1975) both clearly delineated this type of dialectics for the first time and provided a paradigmatic instance of the pragmatic route. This chapter examines a more recent instance of this broadly Gricean dialectic. The opposition here is between two theories of presupposition projection – the phenomenon by

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which the presuppositions of compound sentences are determined by those of their parts. Semantic revisionism is represented by the influential dynamic semantic account developed by Heim (1982), (1983). Semantic conservatism by Schlenker's (2008a) Transparency Theory, which is built on two Gricean maxims of manner: Be Articulate and Be Brief.

A central part of the motivation for the Transparency Theory comes from a particular kind of objection to the dynamic view originally put forward by Rooth (1987) and Soames (1989). The objection notes that dynamic semantics is consistent with the existence of sets of connectives that have the same truth conditions but different projection behaviors. Two conclusions have been drawn from this, namely that the dynamic view is lacking in predictive adequacy and that it is lacking in explanatory adequacy.

My purpose in this chapter is to argue that the fact that the system is compatible with deviant connectives does not show that the dynamic view suffers from either of these problems. My conclusion will be that although there may be other ways in which Gricean theories have advantages over the dynamic theory of presupposition projection, there is no initial advantage, i.e., there is no inherent flaw in the dynamic conception.

Section 2 provides a sketch of the dynamic system we are concerned with. I call this the *Context Change Theory*. Section 3 turns to the Rooth-Soames objection, and to the notions of prediction and explanation that are involved in this debate. Sections 4 and 5 defend the Context Change Theory against the charges and comment on the setting of the debate within the Gricean dialectic sketched above.

2   The Context Change Theory

Reacting to the earlier views of Karttunen and Peters (1979), Gazdar (1979), and Soames (1982), Heim (1983) followed Karttunen (1974) in seeing presuppositions as admittance conditions on contexts, the idea being that "a sentence can be felicitously uttered only in contexts that entail all of its presuppositions."[1] A context is here thought of in the familiar Stalnakerian way as a common ground, i.e., a set of propositions mutually taken for granted among the participants.[2] The common ground in turn delineates a set of possible worlds, called the *context set*, defined as the set of worlds w such that all the propositions in the common ground are true in w.[3]

Heim's innovation was to encode admittance conditions directly into the semantic values of sentences. According to the Context Change Theory, the meaning of a sentence is a procedure or instruction for updating the common ground of a conversation. This kind of dynamic meaning is called a *context change potential* (CCP).

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[1]Karttunen (1974, 182).

[2]See Stalnaker (1970), (1974), (1978), (1998), (2002).

[3]To deal with phenomena involving variables (chiefly, anaphora and quantification), Heim (1982), (1983) proposed to view contexts as more fine-grained than sets of worlds. But the simpler conception is sufficient to handle generalized quantifiers (see for example Schlenker (2008a, Sec. 1.2) for a brief statement, and Beaver (2001, Sec. 7.5.3) for a detailed account), and we may safely confine ourselves to this representation of contexts for the purposes of the general discussion we are interested in here.

The idea that sentence-meanings are CCPs is meant to be taken literally. Heim (1983) proposed that

> a compositional assignment of CCPs to the sentences of a language can fully replace a compositional assignment of truth conditions of the sort normally envisaged by semanticists, without any loss of empirical coverage.[4]

This means that both projection facts and truth-conditional facts are derived from CCPs. Specifically, the system consists of two components: an assignment of CCPs and a set of general principles linking presuppositionality and truth conditions with context change. From these, results are derived by means of basic logic. The theory, then, has the overall architecture represented here (where '$\Rightarrow$' denotes derivability):

Context Change Architecture
CCPs + General Principles $\Rightarrow$ Projection facts + Truth conditions

I here provide a fragment of the theory to serve as the basis of the subsequent discussion. Examples of CCPs are given in C1.

C1 CCPs:[5]

C1a $c[p] = \{w \in c : [\![p]\!]^w = 1\}$.

C1b $c[A_B] = \#$ iff $\exists w \in c\ [\![B]\!]^w = 0$. Otherwise, $c[A_B] = \{w \in c : [\![A]\!]^w = 1\}$.

C1c $c[A\ and\ B] = c[A][B]$.

C1a illustrates the fundamental idea that the CCP of an atomic sentence p is a function that takes a context and discards from it the worlds that do not satisfy the information carried by p. In turn, as seen from C1b, the CCP of a presuppositional sentence A_B is a partial function, which is defined for a particular context c if and only if c entails its presupposition B, i.e., all the worlds in c are B-worlds. When defined, the CCP of A_B proceeds as usual by discarding all the worlds that do not satisfy its assertive component A. Finally C1c states that the CCP of a conjunction proceeds by first applying the CCP of the left hand conjunct and then applying the CCP of the right hand conjunct to the resulting local context.

It is important to be clear about a potential confusion at this point. As seen from C1a, the system relies on a prior assignment of satisfaction conditions to atomic sentences, i.e., an assignment of 1 or 0 relative to worlds. Accordingly, the meanings of sub-sentential expressions are contributions to these. Hence, it is only sentences and sentence-forming operators that have CCPs as their meanings, i.e., lexical entries. In what follows, therefore, claims about CCPs being lexical entries are to be understood as concerning sentences and operators.

Within this system results are derived from CCPs via two general principles stated in C2:

C2 General Principles:

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[4]Heim (1983, 253).

[5]Notation: I use p, q, ... for atomic, non-presuppositional sentences. And I use A, B, ... for sentences of arbitrary complexity. And I use A_B for a sentence that asserts A and presupposes B.

C2a Definition of truth:[6]
   If $w \in c$ and $c[A] \neq \#$, then:
   A is true w.r.t. w and c iff $w \in c[A]$.
   A is false w.r.t w and c iff $w \notin c[A]$.

C2b Definition of presuppositionality:
   A context c admits A_B iff $c[A_B] \neq \#$.
   A presupposes B iff for all c, if c admits A, then $c \vDash B$.

C2a embodies the Heimian idea that "To be a true sentence is to keep the context true."[7] Given C2a, the truth conditions of a particular sentence are recoverable from the way it constrains the context set, as defined by its CCP. Note that this means that truth, in this type of semantics, is not defined in terms of the assignment of satisfaction conditions that CCPs rely on, but is instead defined directly in terms of context change. This is what we mean by saying that the truth conditions of a sentence is derived from its CCP.

In turn, C2b captures Karttunen's (1974) original proposal that presuppositions are admittance conditions in the sense that, according to C2b, the presuppositions of a sentence consist of the information that must be entailed by a context in order for its CCP to be defined for the context in question.

A few simple examples of how the system works will be useful. First, consider the presuppositional sentence in (1).

(1)   The King is bald.

Given C1b (1) is defined if and only if it is common ground that there is a king. Formally, that is if c entails that there is a king (all the worlds are king-worlds.) Given C2b, we therefore derive that (1) presupposes that there is a king.

Next, to see how the system derives projection facts, consider the notorious projection properties associated with conjunction in (2):

(2)   a. *B and A_B* presupposes nothing.
       b. *A_B and C* presupposes B.

Here is an instance of (2a):

(3)   There is a king and the King has a son.

Given C1c, (3) first updates c with 'There is a king'. In the resulting local context c' all worlds are king-worlds. We now update c' with 'The King has a son'. The presupposition of this conjunct is trivially satisfied for c'. Hence, (3) places no requirements on c. So, given C2b, we derive that (3) presupposes nothing.

Finally, here is an instance of (2b):

(4)   The King has a son and everyone's celebrating.

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[6]There are problems with this, but there are other options. It turns out to be difficult to get things right for a large range of expressions and constructions. See, Stokke (2012) for discussion.
[7]Heim (1983, 253).

We first update c with 'The King has a son'. Given C1b, doing so is successfull if and only if c entails that there is a king. If so, we get c' where all the worlds are such that there is a king and the king has a son. We then update c' with 'Everyone's celebrating'. So given C2b, we derive that (4) presupposes that there is a king.

In sum, then, the Context Change Theory allows us to derive results concerning presupposition projection in a straightforward way. The goal of the rest of this chapter is to argue that, despite the Rooth-Soames objection, these results are perfectly predictive and explanatory.

3   Prediction and Explanation

The Rooth-Soames objection is based on an undeniable observation. The observation is that the framework in which the Context Change Theory is stated is consistent with the existence of sets of connectives with the same truth-conditional properties but different projection behaviors. To repeat the typical example, discussed by Soames (1989), suppose we define the CCP of a binary connective *and** as follows:

C1c* $c[A \text{ and* } B] = c[B][A]$

Both *and* and *and** output the intersection of the A-worlds and the B-worlds. So according to C2a, a complex sentence formed by either connective is true at a world w if and only if each of its constituents is true at w. As regards projection behavior, consider for example (3). Whereas, as we have seen, the CCP for *and* predicts that (3) presupposes nothing, the CCP for *and** predicts that (3) projects the presupposition of its second conjunct, i.e., that there is a king. So the pair of *and* and *and** is an example of connectives with the same truth-conditional behavior but different projection behaviors.

The conclusion drawn from this is that the Context Change Theory is lacking in predictive and explanatory adequacy. Yet, although many have endorsed this conclusion, it has not been made clear what is meant by prediction and explanation in this context. In fact, the general issue of what constitutes prediction and explanation in the realm of semantic theorizing is vastly underexplored. It is crucial, therefore, to be explicit about these notions in order to evaluate the charge against the Context Change Theory.

I will assume that a prediction of a semantic theory is a logical consequence of the theory. Further, I will assume that the understanding of explanation relevant to the realm of semantic theorizing is roughly that of the so-called *Deductive-Nomological* model of scientific explanation.[8] Salmon (1989) sums up this paradigm as follows:

> [A] D-N explanation of a particular event is a valid deductive argument whose conclusion states that the event to be explained did occur. The conclusion is known as the *explanandum-statement*. Its premises – known collectively as the *explanans* – must include a statement of at least one general law that is essential to the validity of the argument [...]. If, in addition, the statements constituting the explanans are true, the argument qualifies as a *true explanation* or simply an *explanation* (of the D-N type).[9]

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[8]See Salmon (1989), Rosenberg (2000) for introductions.
[9]Salmon (1989, 8).

Although notoriously problematic as a general account of the nature of scientific explanation, this conception is congenial to the case of semantic theories due to the deductive-logical nature of the latter. Semantic theories (in the tradition we are presupposing here) are essentially sets of empirically motivated axioms from which one deduces predictions by using logic in the way we demonstrated with the Context Change Theory earlier.

As this suggests, two kinds of criteria for adequacy are particularly salient in this connection. The lexical entries of the system must be sufficiently motivated, and the general principles generating the predictions of the theory must be sufficiently law-like. For reasons of space I will not argue for the claim that the latter criterion is met in this chapter. For the record, I believe that it can be argued successfully that the general principles in C2 have the relevant characteristics.[10]

The overall question at this point, then, is: Why should one think that conjunction has the CCP of *and* and not that of *and**? In a nutshell, my answer is: Because the CCP of *and* is motivated by the data, while the CCP of *and** is not.

In the next two sections, I expand on this line of argument and respond to the objections adduced against the Context Change Theory based on the observation that it is consistent with deviant connectives.

4   The Charge of Predictive Inadequacy

Heim (1990) conceded the objection to the Context Change Theory in the following words:

> In my 1983 paper, I was less cautious than Karttunen or even Stalnaker and claimed that if one only spelled out the precise connection between truthconditional meaning and rules of context change [i.e., CCPs], one would be able to use evidence about truthconditions to determine the rules of context change, and in this way motivate those rules independently of the presupposition projection data that they are supposed to account for. I was rightly taken to task for this [...].[11]

We can discern two different ways of looking at the problem in this passage. One of them objects that the Context Change Theory does not allow one to derive CCPs from truth conditions. The other that the theory is guilty of a particular kind of circularity. The first of these is a charge concerning predictive adequacy, the second is one concerning explanatory adequacy. Each of these worries have been expressed more clearly by others. I respond to each of them, beginning with the first below.

4.1   Independence from Truth Conditions

Behind the challenge of predictive inadequacy exhibited by the quotation from Heim (1990) above is an insistence on a certain kind of tight connection between

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[10]For example, the principles support counterfactuals. Let k be a context that does not admit 'The King is bald', i.e., k does not entail that there is a king. The fact that the counterfactual 'If it had been common ground in k that there is a king, then k would have admitted 'The King is bald'' is true is evidence that C2b is not merely a true generalization. Cf. Rosenberg (2000, 31–32).

[11]Heim (1990, 32).

CCPs and truth-conditional content. In particular, the objector here claims that CCPs should be derivable from truth-conditional behavior – and that if this cannot be achieved, the theory must be seen as lacking in predictive capability.

This allegation is championed by Schlenker:

> although truth conditions can be recovered from Context Change Potentials, the converse is not true. As was noted early on, there are a variety of dynamic connectives that are compatible with the truth conditions of *and* [...]. Heim's account fails to be predictive in the following sense: if we are given the syntax and classical truth-conditional behavior of an operator, we cannot thereby predict how it will transmit presuppositions [...].[12]

Initially, this complaint appears puzzling in that, quite obviously, the Context Change Theory never aimed at deriving the CCPs of operators from their truth conditions. We already quoted Heim (1983) as explicitly stating that the goal of the theory was the opposite: to derive both truth conditions and projection behavior from CCPs.

The question is, though, whether CCPs *can* be derived from truth conditions, and if not, whether there is anything problematic about that. As we will see below, although CCPs cannot in fact be derived from either projection behavior or from truth conditions, it does not follow that the Context Change Theory fails to be predictive.

Here are the facts that everyone should agree on:

F1   a. Projection facts are not derivable from truth-conditional facts alone.
      b. Truth-conditional facts are not derivable from projection facts alone.

F2   a. Truth-conditional facts are derivable from CCPs.
      b. Projection facts are derivable from CCPs.

F3   a. CCPs are not derivable from truth-conditional facts.
      b. CCPs are not derivable from projection facts.

F1 states that projection facts and truth-conditional facts are not inter-derivable. An intuitive way of appreciating F1a is the following. Let $\Omega(A, B)$ be the result of applying the binary connective Ω to A and B. Suppose I tell you that the truth-conditional behavior of Ω is such that $\Omega(A, B)$ outputs the intersection of the A-worlds and the B-worlds. Will you be able to tell me how Ω projects presuppositions? No. Ω could project either in the manner of *and* or that of *and** for all you know.

F1b is justified by pairs like *and* and *if*. Heim's original entry for the conditional is given in C1d below.[13]

C1d $c[\textit{If } A, \textit{ then } B] = c - ((c[A]) - (c[A][B]))$

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[12]Schlenker (2008b, 5–6). See also Schlenker (2008a, 166–167).

[13]This CCP predicts that *if* in natural languages behaves truth-conditionally as the material implication. (The context returned is the original context minus the worlds in which the antecedent is true and the consequent is false.) As Heim (1983, 259, n. 1) says, "I don't believe that, but it doesn't matter here." See Heim (1990) for examples of deviant CCPs that have the same truth-conditional but different projection behaviors as C1d.

Now suppose I tell you that Ω is such that $\Omega(A, B)$ projects the presuppositions of its left and right constituents except those of the latter that are entailed by the assertive component of the former. That is, suppose I tell you that $\Omega(A_C, B_D)$ presupposes $C \wedge (A \to D)$. Will you be able to tell me what context set it outputs? No. Ω could be either *and* or *if* for all you know.

F2 states that one can derive both truth-conditional facts and projection facts from CCPs. This we have already seen earlier. A CCP tells us both how the connective in question constrains the context set and how the presuppositions of the complex sentences it forms depend systematically on those of their parts.

F3 is a consequence of F1. One cannot predict the CCP of a connective from knowing just how it constrains the context set, nor from knowing just how it projects presuppositions.

The problem Schlenker infers from F3a is that the theory fails to be predictive. On the natural way of understanding this claim, it is clearly false, as witnessed by F2. CCPs predict both truth-conditional behavior and projection behavior in the familiar way, i.e., one can derive these facts from CCPs.

A perhaps more charitable way of understanding Schlenker's claim that F3a renders the theory unpredictive is as complaining that CCPs are not predicted by anything else in the system. This is correct. But there is no problem here. As we said, the lexical entries of the system need to be empirically motivated, and it is clear that the CCPs of the Context Change Theory are.

To be slightly more specific, we can take theory-building to proceed roughly in the way suggested by the influential account in Bogen and Woodward (1988). For instance, we might test speakers' judgements about conjunctions like (3). We will get a distribution of judgements, which presumably will converge toward taking the sentence to presuppose that there is a king (and nothing else.) On the basis of this data, and more of the same kind, we posit the existence of a phenomenon: the familiar projection behavior of *and*, i.e., that "the presuppositions of a conjunction are the presuppositions required by either of the conjuncts, *minus any required by the second conjunct which are entailed by the first.*"[14] We believe this phenomenon exists because of the data we have gathered.

In close interplay with this process, we embark on the project of building a theory to explain and predict this phenomenon (and others.) Our proposal is the Context Change Theory. This theory includes lexical entries, some of which are CCPs. The reason for choosing a particular CCP is the goal of the project, i.e., to predict (and hopefully explain) projection facts. So we choose to define the CCP for *and* in the way of C1c, and not in any other way, e.g., that of *and**.

As further illustration, it is instructive to consider the case of disjunction because, as opposed to that of conjunction, there is genuine dispute over what the right CCP should be in this case. For instance, Beaver (2001) proposes the entry in C1e, whereas Geurts (1999) argues for C1f, both of which have merits.

C1e $\;c[A \text{ or } B] = c[A] \cup c[\text{not-}A][B]$

C1f $\;c[A \text{ or } B] = c[A] \cup c[B]$

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[14]Stalnaker (1974, 59).

Commenting on this opposition, Schlenker takes it to be one of the problems for the Context Change Theory that

> No general principles could be appealed to in order to settle this debate, which is a symptom of exactly the problem that motivated the Transparency theory.[15]

So the claim seems to be that in the absence of a general principle that can decide between the different options for disjunction and rule out deviant connectives like *and**, the Context Change Theory must be seen as unmotivated. But why think so? Just as the choice of *and* over *and** is empirically motivated, the question of the right CCP for disjunction should be settled empirically by studying the data. No doubt this will not be an easy matter. But few things are.

The Context Change Theory takes CCPs as primitive and uses them in combination with general principles to predict truth conditions and projection facts. Such a theory cannot be blamed for not deriving CCPs from anything else in the system.

5   The Charge of Explanatory Inadequacy

We have seen that the fact that CCPs cannot be derived from truth conditions does not justify the conclusion that the Context Change Theory is not predictive. The remaining charge that the theory is not explanatory is, I think, more substantial, and I therefore dedicate more space to it. I begin by considering the circularity worry expressed by Heim (1990).

5.1   A Worry about Circularity

The concern about circularity is found in the way Soames originally formulated the problem raised by deviant connectives such as his example of *and**:

> [I]t cannot be that the reason that conjunctions inherit presuppositions in the way that they do, rather than in accordance with [C1c*], is because the semantics of conjunction are given by [C1c]; and, moreover, that the reason that [C1c], rather than [C1c*], gives the semantics of conjunction is that conjunctions inherit presuppositions in the way that they do.[16]

Soames's objection, then, is that the Context Change Theory simultaneously endorses the following two incompatible claims:

S1 The fact that a connective or operator exhibits a particular projection behavior is explained by the fact that it has a particular CCP.

S2 The fact that a connective or operator has a particular CCP is explained by the fact that it exhibits a particular projection behavior.

S1 and S2 are clearly not tenable together. But what is wrong with this objection is that the Context Change Theory does not endorse S2. It only endorses S1.

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[15]Schlenker (2008c, 289).
[16]Soames (1989, 598).

First, recall that according to the Context Change Theory, the meanings of connectives are CCPs. As we saw, the predictions of the theory – in turn aspiring to the status of explanations – are derived from CCPs. So the Context Change Theory is clearly committed to S1. And, given that CCPs are meanings, S1 is clearly the more palatable of the two: the reason *and* projects the way it does is that it means what it does, not the other way around.

Second, as I suggested earlier, arriving at the right CCPs is an empirical project of the kind described by Bogen and Woodward (1988). There are two phenomena to be accounted for, truth-conditional behavior and projection behavior. But the fact that observations motivate hypothesizing C1c as the lexical entry for *and* does not mean that the theory must accept S2. The Context Change Theory is not committed to the claim that the fact that *and* has the lexical entry it has is explained by these observations. The direction of explanation is uniquely in the other direction. The fact that *and* has the truth-conditional behavior and the projection behavior it does is explained by the fact that it has the CCP in C1c. And the reason the theory postulates that CCP for *and*, and not one of the deviant ones, is motivated by the desire to explain the phenomena that have been inferred from the data.

Finally, we should avoid confusing this issue with another one, which concerns the question of what explains *why* conjunction has the CCP it does. The Context Change Theory does not offer an answer to this question. Is that a problem? No. To think that it is a problem is to conflate a widely familiar and thoroughly uncontroversial distinction between what Stalnaker has termed *descriptive* vs. *foundational* semantics. He writes:

> A descriptive-semantic theory is a theory that says what the semantics for the language is, without saying what it is about the practice of using that language that explains why that semantics is the right one. [...] Second, there are questions, which I will call questions of 'foundational semantics', about what the facts are that give expressions their semantic values, or more generally, about what makes it the case that the language spoken by a particular individual or community has a particular descriptive semantics.[17]

Clearly, the Context Change Theory is a descriptive theory in this sense. It sets itself the goal of stating what the semantic values of expressions and constructions are. But it makes no claim to explaining why expressions have those particular semantic values and not others. For example, the theory states the meaning (i.e., the CCP) of *and*, but it makes no claim to explaining why *and* has this meaning.

Since the Context Change Theory endorses S1 but does not endorse S2, there is no basis for the charge of explanatory circularity. Nor does the theory endorse a claim like S2 albeit with a different explanans. And it cannot be blamed for not doing so. To be sure, one can have the view that what we utlimately want is some conglomerate of theories encompassing answers to both the descriptive and the foundational questions. But one cannot refute a descriptive theory by complaining that it is not, or is not also, a foundational theory.[18]

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[17]Stalnaker (1997, 535). This distinction is roughly the same as the one between semantics and metasemantics found in Kaplan (1989).

[18]Another concern, of course, is whether the Context Change Theory is ultimately capable of being associated with a suitable foundational-semantic theory. One might think that the kind of Stalnakerian motivation for the CCP for *and* – we process conjunctive sentences from left to right – is not obviously

5.2 Gricean Architecture

Schlenker's challenge of predictive inadequacy rested on the assumption that CCPs should be derived from truth-conditional content. We noted that this assumption is unmotivated in the presence of the Context Change Theory. A slightly different, but related, perspective is found in the way Schlenker formulates what he takes to be the explanatory challenge raised by deviant connectives:

> **Explanatory Challenge (Schlenker)**
> Find an algorithm that predicts how any operator transmits presuppositions once its syntax and its classical semantics have been specified.[19]

It is an artifact of Schlenker's own conception of the issue that this challenge is specified as pertaining to the *classical* semantics of the connectives. So, more generally, the Gricean idea can be summarized as the claim that what we want is a theory with the following schematic structure:

> **Gricean Architecture**
> Semantics + $X \Rightarrow$ Projection facts

An example of an approach instantiating this schema is Stalnaker's (1974) recommendation of a Gricean, pragmatic account of presuppositions and of projection. Stalnaker held that

> The pragmatic account makes it possible to explain some particular facts about presuppositions in terms of general maxims of rational communication rather than in terms of complicated and *ad hoc* hypotheses about the semantics of particular words and particular kinds of constructions.[20]

Famously, Stalnaker gave an account of conjunction that provided the inspiration for Heim's dynamic account, and which turned on the following assumption:

> when a speaker says something of the form *A and B*, he may take it for granted that *A* (or at least that his audience recognizes that *he* accepts that *A*) after he has said it. The proposition that *A* will be added to the background of common assumptions before the speaker asserts that *B*.[21]

Let us call this *Incremental Assertion*. Then Stalnaker's account of presupposition projection in conjunctions has the following structure:[22]

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available for the other CCPs postulated by the theory. (Thanks to Michael Glanzberg and Matthew Stone for pressing this.) This I take to be a more serious concern. However, this problem is *not* a version of the Rooth-Soames objection, i.e., it is not a problem concerning the existence of deviant connectives like *and**. Although this may be a concern that will ultimately count against the Context Change Theory, it is not one that we are concerned with here.

[19]Schlenker (2008b, 8), (2008c, 287).

[20]Stalnaker (1974, 48).

[21]Stalnaker (1974, 60).

[22]Stalnaker (1974) never indicates whether he is taking the semantics to be classical, i.e., bivalent, or not. The account in Stalnaker (1978) turns on explicitly accepting a semantics in which presupposition failure results in semantic undefinedness, which is interpreted as being neither true nor false. Cf. Fox (2008, 246–247). Also note that Incremental Assertion is not the relevant principle that a Stalnakerian account will appeal to in order to explain other types of projection facts. See for example, Stalnaker's (1974) account of the projection behavior of factive verbs.

Semantics + Incremental Assertion ⇒ Projection facts

The claim is that, given Incremental Assertion, when a speaker utters *A and B*, and all goes well, *A* is already part of the common ground once *B* gets uttered, and this explains why any presuppositions of *B* that are entailed by *A* disappear, i.e., they do not project out and become separate requirements on the common ground.

5.3   The Transparency Theory

Generalizing from the above, a Gricean theory in this area is a theory with the architecture just illustrated, i.e., a theory that derives projection facts from semantic clauses plus some (independently motivated) pragmatic principles. Schlenker's Transparency Theory is explicitly a return to this theoretical strategy.

In terms of the general schema above, the Transparency Theory has the following structure:

Transparency Theory Architecture
Classical semantics + Incremental Transparency ⇒ Projection facts

Incremental Transparency is a pragmatic principle which in Schlenker's theory is derived from the conjunction of two Gricean maxims of manner, *Be Articulate* and *Be Brief*:[23]

Be Articulate
In any syntactic environment, express the meaning of an expression A_B as *B and A_B* (... unless independent pragmatic principles rule out the full conjunction.)

Be Brief
Avoid unnecessary prolixity.

For example, Be Articulate tells you that, if possible, you should say 'There is a king and the King has a son' (*B and A_B*) rather than 'The King has a son' (A_B). Be Brief tells you not to say more than you have to in order to get your point across in the given conversational context. If something is ruled out by Be Brief, we say that it is *transparent*. So 'There is a king' might be transparent because already accepted by the participants. Be Brief always trumps Be Articulate. And furthermore, the full version of Be Brief is stated in an incremental fashion taking into account the linear order of the syntactic string in which the presupposition trigger occurs.[24]

This allows one to derive the principle of Incremental Transparency.[25]

Incremental Transparency (Schlenker)
Given a context set c, a predicative or propositional occurrence of a_b is

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[23]Cf. Schlenker (2008a, 170–172). Be Brief is inherited directly from Grice (1975, 27). Be Articulate is taken as primitive but, as Schlenker (2008a, 171) says, "*Be Articulate* should ultimately be derived from Grice's 'Maxim of Manner', and specifically from the requirement that one be 'orderly'."

[24]Note that in order to handle particular types of examples, the theory alternatively appeals to a symmetric version of the Transparency principle. See Schlenker (2008a, Sec. 3).

[25]See Schlenker (2008a, 172–175).

acceptable in a sentence that begins with αa_b if the 'articulated' competitor $\alpha(b$ and $a)$ is ruled out because b is transparent,
if for any expression γ of the same type as b and for any good final β,
$c \vDash \alpha(b$ and $\gamma)\beta \Leftrightarrow \alpha\gamma\beta$.

In other words, 'The King has a son' is acceptable only if the context already entails that there is a king. And in general, as Schlenker (2008a, Sec. 2.4) shows, this theory derives all the results regarding presupposition projection of the Context Change Theory.

5.4 Explanation vs. Stipulation

Given this, we can bring out a version of the explanatory challenge that rests on architectural considerations. This version of the problem starts from a general assumption. The assumption is that if some phenomenon to be accounted for y can be derived from x via general principles, then a theory that does so is to be preferred to a theory that stipulates y. Fox (2008) gives voice to this point of view:

> It is, in principle, possible that facts about presupposition projection need to be stipulated [...], and if this turns out to be the case, it would be a rather sad state of affairs. We will, of course, want to claim that this is not the case the moment we are able to eliminate the stipulations in favor of a general statement.[26]

We can see this assumption as a general claim about the superiority of explanatory theories. Broadly speaking, given a Deductive-Nomological conception of explanation, deriving y from x via suitable general principles $P_1 \ldots P_n$ amounts to explaining y in terms of x and $P_1 \ldots P_n$. A theory that explains y in this way is to be preferred to a theory that stipulates y.

One might think that there is an asymmetry between the two architectures along these lines. For instance, it might be claimed that whereas the Context Change Theory merely stipulates projection facts, the Transparency Theory explains projection facts because it derives them. Yet we already have the resources to answer this potential objection. The Context Change Theory does *not* stipulate projection facts. Rather, it derives projection facts from CCPs plus the general definition of presuppositionality in terms of admittance. In fact, as we have seen, the Context Change Theory derives both truth-conditional facts and projection facts from CCPs via general principles.

The Context Change Theory, then, is not in bad standing in terms of this worry about stipulation. The theory explains presupposition projection and truth-conditional content in terms of the basic idea that the meaning of a sentence is an instruction for altering contextual information. By abandoning the classical claim that meaning is representational, and hence that utterances traffic in information about the world, in favor of the dynamic conception that meaning is procedural in the sense that utterances manipulate discourse information, it is able to explain the problematic phenomena by semantic means.[27]

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[26]Fox (2008, fn. 4).
[27]For relevant discussion of the dynamic vs. traditional conceptions of meaning, see Stokke (2012).

5.5 Gricean Foundations and some Problematic Predictions

It would be too quick, however, to conclude that the Context Change Architecture has an advantage over the Gricean Architecture because it explains both projection facts and truth-conditional facts in terms of more basic facts, whereas Gricean theories only explain projection facts in terms of basic facts. The reason is that the principle of Incremental Transparency is not a primitive within the Transparency Theory; it is in turn derived from the maxims Be Brief and Be Articulate, both of which are ultimately taken to be derivable from the supermaxim of manner:

> **Maxim of Manner**
> Be perspicuous.[28]

In this way, the theory aspires to the Gricean aim to, in Stalnaker's words quoted above, "explain some particular facts about presuppositions in terms of general maxims of rational communication [...]."[29] Doing so may be seen as an instance of abiding by the general methodological principle that Grice (1978) called *Modified Occam's Razor*:

> **Modified Occam's Razor**
> Senses are not to be multiplied beyond necessity.

As we noted at the outset, then, the dialectic between the Context Change Architecture and the Gricean Architecture is an instance of the general kind of situation that Grice identified. We have a simple semantic theory T (classical semantics) of a particular class of expressions E (connectives and operators.) Then certain facts U (presupposition projection) involving E are observed, which seem to present counterexamples to T. As a consequence, a more complex alternative T' (dynamic semantics) to T is proposed. However, the proponent of T may salvage her original theory, if she can demonstrate that U is in fact explained by T together with other principles P, which her objector already accepts, or should accept, and which are independently motivated.

The independent principles that the Gricean appeals to are the maxims (as well as Grice's general Cooperative Principle.) Ultimately, these principles are taken to be, in a rough sense, constitutive of rational cooperative behavior, although there is no worked out theory of whether, and how, these principles can be grounded in facts about rationality. As Grice says,

> I would like to be able to show that observance of the Cooperative Principle and maxims is reasonable (rational) along the following lines: that anyone who cares about the goals that are central to conversation/communication (such as giving and receiving information, influencing and being influenced by others) must be expected to have an interest, given suitable circumstances, in participation in talk exchanges that will be profitable only on the assumption that they are conducted in general accordance with the Cooperative Principle and the maxims. Whether any such conclusion can be reached, I am uncertain [...].[30]

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[28]Cf. Grice (1975, 27).

[29]Stalnaker (1974, 48).

[30]Grice (1975, 29–30).

Ultimately, then, a Gricean theory of presupposition projection is a theory that proposes to explain projection facts in terms of classical semantics plus general principles governing rational, cooperative behavior.

If this turns out to be feasible, it will certainly be a stupendous theoretical achievement. Indeed, if it a theory turns out to be available, which both makes the right predictions and which can be situated within a successful Gricean program, then such a theory will have a high claim to being preferable to a semantic theory of presupposition projection.

The debate over the general Gricean program has been extensive, and it is not under evaluation in this chapter.[31] I will refrain, therefore, from any conclusions concerning the merits of the Transparency Theory based on the ultimate feasibility of the project of explaining projection facts in terms of independent principles governing rational behavior.

We can note, though, that independently of these broader motivations, the theory will be preferable only if it makes the right predictions, i.e., derives the right results. As has been pointed out by Beaver (2008), the Transparency Theory, as it stands, generates some incorrect predictions. As Beaver shows, the theory predicts that all of the examples in (5) presuppose nothing.

(5)   a. If Barack is pleased that he won and Hillary is upset that Barack won, that should not surprise anyone.
b. Maybe it's a Californian who's paying for a space flight and the person paying for a space flight is a tech millionaire.
c. It's not the case that the King of France is bald and the King of France is rich.

And yet, intuitively, (5a) presupposes that Barack won, (5b) that someone is paying for a space flight, and (5c) that there is a King of France.

It is too early to tell, then, whether a Gricean theory of presupposition projection is both feasible and preferable to the dynamic alternative. So while what I have said does not justify conclusions about the explanatory superiority of either type of theoretical architecture, it may be concluded that there is nothing inherently wrong with the Context Change Architecture in terms of explanatory power.

6   Conclusion

I have argued that no valid complaint can be inferred from the possibility of defining deviant connectives within the framework of the Context Change Theory. A Gricean theory of presupposition projection, therefore, cannot be seen as motivated by a flaw in the Heimian paradigm. Instead, such a theory must be seen as an independently motivated, alternative account, which should be evaluated alongside the Context Change Theory against the host of parameters that in general serve as the basis of theory-choice in this area.

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[31]For a small sample, see Sperber and Wilson (1986), Davis (1998), Levinson (2000), Carston (2004), Allott (2007).

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