

PRAGMATICS AND SEMANTICS OF
MIXED SENTENTIAL MOOD SENTENCES

By

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For Michele and my parents, Lionel and Theresa Boisvert.

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Abstract of Thesis Presented to the Graduate School
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Much progress has been made this century in understanding the semantics of assertorics (for example, 'The sky is blue'). Imperatives ('Shut the door') and interrogatives ('What time is it?') have received relatively little attention in comparison and have presented special difficulties for truth-theoretic semantics, which has seemed most promising for understanding the compositional semantics of assertorics. This thesis builds on a new approach to interrogatives and imperatives by Kirk Ludwig which shows how to integrate interrogatives and imperatives into a generalization of a truth-theoretic semantic approach to assertorics. This approach provides virtually the only fully satisfactory account of certain mixed-mood sentences, such as 'If you go to the store, buy a loaf of bread'. However, a difficulty for, or at least a significant gap in, Ludwig's theory is that it does not provide an explanation for why certain complex sentences involving interrogatives and imperatives seem to be ungrammatical or at least exceedingly

unnatural. Examples are, 'Go to bed and what time is it?', 'If buy a loaf of bread, you will go to the store', 'It is not the case that is it time to go?'. This thesis undertakes to show why these sentences, which on Ludwig's theory can be assigned coherent semantics, should be expected to be unnatural and sound ungrammatical in the light of the semantics that Ludwig provides and certain pragmatic considerations. It thereby both extends Ludwig's theory to handle these cases and defends it against a potential objection based on them.

INTRODUCTION

This thesis takes as its point of departure a possible objection to Ludwig's novel approach for incorporating nonassertoric sentences—sentences that are not normally taken to have a truth value, such as 'What time is it', 'Go to your room', etc.—into a generalization of truth-theoretic semantics in the Davidsonian tradition. The objection, roughly, is as follows: Ludwig's approach, if right, entails that sentences like (1)-(5),

- (1) Jim is pitching and how have you been?
- (2) Is the trash empty and take it out now.
- (3) If apologize then what did you say?
- (4) If what time is it then I'm late for class.
- (5) It is not the case that go to your room.

are meaningful; but such sentences are not meaningful; hence, Ludwig's semantic theory is mistaken. To say the least, (1)-(5), and similar sentences, are extremely "unnatural," "odd," "inappropriate," or what have you. But the force of the objection rests on an unargued for assumption, namely, that the unnaturalness of (1)-(5) results from their being semantically ill-formed, which is contrary to the prediction of Ludwig's semantics for nonassertorics.¹ Hence, to the extent that pragmatic considerations can be shown to

¹ When I say that the (un)naturalness of mixed sentential mood sentences is a result of semantic factors, I mean factors that *solely* involve the meaning of the sentences, which are derived from the meanings of the words that compose the sentence and the rules in the language for combining those words. I say "solely" because I will use Ludwig's semantic theory *together* with pragmatic factors to explain the (un)naturalness of some of the combinations. When I say that the (un)naturalness of mixed sentential mood sentences is a result of pragmatic factors, I mean extra-semantic factors. Thus, I take pragmatic factors to be quite broad in scope. Such factors could include conversational dynamics, general principles of conversational helpfulness, facts about the conversational context, the affect of shared background knowledge by the participants in a talk exchange on the perceived appropriateness of a contribution to the talk exchange, etc.

be the source of the unnaturalness, sentences like (1)-(5) do not constitute an objection to Ludwig's approach, even granting the argument form articulated above is valid. The purpose of this thesis is to make significant progress to this end by showing that the unnaturalness of mixed sentential mood sentences² containing the "traditional truth-functional"³ connectives, as in (1)-(5), is a result of pragmatic, not semantic, considerations. To the extent that the thesis is successful, Ludwig's approach will have been defended from this objection, and sentences like (1)-(5) can lay claim to the title "meaningful."⁴ In addition, this work will extend the account of how such constructions work in natural languages by showing how an underlying semantic theory can help explain in fact why such forms are not used.

² I use 'mixed sentential mood sentence' and 'mixed-mood sentence' interchangeably and quite broadly to include sentential combinations of the same mood and of different moods, and negations of a single mood.

³ I put 'truth-functional' in scare quotes because these connectives can legitimately combine sentences which are not truth evaluable. The familiarity with the label makes it useful though, in picking out the class of sentential connectives of interest.

⁴ Throughout this thesis, I use the term 'meaningful' in the sense that a sentence ϕ is meaningful if and only if ϕ can be given a coherent semantics. Thus, my defense of Ludwig's approach has the following form: since Ludwig's approach provides a coherent semantics for (1)-(5), and because the unnaturalness of (1)-(5) can be explained—even predicted—by that semantic account together with pragmatic factors, (1)-(5) are meaningful. There is another sense of 'meaningful' which is such that a sentence ϕ is meaningful if and only if ϕ *actually has* a coherent semantics. That is, if a language does not assign a meaning to ϕ , then ϕ is not meaningful in that language. If this is the sense in which one wishes to use the term 'meaningful', then the form of my defense of Ludwig's approach would vary slightly as follows: Ludwig's approach shows that a meaning could be assigned to (1)-(5); since (according to the objection) (1)-(5) are not meaningful, there must be some, at least in part, pragmatic reasons why they are not; thus, Ludwig's approach together with pragmatic factors can help explain—even predict—why (1)-(5) are not meaningful.

The next chapter is a summary of Ludwig's approach to incorporating nonassertoric sentences into a truth-theoretic semantics for English. He aptly calls this approach the "Generalized Fulfillment Approach," since the account shows how to generalize the structure of a truth theory to a theory that assigns fulfillment conditions modelled on illocutionary acts, instead of truth conditions. The first section of the chapter is a discussion of the relation between sentential mood and semantic force. The second section is a summary of the Generalized Fulfillment Approach. It begins by generalizing theorems for a Tarski-style truth theory to the theorems needed for Ludwig's fulfillment theory and develops into a full-fledged summary of the Generalized Fulfillment Approach. The final section of the chapter shows how to use the Generalized Fulfillment Approach to provide a semantic account of molecular sentences—including those of mixed moods—and raises the objection that motivates this thesis.

The third chapter provides a (very) basic introduction to pragmatics, and to conversational implicature in particular, by reviewing the first two chapters of Grice's important work, *Studies in the Way of Words*. The first section of the chapter summarizes what I take to be the origin of Grice's twofold project in that work and provides a statement of it. The second section presents the results of the first part of that project. The final section presents the results of the second part of that project. The chapter is not intended to provide sufficient background for all the pragmatic principles that will be employed in the following chapter. It is intended, rather, simply to give the reader the sense of what a pragmatic explanation of data is like and the reasoning processes involved in providing one.

The fourth chapter partially defends Ludwig's theory by showing that the (un)naturalness of certain mixed sentential mood sentences can be explained—even predicted—by Ludwig's semantics *together* with pragmatic factors, and not by semantic factors alone. I say "partially" defends Ludwig's theory because I discuss only those combinations of mixed moods that include four logical operators—conjunctions, disjunctions, conditionals and negations—and leave for another day discussion of other combinations common in natural language, e.g, 'so', 'because', 'unless' etc. Restricting discussion in this way still leaves thirty combinations to be explained. The chapter is divided into five sections. The first section is an introduction to the chapter and provides some general prefatory remarks. The second section begins in earnest the search for the sought-after pragmatic explanations by examining conjunctions of mixed moods, which will be shown to conform to, besides other conversational principles already mentioned, the Correlation, Inheritance, Shift, Pause, Sharpening and Aggression Principles, to be formulated therein. The third section examines disjunctions of mixed sentential mood sentences and uses the aforementioned pragmatic principles and another, what I will call the "Alternative Principle," to account for unnatural disjunctions of mixed sentential moods. The fourth and fifth sections make significant use of the fact that there is a point to rational discourse. This fact, along with the other pragmatic principles, including the Conversational Valence Principle to be formulated in the fourth section, together with Ludwig's semantic theory, are shown to account for the unnaturalness of conditionals and disjunctions.

In the last chapter, I offer some concluding remarks.

LUDWIG'S GENERALIZED FULFILLMENT APPROACH TO NONASSERTORIC SENTENCES

Ludwig's Project

A truth-theoretic semantic theory is a theory of meaning which has as its core a theory of truth. Showing that a theory of truth can serve as the core of a theory of meaning for a natural language has proven to be difficult, in no small part because natural languages contain nonassertoric sentences, such as imperatives and interrogatives, utterances of which do not admit of truth or falsity. Hence, if a theory says that the meaning of ϕ depends on the truth conditions of ϕ , then the meaning of a large part of a natural language would seem to remain unaccounted for—an obvious blemish for any theory of meaning. In "The Truth About Moods," Ludwig presents an approach for incorporating nonassertoric sentences into a truth-theoretic semantic theory. He calls this approach the "Generalized Fulfillment Approach." The attraction of Ludwig's approach is that, while it introduces and relies on the compliance conditions of nonassertorics, it explicates them in terms of truth conditions; hence, Ludwig's approach allows a theory of meaning to retain a theory of truth as its core and, at the same time, avoids the pitfalls of other approaches.¹ One of the ironies of the Generalized Fulfillment Approach is that one possible objection to it is that it works too well!

¹ See Ludwig 1997, sections 4-6, in which Ludwig discusses four other approaches for incorporating nonassertorics into a truth-theoretic semantic theory and the difficulties with each.

The Generalized Fulfillment Approach relies on modelling the fulfillment conditions of nonassertorics on those of a certain kind of illocutionary act, namely, directives; therefore, the first section of the chapter is a discussion of the relation between sentential mood and semantic force. The second section is a summary of the Generalized Fulfillment Approach. It begins by generalizing theorems for a Tarski-style truth theory to the theorems needed for Ludwig's fulfillment theory and develops into a full-fledged summary of the Generalized Fulfillment Approach. The final section shows how to use the Generalized Fulfillment Approach to provide a semantic account of molecular sentences—including those of mixed moods—and raises the objection that motivates this thesis. Throughout, I assume a basic familiarity with truth-theoretic semantics.

Relation Between Mood and Force

Mood

There are three sentential moods: assertorics, exemplified in (1)-(3), interrogatives, exemplified in (4)-(6) and imperatives, exemplified in (7)-(9).

- (1) Kathy is hungry.
- (2) Tom has a 102-degree temperature.
- (3) You failed to return my call last night.

- (4) Is Kathy hungry?
- (5) Have you taken Tom's temperature?
- (6) Why didn't you return my call last night?

- (7) Eat.
- (8) Take Tom's temperature.
- (9) Call me back tonight.

The three moods are distinguishable syntactically and semantically. They are distinguished syntactically by a variety of devices. For example, an interrogative can be marked by inverting the subject and verb and adding a question mark or by replacing a referring term in a sentence with a grammatically appropriate replacement of 'what', 'whose', 'when' etc. ('What did you eat?', 'Whose cupcakes did you eat?', 'When did you eat?', etc.) An imperative can normally be marked by dropping a subject term and modal auxiliary, such as when a speaker transforms 'You will take Tom's temperature' into (7). The three moods are distinguishable semantically by their different bivalent evaluations: assertorics are true or false, interrogatives are answered or not and imperatives are obeyed or not. Following Ludwig, I use the general notion of fulfillment to capture the idea that all three moods admit of bivalent evaluation on occasions of their literal use.

Notice that the bivalent evaluations for assertorics have a different "direction of fit" than those for interrogatives and imperatives.² Assertorics have word to world fit; that is, their aim is to match the world, i.e., accurately represent it, and, hence, are true or false. Interrogatives and imperatives have world to word fit; their use aims to make the world match their words in an appropriate way, and, thus, are complied with or not. Thus, there are two kinds of fulfillment conditions, truth conditions and compliance conditions. Compliance conditions can be divided further into (following Ludwig) response conditions for interrogatives and obedience conditions for imperatives.

² The notion of direction of fit was introduced by Anscombe. See Anscombe 1957.

Force

Speech is a purposive activity. Thus, if a rational, conversationally cooperative speaker utters ϕ , there is a point to his doing so. Moreover, speech is a "rule-governed form of behavior," as Searle aptly remarks (1969, 22). Hence, speaking is performing an act according to certain rules in order to achieve a certain objective. Following Searle (1969, 1979a) and Austin before him (1962), I call the point or purpose of an utterance the "illocutionary point," which is distinct from "locutionary point," i.e., what is said by an utterance, and "perlocutionary effect," i.e., what occurs as a result of an utterance. For our purposes, what we will call the "force" of an utterance corresponds to the illocutionary point of that utterance.

Ludwig makes central use of Searle's taxonomy of speech acts. Hence, it will be helpful to briefly review Searle's taxonomy. Searle's taxonomy gives central place to illocutionary point. He argues in particular that if we take illocutionary point to be our main criterion of classification, there are only five basic sorts of use of language:

There are not, as Wittgenstein (on one possible interpretation) and many others have claimed, an infinite or indefinite number of language games or uses of language. Rather, the illusion of limitless uses of language is engendered by an enormous unclarity about what constitutes the criteria for delimiting one language game or use of language from another. If we adopt illocutionary point as the basic notion on which to classify uses of language, then there are a rather limited number of basic things we do with language: we tell people how things are, we try to get them to do things, we commit ourselves to doing things, we express our feelings and attitudes and we bring about changes through our utterances. (1979c, 29)

Speech acts whose illocutionary point is to represent something as being the case ("tell people how things are"), Searle calls "assertives." Those the point of which is to commit the speaker to an action ("commit ourselves to doing things") he calls "commissives."

Those the point of which is to get a hearer to make it the case that p ("try to get them to do things") he calls "directives." And those whose point is to express emotion ("express our feelings") he calls "expressives." Finally, speech acts whose point is to make it the case that p ("bring about changes"), he calls "declaratives." Assertives, commissives, directives, expressives and declaratives constitute Searle's "taxonomy of illocutionary acts."

The different illocutionary acts have different fulfillment conditions ('satisfaction conditions' in Searle's terminology). An assertive is true just in case it represents what is the case. A commissive (such as a promise) is kept just in case the speaker does what he committed himself to doing with the intention of keeping his commitment. A directive is obeyed just in case the person to whom it is addressed does what is directed with intention obeying it. A declarative is successful just in case what the speaker declares is made so by his declaring it to be so. As Ludwig notes, expressives are a degenerate case and do not have fulfillment conditions (1997, 26).

Relation

It's clear that there is a close connection between mood and force, though discerning the connection is somewhat tricky. The connection is *not* identity. First, mood is a syntactic property of a sentence, force is a property of an utterance act. Second, while it is clear that assertives, interrogatives and imperatives are particularly apt for making assertions and issuing directives by asking questions and giving commands, there are no sentential moods that are particularly apt for performing commissives, declaratives or expressives. Third, a sentence in any sentential mood can be used to perform a speech act with a force of any kind. For example, 'My coffee cup is empty' is an assertive that

may be used to perform a directive intended to get the hearer to fill the cup. The connection is also not that the mood conventionally indicates which illocutionary act type is being performed, for, as Ludwig writes,

embedded sentences are not used conventionally to indicate the performance of a speech act of the sort which might be associated with the sentence's sentential mood. We do not assert the sentence which appears in the antecedent or consequent of an indicative conditional. Similarly in the case of molecular sentences which involve mixed-moods, such as, 'If there's anything I can get you, please let me know', the antecedent is not asserted, and no command is issued with the consequent." (1997, 27)

Ludwig suggests—and I think he is right—that the connection between mood and force lies in the similarity of certain fulfillment conditions:

The connection between mood and force seems rather to be that sentences of different moods admit of different bivalent evaluations, just as speech acts admit of different bivalent evaluations. Thus, atomic sentences in certain moods are apt for use to perform speech acts in some of our basic categories in virtue of their bivalent evaluation being of the same sort as that for speech acts. . . . [T]he difference between the moods is a difference in their fulfillment conditions of the sort we find between certain categories of speech acts. It is this that explains the natural fit between the different sentential moods and different kinds of speech acts which can be performed using sentences. (1997, 27)

Notice that there are only two illocutionary acts, assertives and directives, that share fulfillment conditions with the different sentential moods: assertives have the same truth conditions as assertorics, directives have the same compliance conditions as interrogatives and imperatives. There are no sentential moods that have fulfillment conditions corresponding to those of commissives, expressives or declaratives.

Thus, the relation between mood and force is that sentential moods, "by virtue of having a certain sort of fulfillment condition, . . . are apt for the performance of speech acts with a similar sort of fulfillment condition" (1997, 27). Ludwig's approach to incorporating nonassertorics into a truth theory makes use of this relation, specifically by

modelling the fulfillment conditions for imperatives and interrogatives on those for directives.

Ludwig's Generalized Fulfillment Approach

Extension of Elements of a Tarskian Truth Theory

Central to a Tarski-style truth theory³ are theorems of the form (T),

(T) ϕ is true in L if and only if p,

where what replaces 'p' translates ϕ . Extending such a truth theory to English requires relativizing ϕ to a particular speaker and time in order to account for context sensitive elements that are a part of English. Hence, central to a Tarskian-style truth theory for English are theorems similar to the form (T'),⁴

(T') For all speakers, s, and times, t, ϕ , taken as if actually uttered by s at t, is true in English if and only if p.

Let (T'') abbreviate (T').

(T'') ϕ is true_[s, t] in English if and only if p.

Remember that truth is but one kind of fulfillment condition, the other being compliance. Hence, what is wanted for a general fulfillment approach is for a theory to issue in theorems of the form (F).

(F) ϕ is fulfilled_[s, t] in English if and only if p.

³ See Tarski 1933 and 1944.

⁴ cf, Davidson 1967 and Evans 1985.

Specifying what it is for φ to be fulfilled relative to a speaker and time can be accomplished recursively by specifying the different fulfillment conditions for the different sentential moods. Thus, (9):

- (9) φ is fulfilled_[s, t] iff
 if φ is assertoric, φ is true_[s, t] in English
 if φ is imperative, φ is obeyed_[s, t] in English
 if φ is interrogative, φ is answered_[s, t] in English.

Extension of the Compliance Predicates

For the purposes of developing the Generalized Fulfillment Approach, Ludwig assumes we have in hand an adequate truth theory for English that issues in interpretive sentences of the form (T"). The task relative to this assumption is to show how to finitely specify the extensions of 'is obeyed_[s, t] in English' and 'is answered_[s, t] in English'.⁵

However, in order to avoid the drawbacks of previous approaches, he must provide extensions that (a) do not reduplicate work already done by the truth theory, and (b) ensure that the truth theory is the central component of the resulting meaning theory. He does so by "exhibit(ing) obedience conditions and response conditions as recursively specifiable in terms of truth conditions" (1997, 41). How does he do this? By modelling their fulfillment conditions on those of directives. In what follows, I use some general logical notation as well as Ludwig's notation, explained thus.

'Core (φ)' = the assertoric core of φ . The assertoric core of φ may be an open or closed sentence depending on what φ is. For

⁵ The extensions to be introduced would now be slightly modified by Ludwig (see Lepore and Ludwig 1998). For simplicity, I do not incorporate all the modifications here, since (i) the modifications are more technical, and (ii) they make no difference to the import of the extensions.

example, $\text{Core}(\text{'Go to bed'}) = \text{'you will go to bed'}$, $\text{Core}(\text{'Is that your jacket?'}) = \text{'That is your jacket'}$, $\text{Core}(\text{'What time is it?'}) = \text{'The time is } x\text{'}$.

'Neg(Core(φ))' = the negation of Core(φ)

'A(a, s, t)' = 'a is addressed by s at t'

'D(s, t, φ)' = 'the directive issued by s at t in which φ was used'.

'Q(s, t, φ)' = 'the question asked by s at t in which φ was used'.

Ludwig's account of obedience conditions can now be stated as follows:

(OC) ($\forall \varphi$) (if φ is imperative, then φ is obeyed_[s, t] in English iff [the x : A(x, s, t)](x makes it the case that Core(φ) is true_[s, t] in English with the intention of obeying D(s, t, φ)).

When applying (OC) to an imperative sentence, one instantiates to the speaker, sentence and time and then employs the recursive truth theory to unpack 'Core(φ) is true_[s, t] in English'. Hence, Ludwig's obedience conditions are recursively specifiable in terms of truth conditions, thereby ensuring that the truth theory is the central component of the resulting meaning theory for imperatives. As an example, applying (OC) to (7) leads to (10).

(10) 'Eat' is obeyed_[s, t] in English iff the person addressed by s at t makes it the case that 'you will eat' is true_[s, t] in English with the intention of obeying the directive issued by s at t in which 'Eat' was used.

(10) would be unpacked as (10').

(10') 'Eat' is obeyed_[s, t] in English iff the person addressed by s at t makes it the case that she eats at some time $t' > t$ with the intention of obeying the directive issued by s at t in which 'Eat' was used.

Ludwig's account of response conditions is more complicated because of the different types of responses called for by the different interrogatives. Ludwig

distinguishes five types of interrogatives on the basis of their respective response types: (1) yes/no questions ('Is Mary sick?'), (2) why-questions ('Why is Mary sick?'), (3) how questions ('How did Mary get sick?'), (4) wh- questions, "which can be treated as beginning with 'where', 'when', 'which', 'who', 'whose', 'whom', 'what'" (1997, 42) ('When did Mary get sick?', 'Where did Mary get sick?'), and (5) how-x questions ('How many times this month has Mary been sick?', 'How many medications is Mary taking?'). Hence, the general form of response conditions is (RC):

(RC) ($\forall\phi$) (if ϕ is interrogative, then ϕ is answered_[s, t] in English iff
 if ϕ is a yes/no question, then . . .
 if ϕ is a why-question, then . . .
 if ϕ is a how-question, then . . .
 if ϕ is a wh-question, then . . .
 if ϕ is a how-x question, then . . .).

Ludwig then shows how to fill in the response conditions for each of the above types, keeping in mind that (a) a question is answered provided that the person to whom it is addressed tells the speaker something that constitutes an answer to it, (b) what must be said that constitutes an answer will differ according to each question-type, and (c) the response conditions must be recursively specifiable in terms of truth conditions, thereby ensuring that the truth theory is the central component of the resulting meaning theory for interrogatives.

(YN) represents the response conditions for yes/no questions.

(YN) ($\forall\phi$) (if ϕ is a yes-no question, then ϕ is answered_[s, t] in English iff [the x : $A(x, s, t)$](x makes it the case that 'you will say that Core (ϕ)' is true_[s, t] in English or that 'you will say that Neg(Core (ϕ))' is true_[s, t] in English with the intention of answering $Q(s, t, \phi)$).

Assuming a suitable truth theory and using 'Is Mary sick' as our example leads to (11).

- (11) 'Is Mary sick' is answered_[s, t] in English iff the person addressed by s at t makes it the case that the person addressed by s at t says at some time $t' > t$ that Mary is sick or that Mary is not sick, with the intention of answering the question asked by s at t in which 'Is Mary sick' was used.

The response conditions for why- questions are represented in (WY).

- (WY) $(\forall \varphi)$ (if φ is a why-question, then φ is answered_[s, t] in English iff [the x: A(x, s, t)](x makes it the case that 'you will explain why Core (φ)' is true_[s, t] in English with the intention of answering Q(s, t, φ)).

Again assuming a suitable truth theory and using 'Why is Mary sick' as our example, leads to (12).

- (12) 'Why is Mary sick' is answered_[s, t] in English iff the person addressed by s at t makes it the case that the person addressed by s at t explains at some $t' > t$ why Mary is sick with the intention of answering the question asked by s at t in which 'Why is Mary sick' was used.

The response conditions for how-questions are represented by (H), which is followed by (13), which is the result of applying (H) to 'How did Mary get sick' and a suitable truth theory.

- (H) $(\forall \varphi)$ (if φ is a how-question, then φ is answered_[s, t] in English iff [the x: A(x, s, t)]: (x makes it the case that 'you will explain how Core (φ)' is true_[s, t] in English with the intention of answering Q(s, t, φ)).

- (13) 'How did Mary get sick' is answered_[s, t] in English iff the person addressed by s at t makes it the case that the person addressed by s at t explains at some $t' > t$ how Mary got sick at some $t'' < t$ with the intention of answering the question asked by s at t in which 'How did Mary get sick?' was used.

In representing the response conditions for wh-questions, (WH), Ludwig introduces the notion of a completion of the core of an interrogative: "I will say that ψ is a completion of Core (φ), where φ is a wh-question, iff ψ is the result of replacing the free

variables in Core (ϕ) introduced by that operation with singular referring terms. For example, 'the time is 3 o'clock' is a completion of Core ('What time is it?')" (1997, 44).

(14) is the result of applying (WH) to 'What time is it' and assuming a suitable truth theory.

(WH) $(\forall\phi)$ (if ϕ is a wh-question, then ϕ is answered_[s, t] in English iff [the x : $A(x, s, t)$](x makes it the case that $(\exists\psi)$ (ψ is a completion of Core (ϕ) and 'you will say that ψ ' is true_[s, t] in English) with the intention of answering $Q(s, t, \phi)$).

(14) 'What time is it' is answered_[s, t] in English iff the person addressed by s at t makes it the case that there is a completion ψ of 'the time is x ' such that 'you will say that ψ ' is true_[s, t] in English with the intention of answering the question asked by s at t in which 'What time is it' was used.

Ludwig's representation of how- x questions, (HX), is similar to (WH). (15) is the result of applying (HX) to 'How many medications is Mary taking', assuming a suitable truth theory.

(HX) $(\forall\phi)$ (if ϕ is a how- x question, then ϕ is answered_[s, t] in English iff [the x : $A(x, s, t)$](x makes it the case that $(\exists\psi)$ (ψ is a completion of Core (ϕ) and 'you will say that ψ ' is true_[s, t] in English) with the intention of answering $Q(s, t, \phi)$).

(15) 'How many medications is Mary taking' is answered_[s, t] in English iff the person addressed by s at t makes it the case that there is a completion ψ of ' x times' such that 'you will say that ψ ' is true_[s, t] in English with the intention of answering the question asked by s at t in which 'How many medications is Mary taking' was used.

From a Meaning Theory to a Fulfillment Theory

Ludwig completes his positive project by providing the form of a semantic theory that (a) is based on fulfillment conditions, and (b) parallels a meaning theory that is based

on truth conditions. Letting 'commands that' and 'requests that' parallel 'means that', the theory is as follows.⁶

- (i) T is an interpretive fulfillment theory for L;
- (ii) The axioms of T are (A1) . . . , (A2). . . , . . . ;
- (iii) Axiom (A1) of T means that . . . , axiom (A2) of T means that . . . ;
- (iv) The following proof procedure is a canonical proof procedure for T for L: . . . ;
- (v) For all sentences ϕ of L, all instances of the following schema in the place of 'p' are true:

if $\hat{U}\phi$ is fulfilled_[s, t] in L iff p^i is canonically provable from an interpretive fulfillment theory for L,
 then if ϕ is assertoric, then
 ϕ means_[s, t] in L that p,
 if ϕ is imperative, then
 ϕ commands_[s, t] in L that p,
 if ϕ is interrogative, then
 ϕ requests in_[s, t] L that p.

Molecular Sentences and an Objection to Ludwig's Theory

The Generalized Fulfillment Approach provides a terrific way of handling the semantics of mixed-mood molecular sentences—so terrific, in fact, that one might object to the approach on that basis!

Ludwig's approach provides recursive machinery capable of handling mixed sentential mood sentences, such as (15) and (16).

(15) If Mary is sick then leave.

⁶ The following is actually a slightly modified version of that presented in Ludwig 1997. In that version, 'commands that' is used as the appropriate parallel for 'means that' for conditional imperatives ('If you go to the store then buy some milk') and 'requests that' is used as the appropriate parallel for 'means that' for conditional interrogatives ('If you go to the store then when will you be back?').

(16) Apologize or you will go home.

For example, the approach can be applied to (15) in the following straightforward way.

- (15a) 'If Mary is sick then bring her medication' is fulfilled_[s, t] in English iff if 'Mary is sick' is fulfilled_[s, t] in English then 'leave' is fulfilled_[s, t] in English. (axiom⁷)
- (15b) 'Mary is sick' is fulfilled_[s, t] in English iff 'Mary is sick' is true_[s, t] in English ((9))
- (15c) 'Mary is sick' is true_[s, t] in English iff Mary is sick. (a suitable truth theory)
- (15d) 'Mary is sick' is fulfilled_[s, t] in English iff Mary is sick. ((15b) and (15c))
- (15e) 'leave' is fulfilled_[s, t] in English iff 'leave' is obeyed_[s, t] in English ((9))
- (15f) 'leave' is obeyed_[s, t] in English iff the person addressed by s at t leaves at some time t' > t with the intention of obeying the directive issued by s at t in which 'Leave' was used. (OC)
- (15g) 'leave' is fulfilled_[s, t] in English iff the person addressed by s at t leaves at some time t' > t with the intention of obeying the directive issued by s at t in which 'Leave' was used. ((15e) and (15f))

Therefore,

- (15') 'If Mary is sick then leave' is fulfilled_[s, t] in English iff if Mary is sick then the person addressed by s at t leaves at some time t' > t with the intention of obeying the directive issued by s at t in which 'leave' was used. ((15a),(15d) and (15g))

Ludwig's approach can also be applied to (16), a different kind of mixed-mood sentence.

⁷ (15a) (and (16a) to follow) would come from an axiom of the fulfillment theory analogous to that for the conditionals in the truth theory, namely,

$$\text{Axiom: } (\forall \phi)(\forall \psi) (\overset{U}{\text{if } \phi \text{ then } \psi} \text{ is fulfilled}_{[s, t]} \text{ in L iff if } \phi \text{ is fulfilled}_{[s, t]} \text{ in L then } \psi \text{ is fulfilled}_{[s, t]} \text{ in L}).$$

Similarly for other connectives that can grammatically take mixed-mood sentences.

- (16a) 'Apologize or you will go home' is fulfilled_[s, t] in English iff 'Apologize' is fulfilled_[s, t] in English or 'You will go home' is fulfilled_[s, t] in English. (axiom)
- (16b) 'Apologize' is fulfilled_[s, t] in English iff 'Apologize' is obeyed_[s, t] in English. ((9))
- (16c) 'Apologize' is obeyed_[s, t] in English iff the person addressed by s at t apologizes at some t' > t with the intention of obeying the directive issued by s at t in which 'Apologize' is used. ((OC))
- (16d) 'Apologize' is fulfilled_[s, t] in English iff the person addressed by s at t apologizes at some t' > t with the intention of obeying the directive issued by s at t in which 'Apologize' was used. ((16b) and (16c))
- (16e) 'You will go home' is fulfilled_[s, t] in English iff 'You will go home' is true_[s, t] in English. ((9))
- (16f) 'You will go home' is true_[s, t] in English iff the person addressed by s at t goes home at some t' > t. (Suitable truth theory)

Therefore,

- (16g) 'Apologize or you will go home' is fulfilled_[s, t] in English iff the person addressed by s at t apologizes at some t' > t with the intention of obeying the directive issued by s at t in which 'Apologize' was used or the person addressed by s at t goes home at some t' > t.

From these two examples, we can see that Ludwig's approach enables us to provide recursive fulfillment conditions for combinations of sentences in any moods in using the traditional truth-functional connectives, 'and', 'or', 'not', 'if ... then ___', 'iff', and indeed, recursive fulfillment conditions in principle for any truth-functional connective.

(Henceforth, for brevity, I will use 'combination' to mean 'combination using truth-functional connectives'.) Hence, on Ludwig's approach, any combination of sentences using these connectives is meaningful. But there are a number of mixed sentential mood sentences of this sort that are extremely unnatural, as is evident in (17)-(22).

- (17) Bring your coat and where is it?
 (18) It's five o'clock or take me home.
 (19) Where is your jacket or take your sweater.
 (20) If be quiet then who will I talk to?

- (21) If when did John leave then call him.
 (22) It is not the case that what time is it?

If Ludwig's approach is correct, all "truth-functions" of sentences in any mood are semantically coherent in the sense that the method he introduces can be used to assign their coherent fulfillment conditions. However, some such combinations do not appear to be coherent. So, Ludwig's approach looks to be mistaken.

Ludwig claims that either way, his approach is unharmed:

[I]n neither case is there a difficulty for (my) account. On the one hand, if the restriction (on natural mixed mood combinations) is pragmatic, not semantic, then (my) account is not in trouble. On the other, if the forms we find absurd are meaningless, then they will be treated as ungrammatical. (My) account will operate over all grammatical sentences, and the formation rules of the language will exclude those that do not fit the patterns above. Obviously, the logic of nonassertorics would then be significantly different from that of assertorics. (1997, 59)

Ludwig's response is correct, I think, as far as it goes. However, it does not attempt to actually explain why sentences like (17)-(22) seem unacceptable. There is, then, clearly an important gap in the account of the semantics of nonassertorics. While the theory may not be refuted no matter what conclusion we reach about the problematic constructions, we will not have a complete account of nonassertorics until we know what to say about them.

In my view, the second option Ludwig entertains is an attractive one. There does not seem to be any good reason to think, particularly in the light of Ludwig's semantics, that the logic of nonassertorics should differ from that of assertorics. My intuition is that the unnaturalness of (17)-(22) and similar constructions that seem unnatural is due to largely pragmatic factors. I want to develop an account of what the pragmatic factors are that are relevant to the unacceptability of the problematic forms, and how they generate

the adverse reactions to imagined utterances of them. In the fourth chapter, I show (a) that pragmatic factors do indeed affect the naturalness of mixed mood combinations, and (b) how exactly they do it. Before we turn to that project, however, it will be helpful to lay out some background from the theory of pragmatics. In the next chapter, I will consequently discuss Grice's inestimable contribution to that field.

GRICE AND CONVERSATIONAL IMPLICATURE

The force of Grice's contribution to the field of pragmatics, if not already evident by 1967, became so during a series of William James Lectures given that year at Harvard University, became greater with the publication of "Logic and Conversation" in 1975, and climaxed with a revised version of the lectures, now available as Chapters 1-7 in his *Studies in the Way of Words* (henceforth, *SWW*). In this chapter, I provide a (very) basic introduction to pragmatics, and to conversational implicature in particular, by reviewing the first two chapters of that work. The first section summarizes what I take to be the origin of Grice's twofold project and provides a statement of it. The second section presents the results of the first part of that project. The final section presents the results of the second part of that project. The reader should bear in mind that this chapter is not intended to provide the complete background of all the pragmatic principles that will be employed in the next chapter. It is intended, rather, simply to give the reader the sense of what a pragmatic explanation of data is like and the reasoning processes involved in providing one.

Grice's Project

Grice noticed¹ that a common manoeuvre (henceforth "the manoeuvre") in philosophy is to attempt to discern the meanings of expressions in the following way:

¹ As did Searle. See Searle 1969, Chapter 6.

- (i) Observe that a certain range of expressions E in which a subordinate expression α is embedded—call this range $E(\alpha)$ —is such that their use in certain circumstances would be odd or inappropriate.
- (ii) Suggest that the relevant features of this circumstance are such that they fail to satisfy some condition C .
- (iii) Conclude that it is a characteristic of the meaning of α , a feature of the meaning or use of α , that $E(\alpha)$ is applicable only if C is satisfied. (1989d, 3)

Such a conclusion might be reached by way of any of the following claims: that the schema $E(\alpha)$ logically entails C , that it implies or presupposes C , or that C is some kind of "appropriateness condition" such that α is misused unless C obtains. Grice claims that philosophers have misused the manoeuvre and provides numerous historical examples to support his claim. For example, Grice discusses the faulty conclusions that had previously been drawn by a misuse of the manoeuvre with regard to: (1) and (2), uttered in most contexts; (3), uttered in a context in which the speaker knew that Mrs. Smith had successfully cashed her check; (4), uttered in a context in which the person took off his trousers and then went to bed; (5), uttered in a context in which the speaker knows that his wife is in Oxford.²

- (1) I remember my own name.
- (2) James voluntarily blinked his eyes.
- (3) Mrs. Smith tried to cash a check today.
- (4) He went to bed and pulled off his trousers.
- (5) My wife is in Oxford or she is in London.

Despite misuse of the manoeuvre, Grice does not advise discarding it:

[I]f it is any part of one's philosophical concern, as it is of mine, to give an accurate general account of the actual meaning of this or that expression in

² See Grice 1989d for his reasoning.

non-technical discourse, then one simply cannot afford to abandon this kind of manoeuvre altogether. (1989d, 3)

Thus, since there are abundant examples of misuse of the manoeuvre, and yet it cannot be discarded altogether, "there is an obvious need for a method . . . for distinguishing its legitimate from its illegitimate applications" (1989d, 3). Success in finding such a distinction will, according to Grice, "determine how any such distinction between meaning and use is to be drawn, and where lie the limits of its philosophical utility" (1989d, 4). Thus, though he does not explicitly say so, I take Grice's project to be twofold. The first part is to find an acceptable use of the manoeuvre. The second is to develop a method that can be used to distinguish legitimate from illegitimate uses of the manoeuvre. This twofold project is carried out in "Logic and Conversation," which constitutes Chapter 2 of *SWW*.

Conversational Implicature

Two factors seem to have particularly influenced the direction of Grice's project. First, Grice noticed that conversation is a rational activity: "Our talk exchanges do not normally consist of a succession of disconnected remarks, and would not be rational if they did" (1989c, 26). Second, Grice noticed a feature common to all inappropriate examples exemplified by (1)-(5), namely, that, though all are true if uttered in the specified contexts, they are nonetheless misleading:

In nearly every case the condition C, the presence of which is suggested as being required for the application of a particular word or phrase to be appropriate, is such that most people would, I think, on reflection have a more or less strong inclination to say that to apply the word or phrase in the absence of that condition would be to say something *true* (indeed, trivially true), however *misleading* it would be to apply the word or phrase thus. (1989d, 9)

Thus, if (1)-(5) are uttered in the specified contexts, and the conversational partners are engaged in rational discourse, then the speaker says something true though misleading. But how could something that is said, if true, be misleading? The most plausible explanation, Grice appears to have reasoned, is that the inappropriateness of (1)-(5) is independent of any semantic feature of the words. Hence, Grice looked to the pragmatic features surrounding conversation to explain inappropriate but rational discourse, as exemplified by (1)-(5).

The Cooperative Principle and Implicature

Grice's introduction of the notion of implicature is trenchant:

Suppose that A and B are talking about a mutual friend, C, who is now working in a bank. A asks B how C is getting on in his job, and B replies, *Oh quite well, I think; he likes his colleagues, and he hasn't been to prison yet.* At this point, A might well inquire what B was implying, what he was suggesting, or even what he meant by saying that C had not yet been to prison. The answer might be any one of such things as that C is the sort of person likely to yield to the temptations provided by his occupation, that C's colleagues are really very unpleasant and treacherous, and so forth. It might, of course, be quite unnecessary for A to make such an inquiry of B, the answer to it being, in the context, clear in advance. It is clear that whatever B implied, suggested, meant in this example, is distinct from what B said, which was simply that C had not been to prison yet. I wish to introduce, as a term of art, the verb *implicate* and the related nouns *implicature* (cf. implying) and *implicatum* (cf. what is implied). (1989c, 24)

The central distinction Grice makes is, of course, between what is said and what is implicated. Grice intends what is said "to be closely related to the conventional meaning of the words (the sentence) he has uttered" (1989c, 25). Why Grice intends what is said to be "closely related" to the conventional meaning, rather than *identical* with the conventional meaning (or propositional content), is not immediately clear; the examples

he uses throughout *SWW* suggest he intends the latter. I think the answer is related to the following. Consider (6)-(9).³

- (6) A tried to do x.
- (7) A attempted to do x.
- (8) A endeavored to do x.
- (9) A set himself to do x.

(6)-(9) all carry the implicature that A failed to do x, or there was some chance of failure, or that someone thinks that there is a chance for failure. Thus, what is said in (6)-(9) is identical with the propositional content of (6)-(9) only to the extent that 'tried', 'attempted', 'endeavored' and 'set himself' are synonymous. Since synonymy is not one of Grice's concerns, he does not commit himself to the view that what is said is identical with propositional content.

Grice also distinguishes two categories of implicature, conventional and nonconventional (1989c, 25-27). Conventional implicature involve cases in which the meanings of the words used help to determine what is implicated, besides determining what is said. For example, in (10),

- (10) She is poor but honest,

Grice takes 'but' to, in the context, conventionally implicate, by the meaning of the word, that being poor normally precludes being honest. But one who utters (10) would not, according to Grice, have *said* that being poor normally precludes being honest.

³ Grice uses these examples in a discussion of nondetachability (1989a, 43), which will be discussed below.

A subclass of nonconventional implicature is what Grice calls "conversational implicature," which are generated via general conversational principles. Because conversation is a rational activity, our talk exchanges have a point or purpose to them:

Our talk exchanges do not normally consist of a succession of disconnected remarks, and would not be rational if they did. They are characteristically, to some degree at least, cooperative efforts; and each participant recognizes in them, to some extent, a common purpose or set of purposes, or at least a mutually accepted direction. This purpose or direction may be fixed from the start (e.g., by an initial proposal of a question for discussion), or it may evolve during the exchange; it may be fairly definite, or it may be so indefinite so as to leave very considerable latitude to the participants (as in casual conversation). But at each stage, some possible conversational moves would be excluded as conversationally unsuitable. We might then formulate a rough general principle which participants would be expected (*ceteris paribus*) to observe, namely: Make your conversational contribution such as is required at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged. One might label this the Cooperative Principle. (1989c, 26)

Grice takes the Cooperative Principle to be the most general conversational principle.

But one might ask: How does one observe the Cooperative Principle? Grice distinguishes more specific principles, the adherence to which yield results that accord with the Cooperative Principle. The more specific principles, or maxims, fall under four categories: Quantity, Quality, Relation and Manner. The category of Quantity, under which fall the following two maxims, relates to the quantity of information provided by a speaker.

- (11) Make your contribution as informative as is required (for the current purposes of the exchange).
- (12) Do not make your contribution more informative than is required.

Under the category of Quality, which relates to the truth of the information provided, fall one "supermaxim," (13), and two sub-maxims, (14) and (15).

- (13) Try to make your contribution one that is true.
- (14) Do not say what you believe to be false.
- (15) Do not say that for which you lack adequate evidence.

Falling under the category of Relation is one maxim, (16).

- (16) Make your contribution relevant.

Finally, under the category of Manner, which relates to how one provides information, are one supermaxim, (17), and a number of submaxims such as (18)-(21).

- (17) Make your contribution perspicuous.
- (18) Avoid obscurity of expression.
- (19) Avoid ambiguity
- (20) Be brief.
- (21) Be orderly.

It is important to note that these maxims can be extended to cover nonassertorics; use of interrogative and imperatives, for example, may be expected to conform with the following maxims of Quantity: 'Don't ask for more or less information than you need' and 'Don't direct someone to do something more or less specific than you need'.

Under the other subclass of nonconventional implicature are included other maxims that are "aesthetic, social, or moral in character," such as "Be Polite," which are also normally observed by partners in a talk exchange, and which may also give rise to nonconventional implicatures. For example, should A continually look at his watch while B is talking, B may take A to be implicating that A wants B to finish with his contribution, that B's contribution has gone on long enough, or even that A is bored with B's contribution. But these maxims are not especially connected with the point or purpose of the talk exchange. Conversational maxims and the implicatures implicated by way of them, on the other hand, "are especially connected . . . with the particular purposes

that talk (and, so, talk exchange) is adapted to serve and is primarily employed to serve" (1989c, 28).

Conversational Implicature

What is the relation between the Cooperative Principle (and the maxims) and conversational implicature?

Grice describes four ways in which one can fail to fulfill a maxim. First, someone can simply choose to *violate* a maxim without bringing attention to the fact that she is doing so. In such a case, she will most likely mislead her conversational partner. Second, one might *opt out* by making it clear to her partner that she is no longer following the maxims. Third, one can face a *clash* of maxims. To use Grice's example, one might be unable to observe the maxim of quantity ("Be as informative as is required") without violating a maxim of quality ("Have adequate evidence for what you say"). Finally, one might *flout*, or exploit a maxim by blatantly failing to fulfill it. This way of failing to fulfill a maxim is a paradigm way of generating an implicature, for, "on the assumption that the speaker is able to fulfill the maxim and to do so without violating another maxim (because of a clash), is not opting out, and is not, in view of the blatency of his performance, trying to mislead, the hearer is faced with a minor problem: How can his saying what he did say be reconciled with the supposition that he is observing the overall Cooperative Principle?" (1989c, 30).

Grice is now in a position to (i) characterize the notion of conversational implicature, (ii) provide an example of (i), and (iii) provide the general pattern for working out a conversational implicature. Grice characterizes the notion of conversational implicature as follows:

A man who, by (in, when) saying (or making as if to say) that p has implicated that q, may be said to have conversationally implicated that q, provided that (1) he is to be presumed to be observing the conversational maxims, or at least the Cooperative Principle; (2) the supposition that he is aware that, or thinks that, q is required in order to make his saying or making as if to say p (or doing so in those terms) consistent with this presumption; and (3) the speaker thinks (and would expect the hearer to think that the speaker thinks) that it is within the competence of the hearer to work out, or grasp intuitively, that the supposition mentioned in (2) is required. (1989c, 31)

He then shows how B's remark to A regarding C fits this characterization. A might reason as follows:

(1) B has apparently violated the maxim 'Be relevant' and so may be regarded as having flouted one of the maxims conjoining perspecuity, yet I have no reason to suppose that he is opting out from the operation of the Cooperative Principle; (2) given the circumstances, I can regard his irrelevance as only apparent if, and only if, I suppose him to think that C is potentially dishonest; (3) B knows that I am capable of working out step (2). So, B implicates that C is potentially dishonest. (1989c, 31)

Finally, Grice provides the general pattern for working out a conversational implicature:

He has said that p; there is no reason to suppose that he is not observing the maxims, or at least the Cooperative Principle; he could not be doing this unless he thought that q; he knows (and knows that I know that he knows) that I can see that the supposition that he thinks that q is required; he has done nothing to stop me thinking that q; he intends me to think, or is at least willing to allow me to think, that q; and so he has implicated that q. (1989c, 31)

Grice subsequently provides numerous examples of conversational implicatures, which he categorizes into three groups, as well as the reasoning processes by which one might work them out (1989c, 31-37). The first group of examples include conversational implicatures that are generated, even though no maxim is violated (or at least in which it is not clear that any maxim is violated). Consider this exchange:

- A: I'm out of (gas).
B: There's a garage around the corner.

In this case, where there is no reason to suppose that B is not adhering to the Cooperative Principle, B would be violating the maxim 'Be relevant' unless he thinks that it's at least possible that gas is presently available. He therefore implicates that gas is presently available at the garage.

The second group of examples include conversational implicatures that are generated because a maxim is violated, but its violation is explainable by supposing a clash:

A: Where does C live?
 B: Somewhere in the South of France.

There is no reason to believe that B is opting out, but his answer violates the second maxim of quantity, since it is less informative than is required to meet A's needs; this violation is explained only by supposing that B is aware that to be more informative would be to say something for which he lacks adequate evidence, which is a violation of the second maxim of quality. B therefore implicates that he does not know in which town C lives.

The third group of examples include conversational implicatures that are generated because a maxim is flouted. I mention two such examples. The first example is one in which the first maxim of quantity is flouted. A's letter of recommendation for Mr. X, who is a candidate for a philosophy job, reads: "Dear Sir, Mr. X's command of English is excellent, and his attendance at tutorials has been regular. Yours, etc." Grice's accurate gloss on this example is as follows.

A cannot be opting out, since if he wished to be uncooperative, why write at all? He cannot be unable, through ignorance, to say more, since the man is his pupil; moreover, he knows that more information than this is wanted. He must, therefore, be wishing to impart information that he is

reluctant to write down. This supposition is tenable only if he thinks Mr. X is no good at philosophy. This, then, is what he is implicating. (1989c, 33)

The second example is violation of the maxim of relevance. In the context of a genteel tea party:

A: Mrs. X is an old bag.

B: (pause) The weather has been quite delightful this summer, hasn't it?

Since B has blatantly failed to make his remark relevant to A's preceding remark, he thereby implicates that A's remark is out of order and should not be discussed.

Three Tests

Having found conversational implicature to be an acceptable use of the manoeuvre, Grice then offers a method, consisting of two tests, for distinguishing legitimate from illegitimate uses of the manoeuvre.⁴ In fact, I think Grice lists three tests.

One test is cancelability. In order to assume the presence of a conversational implicature, one must also assume that the Cooperative Principle is being observed. But since it's possible to opt out of the observation of the Cooperative Principle, "it follows that a generalized conversational implicature can be canceled in a particular case" (1989c, 39). There are two ways in which a conversational implicature may be canceled. First, it may be explicitly canceled, by the addition of a clause that states or implies that the speaker is opting out. For example, one may explicitly cancel the conversational

⁴ See Grice 1989a, 43-44, for Grice's reasons for why the two tests are not decisive.

implicature of temporal succession arising from an utterance of (4) by adding a clause, as in (22),

- (22) He went to bed and pulled off his trousers, but I don't mean to imply that he did those things in that order.

A conversational implicature may also be contextually canceled, "if the form of the utterance that usually carries (the implicature) is used in a context that makes it clear that the speaker is opting out" (1989, 39). For example, the implicature of temporal succession that normally arises from an utterance of (4), may not arise if uttered in compliance with the request 'List, in any order, two things A did between five o'clock and midnight'.

A second test is nondetachability. In order to calculate a conversational implicature, one is required to have knowledge only of (a) contextual information, (b) background information, and (c) what has been said. Since in a talk exchange (a) and (b) are constant, the conversational implicature should be expected to arise in any case in which the sentence carrying the implicature is replaced by another sentence that says the same thing. Thus, "one may expect a generalized conversational implicature . . . to have a high-degree of nondetachability" (1989c, 39). (6)-(9), repeated here, is such a case.

- (6) A tried to do x.
 (7) A attempted to do x.
 (8) A endeavored to do x.
 (9) A set himself to do x.

Grice does not think the cancelibility and nondetachability tests are infallible, but is confident that they "are useful as providing a more or less strong prima facie case in favor of the presence of a conversational implicature" (1989a, 43). Nevertheless, "The presence of a conversational implicature must be capable of being worked out; for even if

it can in fact be intuitively grasped, unless the intuition is replaceable by an argument, the implicature (if present at all) will not count as a conversational implicature; it will be a conventional implicature" (1989c, 31). Thus, Grice provides a third test for establishing the presence of a conversational implicature: Any claim advancing the presence of a conversational implicature "must be supported by a demonstration of the way in which what is putatively implicated could have come to be implicated (by a derivation of it from conversational principles and other data)" (1989a, 43).

Grice subsequently applies his principles of conversational dynamics and his tests for establishing the presence of a conversational implicature to a number of philosophically challenging cases. For example, he uses these principles to show that the complete meaning of indicative conditionals are provided by the truth table, and uses the tests to establish this point (1989b, 58-86).

In the next chapter, I also apply some of these principles in order to help show that the unnaturalness of a number of mixed sentential mood sentences is generated pragmatically. Indeed, I will make great use of the Cooperative Principle and the observation that there is a point or purpose to rational discourse. I will also make some use of Grice's maxims as well as other pragmatic factors including conversational context, shared background knowledge of participants in a talk exchange, the standard uses of certain linguistic devices, and similar extra-semantic factors.

PRAGMATIC EXPLANATIONS

General Remarks

Thus far, I have summarized Ludwig's fulfillment theoretic semantics, pointed out a possible objection to it, and provided some background material to aid in understanding pragmatics. In this chapter, I partially defend and extend Ludwig's theory from the objection by showing that the (un)naturalness of certain mixed sentential mood sentences is a matter of pragmatics, not semantics. But, first, I offer some prefatory remarks and introduce some notation.

I say I "partially" defend Ludwig's theory because I discuss combinations of no more than two mixed-mood sentences that include four logical operators—conjunctions, disjunctions, conditionals and negations—and leave for another day discussion of other combinations common in natural language, e.g. 'so', 'because', 'unless' *etc.* Restricting discussion in this way still leaves thirty combinations to be explained.

In what follows, I use 'A', 'Q' and 'I' as schematic letters for assertorics, interrogatives and imperatives respectively. When I use combinations of mixed moods, I do so by enclosing the two schematic letters and the logical connective in Quinean corner quotes. For example, 'A or I' denotes a disjunction of an assertoric and an imperative, if 'Q then A' denotes a conditional of an interrogative and an assertoric and 'I or Q' denotes a disjunction of an imperative and an interrogative. Sometimes I may want to refer only to one of the pair in a combination. I do so by the use of '1' and '2', where '1' is placed directly after a schematic letter and is used to refer to the first sentence of a

combination and '2' is placed directly after a schematic letter and is used to refer to the second sentence of a combination. For example, 'I1' denotes an imperative that is the first sentence of a combination, as in 'I or Q', and 'A2' denotes an assertoric that is the second sentence of a combination, as in 'If I then A'. At times, it may not matter which sentential mood sentence is being referred to. At such times, I use 'M1' or 'M2' as schematic letters for any of the three moods. Thus, 'A and M2' refers to a conjunction of an assertoric and sentence of any of the three moods. At other times, it may not matter which logical connective is being referred to. At these times, I use '?' as a placeholder for either 'and', 'or' or 'if-then'. Thus, 'Q ? M2' refers to any combination in which an interrogative is the first of the combination. At the most general level, then, 'M1 ? M2' refers to any mixed sentential mood sentence.¹ Finally, I sometimes make use of this notation to refer to what I call "successive" sentences, sentences (a) used one right after the other, and (b) that do not complete and begin different topics of conversation. For example, 'Shut up. Go to your room' are successive imperatives used one right after the other for the same topic of conversation; 'I went to the store last night. How's your grandmother?' are not successive sentences when A1 completes one topic of conversation and Q2 begins another. I use 'I/I' to denote successive imperatives, 'A/A' to denote successive assertorics, *etc.*

When I say that certain combinations are "natural" or "unnatural," the reader should keep two things in mind. First, naturalness is a matter of degree; thus, two or more sentences can be ranked in order of naturalness. For example, it's not quite clear

¹ Of course the notation just introduced will not apply to negations of sentential moods, since I am only concerned here with negations of single sentential moods.

whether 'The table is green and paint it brown' is natural or unnatural, but it is certainly more natural than 'The table is green and take two aspirin'. Thus, a certain combination is "more or less natural" or "more or less unnatural." Second, two token utterances of combinations of the same type can differ in naturalness because of the context of utterance. For example, an utterance of 'Go to North Carolina and take two aspirin' is unnatural in most contexts we might imagine, but would not be if North Carolina were the only state that allowed the sale of aspirin.

The progression of the chapter is as follows. There are four remaining sections, each corresponding to one of the logical connectives. Excepting the section on negation, each section (a) begins with some general remarks, (b) moves on to a discussion of the naturalness of each combination under review there and the principles affecting it, and (c) concludes by summarizing the results. The beginnings of the chapter and each section are more thorough so that the principles can be clearly explained and firmly established. The end of each section is likely to simply state whether a certain combination is more or less natural and the principles that so affect them; the reader should be able to determine, based on previous material, how the principles affect the combinations.

Finally, a warning. In the discussion of some combinations, I discuss at length exceptions to a general rule; for example, while most $[A \text{ or } Q]$ combinations are unnatural, there is one kind of exception that is always natural. I discuss this exception at length because it plays a major role later in the chapter. But the reader should not lose sight of the bigger picture, namely, that almost all combinations similar to 'The game is starting or what time is it?' are more or less unnatural.

Conjunctions

「A and A」Combinations and the Correlation and Inheritance Principles

Consider the following successive assertorics:

- (1) My grandmother is a fan of Wayne Newton. Jim is pitching.
- (2) The weather is beautiful. Jim is pitching.
- (3) Nel is watching television. Jim is pitching.
- (4) Steve is playing first base. Jim is pitching.

It seems uncontroversial that (1)-(4) (a) are listed in increasing order of ease with which one is able to imagine an appropriate context in which each might be uttered, and (b) are listed in increasing order of naturalness. Thus, there appears to be a direct correlation between the ease with which one is able to imagine an appropriate context in which two assertorics are uttered successively and the degree of naturalness of uttering those assertorics successively. Label this correlation "(C)." The following correlation also appears to hold: one is able to imagine an appropriate context in which two assertorics are uttered successively to the degree that one is able to imagine how the two assertorics are related or connected. It is difficult to imagine a context in which (1) would be uttered because it is difficult to imagine how the two assertorics could be related or connected.² Conversely, it is easy to imagine a context in which (4) would be uttered because it is clear how the two are related. Steve and Jim each play on the same baseball team; thus, a speaker might utter (4) in a context in which someone is asked to recite the starting lineup

² This is not to imply that it is impossible to imagine how the two are related and thus, to imagine an appropriate context in which (1) might be uttered. Perhaps the two are related in that they both help to explain why the speaker's grandmother is so happy today; Wayne Newton is singing on television tonight and her nephew Jim is the starting pitcher for the big game.

for tonight's big game, or to clarify what positions Steve and Jim are playing, or to explain why Kevin is playing shortstop tonight when Steve or Jim usually do. Label this correlation "(C1)." Two assertorics can be related (i) temporally, as in (5) and (6), (ii) causally, as in (7) and (8), or "informationally," as in (4) and (9), where 'informationally' is meant to indicate that both assertorics are possible answers to putative questions:

- (5) Gail moved to California. She opened her own business.
- (6) Shelly embezzled money from her employer. She was found guilty.
- (7) Gail moved to California. She put over 3,000 miles on her car.
- (8) Shelly embezzled money from her employer. She's rich.
- (9) Gail moved to California two weeks ago. Kevin hasn't seen her since. (Intended as a possible answer to the putative question 'Why has Kevin been so unhappy lately?')

From (C) and (C1), we can derive the following Correlation Principle:

(CP) $\lceil A/A \rceil$ is natural to the degree that one can imagine how the two assertorics are related or connected.

The remarks of the preceding section apply *mutadis mutandis* to $\lceil A$ and $A \rceil$ combinations. Consider (1')-(4'), to which both (C) and (C1) apply:

- (1') My grandmother is a fan of Wayne Newton and Jim is pitching.
- (2') The weather is beautiful and Jim is pitching.
- (3') Nel is watching a movie and Jim is pitching.
- (4') Steve is the first baseman and Jim is pitching.

As with successive assertorics, there is a direct correlation between the ease with which one is able to imagine an appropriate context in which (1')-(4') are uttered and the degree of naturalness of these combinations. Moreover, one is able to imagine an appropriate context in which these combinations are uttered to the degree that one is able to imagine how the two conjuncts might be temporally, causally or informationally related. Thus, the following Correlation Principle of $\lceil A$ and $A \rceil$ combinations also holds.

(CP*) $\lceil A \text{ and } A \rceil$ combinations are natural to the degree that one can imagine how the two conjuncts are related or connected.

That the Correlation Principle holds between both $\lceil A/A \rceil$ and $\lceil A \text{ and } A \rceil$ combinations suggests that the degree of naturalness of an $\lceil A \text{ and } A \rceil$ combination is inherited from their respective $\lceil A/A \rceil$ combinations; hence, the Inheritance Principle of $\lceil A \text{ and } A \rceil$ Combinations.

(IP) If $\lceil A/A \rceil$ is natural to degree n , then $\lceil A \text{ and } A \rceil$ is natural to degree n .

That this Inheritance Principle holds is further supported by the combination of two facts. First, there is in some sense an "intimate connection" between $\lceil A/A \rceil$ and $\lceil A \text{ and } A \rceil$ combinations. What this intimate connection *is* is not easily specified (perhaps the two combinations are synonymous), though *that* one exists is, I think, indisputable. But there is more than just intuitive evidence for such a connection; besides (C) and (C1), $\lceil A \text{ and } A \rceil$ combinations share with their corresponding successive assertorics most, if not all, other important conversational properties. For example, both (3) and (3') would be relevant responses to the question 'What are your two brothers doing tonight?' but not to 'Why is your grandmother crying?'; both would violate the maxim of quantity if uttered in response to 'What is Nel doing tonight?'; both might be used to preface the statement 'That's why I have time to myself'; and so on. So there is an intimate connection between the two combinations, but this does not by itself show that $\lceil A \text{ and } A \rceil$ combinations *inherit* their degree of naturalness from their corresponding successive assertorics. Thus the relevance of the second fact, namely that the corresponding successive assertorics are linguistically more basic than $\lceil A \text{ and } A \rceil$ combinations. So, since (i) there is an intimate connection between these two combinations, and (ii) $\lceil A/A \rceil$ combinations are linguistically

more basic than $\lceil A \text{ and } A \rceil$ combinations, it is reasonable to suppose that $\lceil A \text{ and } A \rceil$ combinations inherit their degree of naturalness from their successive assertorics.

An important upshot of the Inheritance Principle for $\lceil A \text{ and } A \rceil$ combinations is that if we seek an explanation of the unnaturalness of an utterance of such a combination, we can provide it by giving the explanation for the unnaturalness of an utterance of the corresponding sequence $\lceil A/A \rceil$. This in turn has an important methodological consequence. That is that the unnaturalness of an utterance of an $\lceil A \text{ and } A \rceil$ combination, since this unnaturalness is explained in the same way as for an utterance of the corresponding sequence $\lceil A/A \rceil$, does not attach to the combination of two assertorics in a conjunction, that is, it is not due to there being semantic restrictions on the conjunction of the two assertorics. It is due rather to the unnaturalness of the sequence of those assertorics in standard conversational contexts, i.e., to conversational pragmatics. For clearly in the case of the sequence, there is no semantic barrier to a conversation proceeding in that way. The unnaturalness must be entirely pragmatic. This point will generalize to mixed mood combinations. Thus, to defend Ludwig's semantic proposal, it will be sufficient to show that when an utterance of $\lceil M1 \text{ and } M2 \rceil$ is unnatural, so is an utterance of $\lceil M1/M2 \rceil$. It is not also necessary to proceed with an explanation of the unnaturalness of the latter, if the point is only to show that the unnaturalness of the conjunction is not due to semantic infelicity in combining that particular combination of sentential moods (whatever they are). In fact, I will in general try to explain why the sequence is unnatural, to help explain why the corresponding conjunction is, but the success of these explanations is not necessary for the success of the defense. In the case of the question why (1') is unnatural, we do have a ready explanation in terms of why (1)

is unnatural. (1) is unnatural because there is no obvious connection between the two assertorics uttered, and without some relatively elaborate conversational context in which to place such a sequence of utterances, we hear them as an abrupt and conversationally inexplicable change of topic. It is difficult, in other words, to imagine a conversation in which the sequence of assertorics in (1) could be uttered and the speaker taken to be obeying the Cooperative Principle. The conjunction simply inherits this unnaturalness, and so the unnaturalness of (1') is explained in the same way.

I claim that the foregoing Correlation and Inheritance Principles of $\lceil A \text{ and } A \rceil$ combinations can be generalized, with a minor modification to the Inheritance Principle, to cover all $\lceil M1 \text{ and } M2 \rceil$ combinations; hence, the Correlation and Inheritance Principles of Conjunction.

Correlation Principle of Conjunction: *$\lceil M1 \text{ and } M2 \rceil$ is natural to the degree that one can imagine how the two conjuncts are related or connected.* (Henceforth, 'Correlation Principle'.)

Inheritance Principle of Conjunction: *If $\lceil M1/M2 \rceil$ is natural to degree n , $\lceil M1 \text{ and } M2 \rceil$ is natural to degree $f(n)$, where for any n, m , if $n < m$, then $f(n) < f(m)$* (Henceforth, 'Inheritance Principle'.)

Modifying the Inheritance Principle so that the degree of naturalness of $\lceil M1 \text{ and } M2 \rceil$ is a function of the degree of naturalness of $\lceil M1/M2 \rceil$ is required since, as will become clear, there are cases in which the degrees of naturalness of the respective combinations do not directly correspond, though, if a number of $\lceil M1/M2 \rceil$ combinations are listed in increasing order of naturalness and their respective $\lceil M1 \text{ and } M2 \rceil$ combinations are listed in increasing order of naturalness, each combination of the pair will share the same rank. Thus, while not all $\lceil M1 \text{ and } M2 \rceil$ combinations inherit all of the (un)naturalness of their respective $\lceil M1/M2 \rceil$ combinations, they do seem to inherit their ordering of

(un)naturalness from them. Examples of this phenomena follow. In the rest of this section, I defend the Correlation and Inheritance Principles by examining the eight other [M1 and M2] combinations and use the principles to explain the (un)naturalness of some [M1 and M2] combinations. In the course of doing so, I develop and present four other principles that can be used to the same end.

[Q and Q] and [I and I] Combinations and the Sharpening and Shift Principles

Here, I reflect on [Q and Q] and [I and I] combinations and (a) show that the Correlation and Inheritance Principles hold for them as they did for [A and A] combinations, and (b) begin a discussion of two other principles, what I call the "Sharpening Principle" and the "Shift Principle," which emerge here and become more prominent later.

Consider the following [Q/Q] and [I/I] combinations.

- (10) Who is your grandmother's favorite singer. Who is pitching?
- (11) Is Nel watching television? Who is pitching?
- (12) What's the weather like? Who is pitching?
- (13) Who is playing first base? Who is pitching?

- (14) Go to North Carolina. Take two asparin.
- (15) Go to North Carolina. Apologize to your mother.
- (16) Go to North Carolina. Visit your mother.
- (17) Go to North Carolina. Relax.
- (18) Go to North Carolina. Be back by September 1st.

Like (1)-(4), (10)-(13) and (14)-(18) are (a) listed in increasing order of ease with which one is able to imagine an appropriate context in which each might be uttered successively, and (b) are listed in increasing order of naturalness. Thus, there is a correlation between the ease with which one is able to imagine an appropriate context in which two interrogatives or two imperatives are uttered successively and the degree of naturalness of those pairs. Moreover, one is able to imagine an appropriate context in which either of the pairs is uttered

successively to the degree that one is able to imagine how the pair are related or connected. It's difficult to imagine how the two interrogatives in (10) could be related, but it is not difficult to imagine how the two interrogatives in (13) are related. Likewise for the two imperatives in (14) and (18). Thus, the Correlation Principle for successive interrogatives and successive imperatives also obtains.

⌈Q/Q⌋ is natural to the degree that one can imagine how the two interrogatives are related or connected.

⌈I/I⌋ is natural to the degree that one can imagine how the two imperatives are related or connected.

These correlation principles also hold *mutadis mutandis* for ⌈Q and Q⌋ and ⌈I and I⌋ combinations.

(10') Who is your grandmother's favorite singer and who is pitching?

(11') Is Nel watching television and who is pitching?

(12') What's the weather like and who is pitching?

(13') Who is playing first base and who is pitching?

(14') Go to North Carolina and take two asparin.

(15') Go to North Carolina and apologize to your mother.

(16') Go to North Carolina and visit your mother.

(17') Go to North Carolina and relax.

(18') Go to North Carolina and be back by September 1st.

As with successive interrogatives and successive imperatives, there is a correlation between the ease with which one is able to imagine an appropriate context in which (10)-(13) and (14)-(18) are uttered and the degree of naturalness of these combinations. Also, one is able to imagine an appropriate context in which these combinations are uttered to the degree that one is able to imagine how the conjuncts are related or connected. Thus, the Correlation Principles of ⌈Q and Q⌋ and ⌈I and I⌋ combinations also hold.

⌈Q and Q⌋ combinations are natural to the degree that one can imagine how the two conjuncts are related or connected.

⌈I and I⌋ combinations are natural to the degree that one can imagine how the two conjuncts are related or connected.

The same considerations which drove us to the acceptance of the Inheritance Principle of ⌈A and A⌋ combinations also drive us to the acceptance of the Inheritance Principles of ⌈Q and Q⌋ and ⌈I and I⌋ combinations.

If ⌈Q/Q⌋ and ⌈I/I⌋ combinations are natural to degree n , then ⌈Q and Q⌋ and ⌈I and I⌋ combinations respectively are natural to degree $f(n)$, where for any n, m , if $n < m$, then $f(n) < f(m)$.

That is, ⌈Q and Q⌋ and ⌈I and I⌋ combinations inherit a degree of (un)naturalness from their respective ⌈Q/Q⌋ and ⌈I/I⌋ utterances.

That these Inheritance Principles obtain is supported by the same facts that supported the Inheritance Principle for ⌈A and A⌋ combinations. First, there is some intimate connection between ⌈Q and Q⌋ and ⌈I and I⌋ combinations and their respective ⌈Q/Q⌋ and ⌈I/I⌋ combinations, which is supported intuitively and by the fact that they share most, if not all, of their conversational properties. For example, (13) and (13') could be used to ask which two of your three brothers are playing the two mentioned positions in tonight's game; both would violate the maxim of quantity if used to ask which one of your two brothers is pitching, if it is known that the non-pitching brother will play first base (in which case, one would only need to know which brother was playing first base in order to know which was pitching); both could be used to preface the statement 'Dad wants to know'; and so on. Both (16) and (16') could be answers to the question 'What should I do?'; both would violate the maxim of quantity if visiting her mother was the only possible reason the hearer would go that part of the country; both could be used to preface the statement 'Then you won't feel so guilty'; and so on. Second, the corresponding ⌈Q/Q⌋

and [I/I] combinations are linguistically more basic than [Q and Q] and [I and I] combinations. Thus, since (i) there is an intimate connection between [Q and Q] and [I and I] combinations and their respective [Q/Q] and [I/I] combinations, and (ii) the respective [Q/Q] and [I/I] combinations are linguistically more basic, it is reasonable to suppose that [Q and Q] and [I and I] combinations inherit their degrees of naturalness from their corresponding successive utterances.

Furthermore, these Inheritance Principles have the same two upshots as the Inheritance Principle for [A and A] combinations. First, if we are seeking an explanation for why a particular [Q and Q] or [I and I] combination is unnatural, we need only seek an explanation for why their respective successive utterances are unnatural. Second, since any particular [Q and Q] or [I and I] combination inherits a degree of (un)naturalness from its corresponding [Q/Q] and [I/I] combinations, that unnaturalness does not derive from the semantic features of the [Q and Q] and [I and I] combinations in question, but from some pragmatic considerations that make their corresponding [Q/Q] and [I/I] combinations unnatural. If one asks why (10') or (14') are unnatural, one need only ask why (10) or (14) are unnatural; they are unnatural because there does not seem to be any relation or connection between the two conjuncts. Hence, utterances of (10) or (14) (and (10') or (14')) are likely to be conversationally unhelpful and uncooperative.

I now point to two other principles that emerge in the context of these combinations, as well as [A and A] combinations, and come to play a larger role in the context of other conjunctions. The first of these other principles is the Sharpening Principle. Consider (19) and (20).

(19) Take out the trash and make it quick.

(20) Play first base and don't whine about it.

(19) and (20) differ from (14)-(18) in that the second conjunct is an imperative that is used by a speaker to restrict or affect or somehow "sharpen" a hearer's possible response to the first conjunct. That is, an \lceil and I \rceil syntactic construction can be used to sharpen the point of the first conjunct. But this construction is not the only syntactic one that can be used to sharpen the point of the first conjunct— \lceil and A \rceil syntactic constructions, as in (21) and (22), can also be used to the same end.

(21) I want you to tell me what time you got home last night and I want you to tell me the truth.

(22) Jim will pitch tonight and arguing with me about it is futile,

Thus, there are at least two syntactic constructions that can be used to sharpen the point of a first conjunct. In fact, these constructions can be used to sharpen the point of *any* M1. For example, \lceil and A \rceil and \lceil and I \rceil constructions can be used to sharpen the point of assertorics ((21)-(24)), interrogatives ((25)-(28)) and imperatives ((19)-(20), (29)-(30)).

(23) I want you to tell me what time you got home last night and don't lie.

(24) Jim will pitch tonight and don't argue with me.

(25) What time did you get home last night and I want you to tell me the truth.

(26) Who's going to pitch tonight and I don't want a long-winded answer.

(27) What time did you get home last night and don't lie.

(28) Who's going to pitch tonight and answer me quick.

(29) Take out the trash and I don't want to hear a word about it.

(30) Play first base and you'll see alot of action.

In fact, there are two other syntactic constructions that can be used to sharpen the point of an utterance of M1. One is \lceil or Q \rceil , as exemplified in (31)-(33).

(31) Jim will pitch tonight or is his arm hurting?

(32) Shall I arrive around one o'clock or is that too early?

(33) Give me your money or haven't you got any?

There is one caveat to the 「or Q」 construction, however, when it is used to sharpen the point of the first utterance: the interrogative must be of the "Yes/No" variety. The other construction, 「or A」, is discussed later in the chapter. The discovery that these four constructions can be used to sharpen the point of an utterance of any M1 leads to the following Sharpening Principle.

Most combinations in which 「and A」, 「and I」, 「or Q」 or 「or A」 is used to sharpen the point of an utterance of M1 are natural.³

The Sharpening Principle should not be surprising—at least with regard to the 「and A」 and 「and I」 constructions—given the Correlation Principles for 「A and A」 and 「I and I」 combinations (and, indeed, the *General Correlation Principle*); when these syntactic constructions are used to sharpen the point of the first utterance, the degree to which one can imagine how the two conjuncts are related is quite high. The explanation of why the 「or Q」 construction, when the interrogative is a "Yes/No," is apt for sharpening the point of an utterance, requires more explanation. Note that in (31)-(33) Q2 is used to ask a question regarding a presupposition of an utterance of M1—a fact that holds for all "sharpening uses," as it were, of these constructions—and that a speaker does not normally utter M1 if she knows that the answer to Q2 is affirmative; she does not normally utter the assertoric in (31) if she knows that Jim's arm's is hurting, nor does she normally utter the interrogative or imperative in (32) and (33) respectively if she knows that arriving around one o'clock is too early or that it is impossible for a hearer to give her money if the hearer hasn't got any. Since Q2 in these cases ask about a presupposition of

³ Exceptions to this principle include highly unnatural combinations such as 'Sit down and don't use your mouth' and 'Where did the cat go and don't tell me you drank him'.

an utterance of M1, and because the speaker does not normally utter M1 if she knows that the answers to the questions are affirmative, she thereby implicates (i) that she does not know the answers to the questions, and (ii) that fulfillment of M1 depends in some way on the answer to Q2; if the answer to Q2 is affirmative, M1 is to be fulfilled; if the answer to Q2 is negative, M1 is not to be fulfilled. The explanation of why 'or A' constructions can be used to sharpen the point of an utterance of M1 is reserved for a later point in the chapter.

Another principle that emerges in our discussion of 'Q and Q' and 'I and I' combinations is the Shift Principle. From the discussion thus far, it is clear that conjunctions of the same kind are almost always natural, the only exceptions being those whose conjuncts do not appear from the context to be related or connected. Thus, we typically add 'and' to sentences of the same kind. But as will become clear, we do *not* typically add 'and' to sentences of different kinds. For example, (34)-(36) are unnatural.

- (34) Who is playing first base and Jim is pitching.
- (35) Who is playing first base and take him out of the line-up.
- (36) Go home and Nel is watching television.

Note that successive utterances of the conjuncts in these examples are unnatural as well, which suggests that the unnaturalness is a matter of pragmatics. One plausible pragmatic explanation is that a shift in moods is a change of pace in a conversation that calls for appropriate preparation. The exceptions to this rule of thumb are those we have already discussed—conjunctions in which 'and A' or 'and I' are used to sharpen the point of the first utterance. The foregoing considerations lead us to the Shift Principle.

A conjunction of mixed-mood sentences is natural to the degree that it is clear that there is a good reason for a shift in moods.

Mixed mood conjunctions are almost always unnatural because in most contexts there is no good reason for a shift. In the cases in which 「and A」 or 「and I」 are used to sharpen the point of the first conjunct of mixed-mood sentences, we have already seen the good reason that permits the shift: there is an especially high degree to which one can imagine how the two conjuncts are related.

「A and Q」 and 「Q and A」 Combinations and the Pause Principle

Here, I discuss 「A and Q」 and 「Q and A」 combinations and show that the principles that obtain with respect to conjunctions of the same mood obtain with respect to these combinations as well. I also present what I will call the "Pause Principle," which will be used to explain the unnaturalness of some 「Q ? M2」 combinations.

Consider the following 「A/Q」 and 「Q/A」 combinations.

- (37) The sky is blue. Where did the stock market close?
- (38) It's 11 o'clock. Where did the stock market close?
- (39) It's six o'clock. Where did the stock market close?
- (40) It's four o'clock. Where did the stock market close?
- (41) Interest rates were raised today. Where did the stock market close?
- (42) Where did the stock market close? The sky is blue.
- (43) Where did the stock market close? It's 11 o'clock.
- (44) Where did the stock market close? It's six o'clock.
- (45) Where did the stock market close? It's four o'clock.
- (46) Where did the stock market close? Interest rates were raised today.

Again, these are listed in increasing order of naturalness, as are their respective conjunctions, (37')-(46')

- (37') The sky is blue and where did the stock market close?
- (38') It's 11 o'clock and where did the stock market close?
- (39') It's six o'clock and where did the stock market close?
- (40') It's four o'clock and where did the stock market close?

- (41') Interest rates were raised today and where did the stock market close?
- (42') Where did the stock market close and the sky is blue.
- (43') Where did the stock market close and it's 11 o'clock.
- (44') Where did the stock market close and it's six o'clock.
- (45') Where did the stock market close and it's four o'clock.
- (46') Where did the stock market close and interest rates were raised today.

Thus, the Correlation Principle holds for $\lceil A \text{ and } Q \rceil$ and $\lceil Q \text{ and } A \rceil$ combinations, as does the Inheritance Principle. $\lceil A \text{ and } Q \rceil$ and $\lceil Q \text{ and } A \rceil$ combinations are natural to the degree of ease with which one can imagine how the two conjuncts are related, and they inherit a degree of (un)naturalness from their respective $\lceil A/Q \rceil$ and $\lceil Q/A \rceil$ combinations.

To be sure, these conjunctions are not nearly as natural as their respective $\lceil A/Q \rceil$ and $\lceil Q/A \rceil$ combinations—our first indication that the Inheritance Principle needed to be modified so as to account for non-direct correspondence—nor as natural as conjunctions of the same mood, a fact accounted for by a combination of the Inheritance, Shift and Pause Principles (to be explained below). These conjunctions are conjunctions of mixed moods. But the shift in moods is rather abrupt in actual conversation and, hence, a speaker typically avoids conjunctions of mixed moods; he must therefore have a good reason to shift moods when uttering a conjunction. But, other than when the second conjunct serves to sharpen the point of an utterance of the first conjunct, i.e., when the relation between the two conjuncts is clear, there appears to be no good reason to shift moods. Hence, these conjunctions are more unnatural than their respective $\lceil A/Q \rceil$ and $\lceil Q/A \rceil$ combinations and conjunctions of the same mood.

Yet another phenomena appears to make $\lceil Q \text{ and } A \rceil$ combinations more unnatural. Consider again (42')-(46'). I claim that what makes these combinations more unnatural

than (42)-(46) is that, in actual conversation, when we ask a question, we normally pause for an answer. In (42)-(46), the speaker is indeed pausing for an answer, while in (42')-(46') the speaker is not; hence, (42')-(46') are more unnatural, and, hence, the Pause Principle for $\lceil Q \text{ and } A \rceil$ combinations:

$\lceil Q \text{ and } A \rceil$ is natural to the degree that it is clear why there is a good reason for the speaker to pause for an answer to Q1.

That the Pause Principle affects the naturalness of $\lceil Q \text{ and } A \rceil$ combinations is further supported by the fact that (42')-(46') seem to be more unnatural than (37')-(41'), which differ only in the order of the conjuncts. The order of conjuncts can sometimes affect the naturalness of a conjunction, as when 'and' is used to implicate temporal or causal order. But in cases where 'and' is not used for such purposes, the order of the conjuncts does not normally affect the naturalness of the conjunction. For example, (5') and (6') would fail to convey the intended implicature of temporal order if the conjuncts were reversed.

- (5') Gail moved to California and opened her own business.
- (6') Shelly embezzled money from her employer and was found guilty.

But in sentences such as (4'), repeated here, in which no such implicature is intended to be conveyed, nothing is lost by reversing the order of conjuncts.

- (4') Steve is the first baseman and Jim is pitching.

(37')-(46') are cases similar to (4') in which nothing is intended to be conveyed by the order of the conjuncts—yet (42')-(46') are more unnatural than (37')-(41'). The Pause Principle is a plausible explanation of these data.

If the Pause Principle is correct, it ought to be generalizable to all $\lceil Q ? M2 \rceil$ combinations. That is, all $\lceil Q ? M2 \rceil$ combinations ought to be more or less unnatural. In fact, this is the case, with three understandable exceptions. The first exception is when

the Sharpening Principle obtains; obviously, if a speaker intends to sharpen the point of the utterance of Q1, he would not pause after Q1 to wait for an answer. The second exception is [Q and Q] combinations; as we saw, 'and' is typically added to sentences of the same kind, so this exception should not be surprising—if the speaker seeks answers to two questions, it is more conversationally economical to ask, and to have answered, both questions at once. The third exception to the Pause Principle is [Q or Q] combinations, the explanation for which is provided later in the chapter. Thus, the Generalized Pause Principle.

[Q ? M2] is natural to the degree that it is clear why there is a good reason for the speaker to pause for an answer to Q1.

[I and A] and [A and I] Combinations

Here, I simply use the aforementioned principles to explain why [I and A] and [A and I] combinations are almost always unnatural. Consider (47)-(52) and (47')-(52').

(47) Give me your car keys. The table is green.

(48) Come home. The table is green.

(49) Paint the table brown. It is green.

(50) The table is green. Give me your car keys.

(51) The table is green. Come home.

(52) The table is green. Paint it brown.

(47') Give me your car keys and the table is green.

(48') Come home and the table is green.

(49') Paint the table brown and it is green.

(50') The table is green and give me your car keys.

(51') The table is green come home.

(52') The table is green and paint it brown.

Like the other combinations, (47)-(49) and (47')-(49') appear to be listed in increasing order of naturalness, as do (50)-(52) and (50')-(52'), which suggests that the Correlation

and Inheritance Principles apply to these combinations as well. But, like $\lceil A \text{ and } Q \rceil$ and $\lceil Q \text{ and } A \rceil$ combinations, these combinations are much less natural than their respective $\lceil Q/A \rceil$ and $\lceil A/Q \rceil$ combinations. This is accounted for by a combination of the Inheritance and Shift Principles.

It is worth mentioning that exceptions to the unnaturalness of $\lceil I \text{ and } A \rceil$ and $\lceil A \text{ and } I \rceil$ combinations, though all accounted for by the Sharpening Principle, seem far more abundant than those for $\lceil A \text{ and } Q \rceil$ and $\lceil Q \text{ and } A \rceil$ combinations. This abundance is accounted for by what seems to have become a conventional use of $\lceil I \text{ and } A \rceil$ combinations for bargaining or justification purposes. Clearly, one sort of relevance a construction with an assertoric could have is that of providing an incentive or disincentive for fulfilling an utterance of an imperative. For example, (53)-(55) exemplify $\lceil I \text{ and } A \rceil$ combinations used for bargaining purposes and (56)-(58) exemplify $\lceil I \text{ and } A \rceil$ combinations used for justification purposes (justifying why the hearer should *fail* to fulfill of the imperative).

- (53) Cook dinner and I'll take out the trash.
- (54) Wait here and I'll get you some coffee.
- (55) Be good and I'll bring you something special when I return.

- (56) Give him your money and you'll be sorry.
- (57) Come home late and you won't leave your room for a week.
- (58) Leave your room a mess and I'll be very upset.⁴

⁴ It is tempting to think of $\lceil I \text{ and } A \rceil$ combinations as some kind of shorthand or derivative for conditionals. For example, it is tempting to think of (56) as a derivative of (56').

(56') If you give him your money, (then) you'll be sorry.

For a terrific discussion of why $\lceil I \text{ and } A \rceil$ and their cousin $\lceil I \text{ or } A \rceil$ combinations ('Give him your money or you'll be sorry') should not be treated as derivative of conditionals, see Davies (1986, 172-203).

So, 「I and A」 and 「A and I」 combinations are almost always unnatural, a fact accounted for by the Correlation, Inheritance and Shift Principles. Exceptions to these are more abundant than those to 「A and Q」 and 「Q and A」 combinations, due mainly to a conventional use of 「I and A」 combinations for bargaining or justification purposes, though all the exceptions are accounted for by the Sharpening Principle.

「I and Q」 and 「Q and I」 Combinations and the Aggression Principle

Here, I show that 「I and Q」 and 「Q and I」 combinations are almost always unnatural, and present what I call the "Aggression Principle."

「I and Q」 and 「Q and I」 combinations are almost always unnatural—the only exceptions again being those in which the Sharpening Principle applies—a fact accounted for by a combination of the Correlation, Inheritance, Shift, Pause, and Aggression Principles (to be explained). (59)-(68) are listed in increasing order of naturalness, as are their respective 「I and Q」 and 「Q and I」 combinations, (59')-(68').

(59) Go home. Is the Pacific the largest ocean?

(60) Go home. What's on television tonight?

(61) Go home. Where is your mother?

(62) Go home. Were there dogs on your walk here?

(63) Go home. How far away do you live?

(59') Go home and is the Pacific the largest ocean?

(60') Go home and that's on television tonight?

(61') Go home and where is your mother?

(62') Go home and were there dogs on your walk here?

(63') Go home and how far away do you live?

(64) Is the Pacific the largest ocean? Go home.

(65) What's on television tonight? Go home.

(66) Where is your mother? Go home.

(67) Were there dogs on your walk here? Go home.

(68) How far away do you live? Go home.

(64') Is the Pacific the largest ocean and go home.

- (65') What's on television tonight and go home.
- (66') Where is your mother and go home.
- (67') Were there dogs on your walk here and go home.
- (68') How far away do you live and go home.

The Correlation and Inheritance Principles hold for these combinations, as does the Pause Principle (with respect to [Q and I] combinations) and the Shift Principle.

A variation of the Shift Principle (or perhaps a corollary of it) is the Aggression Principle, which I now explain. Both imperatives and interrogatives are primarily used by a speaker as directives to get the hearer to perform some action. Interrogatives differ from imperatives in that (a) their use as directives is limited to acquiring information from the hearer, and (b) they have the force of requests rather than orders or commands, which generally require the speaker to be in a special position of authority. For our purposes, (b) is the key difference, for when a speaker issues a directive she does so from a position of authority; hence, the act is more or less aggressive. Thus, in using [I and Q] and [Q and I] combinations, a speaker moves from an aggressive stand to a polite one or vice versa—and, in actual conversation, this is odd move to say the least. Thus, the Aggression Principle:

[M1 ? M2], the use of which involve moving from an aggressive stance to a polite one or vice versa, is natural to the degree it is clear that there is a good reason for doing so.

By now, the reader will have correctly guessed that sharpening the point of the first utterance constitutes a good reason for such a move.

Finally, note that (64)-(68) seem to provide further support for Pause Principle. When one first reads or hears (64)-(68), one is tempted to think that the imperative is

issued *as a result of an answer to the first question*. This, I think, lends intuitive support to the principle that, when we ask a question, we normally pause for an answer.

Table 1: Conjunctions

<i>Combination</i>	<i>Generally</i>	<i>Principles</i>
「A and A」	Natural	Correlation, Inheritance, Sharpening
「Q and Q」	Natural	Correlation, Inheritance
「I and I」	Natural	Correlation, Inheritance, Sharpening
「A and Q」	Unnatural	Correlation, Inheritance, Shift
「Q and A」	Unnatural	Correlation, Inheritance, Shift, Pause
「I and A」	Unnatural	Correlation, Inheritance, Shift, Sharpening
「A and I」	Unnatural	Correlation, Inheritance, Shift, Sharpening
「I and Q」	Unnatural	Correlation, Inheritance, Shift, Aggression
「Q and I」	Unnatural	Correlation, Inheritance, Pause, Shift, Aggression, Sharpening

Table 1 summarizes our discussion of conjunctions. That 「A and A」 and 「I and I」 combinations are generally natural is explained by a combination of the Correlation, Inheritance and Sharpening Principles. 「Q and Q」 combinations are generally natural because of a combination of the Correlation and Inheritance Principles. 「A and Q」 combinations are generally unnatural because of a combination of the Correlation, Inheritance and Shift Principles. 「Q and A」 combinations are generally unnatural because of a combination of the Correlation, Inheritance, Shift and Pause Principles. 「I and A」 and 「A and I」 combinations are generally unnatural because of a combination of the Correlation, Inheritance, Shift and Sharpening Principles. 「I and Q」 combinations are generally unnatural because of the Correlation, Inheritance, Shift and Aggression Principles. Finally, 「Q and I」 combinations are generally unnatural because of all six principles.

Disjunctions

「A or A」, 「Q or Q」 and 「I or I」 Combinations and the Alternative Principle

Here, I offer some general remarks about disjunctions, introduce what I call the "Alternative Principle," and use it to explain the naturalness of 「A or A」, 「Q or Q」 and 「I or I」 combinations.

In "Indicative Conditionals," Grice discusses at length the reasons for introducing the disjunctive particle into a natural language; "Why," he asks, "should a language community introduce a disjunctive particle into their language?" The question is particularly pressing if one assumes, as Grice does, that since the negation and conjunctive particles are linguistically more basic, the language community could use the negation and conjunction particles to state all that a disjunction does ((A or B) \equiv not (not A and not B)), and, hence, have no need for the disjunctive particle. Grice notes that, besides being more linguistically economical,⁵ disjunctions are particularly apt for a certain method of reasoning, and suggests that this might have something to do with the introduction of the disjunctive particle into a language. This method of reasoning is one which

- (a) seeks total or partial progress in the solution of "W-questions";
- (b) deploys a method that is of its nature eliminativist;
- (c) so involves a pattern of argument in which there are two premises, one essentially disjunctive, the other non-disjunctive; and
- (d) requires that the logical quality (negation, affirmation, double negation, etc.) of the non-disjunctive premise to be

⁵ By 'linguistically economical', he means that an utterance of 'It is not the case that either Bush will not win the next Republican nomination or Dole will' is conversationally more cumbersome and difficult to follow than an utterance of 'Bush will win the next Republican nomination or Dole will.'

contradictorily opposed to that of one of the components of the disjunctive premise (IC, 74).

We need not dwell on all of these characteristics, except to say that they are exemplified, of course, by disjunctive syllogism. But (b) is important for our purposes.

Grice noticed that disjunctions are primarily used when the partners in a talk exchange agree on a predetermined set of alternatives (which depend on the goal of the conversation), any of which might possibly lead us to achieve our conversational purpose. For example, if the point of our conversation is to state or determine who will win the next Republican nomination, and there exists an initial list of plausible candidates, disjunction may be employed—say, by continual uses of disjunctive syllogism—to help us achieve our conversational objective. So Grice noticed that disjunctions are particularly apt for conversational purposes when there is an initial list of alternatives. If Grice is right—and I think he is—the following $\lceil A \text{ or } A \rceil$ combinations are natural to the degree that the disjuncts are easily imagined to be members of a predetermined set of possible alternatives that are shared by the participants in a talk exchange, any of which might lead us to achieve our conversational goal.

(69) Bush will win the next Republican nominations or Dole will.

(70) The sky is blue or it is not.

(71) You will be home by midnight or you will be grounded.

(72) Jim will pitch or he will play first base.

(73) We will find a way or we will make one.

Despite his achievements in helping to develop the field of pragmatics, Grice was primarily concerned with logic. Thus, he restricted his discussion of the introduction of the disjunctive particle into a natural language to disjunctions of assertorics, those being the primary concern of logic. But many disjunctions used in natural language have

disjuncts that are not assertoric. Can Grice's insight be generalized? I claim that it can and, consequently, that there is no reason to restrict this principle to $\lceil A \text{ or } A \rceil$ combinations. For example, the following natural $\lceil I \text{ or } I \rceil$ combinations could all be used in conversation provided the disjuncts are members of a set of predetermined alternatives, either of which the speaker believes will help her achieve her conversational point.

- (74) Give me liberty or give me death.
- (75) Shut up or go to your room.
- (76) Apologize or leave.
- (77) Bring your sweater or bring a light jacket.
- (78) Print clearly or use a typewriter.

Given the foregoing considerations, I propose the Alternative Principle, which I claim is generalizable to all disjunctions.

$\lceil M1 \text{ or } M2 \rceil$ combinations are natural to the degree that there is a conversational point to presenting one's hearer with the job of determining between the two alternative ways the disjunction may be fulfilled, i.e. by, M1 being fulfilled or M2 being fulfilled.

The Alternative Principle is supported by the difficulty one has in identifying natural $\lceil Q \text{ or } Q \rceil$ combinations that do not involve use of Yes/No questions. Such combinations are extremely rare and almost always unnatural, as (76)-(78) make evident.

- (76) Where are you going or what car are you driving?
- (77) What time is it or where will you buy a watch?
- (78) How could you do that or when did you do it?

But consider (79), uttered in a context in which either the speaker's sweater or light jacket will suffice to keep her warm.

- (79) Where did you put my sweater or (where did you put my) light jacket?

In this context, (79) seems quite natural. Another example is that in which (80) is uttered in a context in which the speaker seeks to discover from his billionaire hearer how to be rich, and another is that in which (81) is uttered in a context in which it is known to both conversational partners that what the hearer bought last night at the store is what they will be having for breakfast.

(80) How did you make a billion dollars or how did you make your first million?

(81) What is for breakfast or what did you buy last night?

Cases like (80) and (81) seem especially natural when 'for that matter' is included as part of the second disjunct, as in (80') and (81').

(80') How did you make a billion dollars or, for that matter, how did you make your first million?

(81') What is for breakfast or, for that matter, what did you buy last night?

(79)-(81) are natural in these contexts because it is clear from the context that compliance with either of the conjuncts helps to achieve the purpose for which the speaker uttered the combination. Still rarer are $^{\lceil}Q \text{ or } Q^{\rceil}$ combinations in which Q1 and Q2 differ in kind (with the exception of when Q2 is a Yes/No question, which helps to sharpen the point of the first utterance), but some may be found. For example, (82) is natural in a context in which (a) a son is leaving his house, (b) his mother is concerned for his safety when he goes to location x, (c) he only goes to location x when he is with John, and (d) he is only with John when he goes to x.

(82) Where are you going or who are you going with?

In this case, compliance with either disjunct would help the mother achieve her conversational purpose, namely, to determine whether or not her son is likely to get

himself into trouble in the near future. Granted, such a context seems quite contrived; nonetheless, *if* such a context arose, (82) *would* be natural— which lends further support to the Alternative Principle.

The Alternative Principle provides the basis for $\lceil Q \text{ or } Q \rceil$ exceptions to the Pause Principle, an exception previously left unexplained. The speaker need not pause after Q1 when using $\lceil Q \text{ or } Q \rceil$ combinations because he knows that compliance with either disjunct will help him achieve his conversational purpose. The Alternative Principle also helps to explain why $\lceil \text{or } Q \rceil$ constructions, when used to help sharpen the point of an utterance, are always natural. Recall (31)-(33), repeated here,

- (31) Jim will pitch tonight or is his arm hurting?
- (32) Shall I arrive around one o'clock or is that too early?
- (33) Give me your money or haven't you got any?

and recall that in these examples Q2 is used to ask a question regarding a standard presupposition of an utterance of M1. Since Q2 in these cases ask about a standard presupposition of an utterance of M1, compliance with either of the conjuncts suffices to achieve the conversational purpose of the speaker. For example, the manager of a baseball team might utter (31) to his pitching coach in order for the coach to help him make up his mind about tonight's starting pitcher. If A1 is fulfilled, i.e., if it is true, Jim will be the starting pitcher; if Q2 is complied with, Jim will be the starting pitcher if the answer is affirmative, and Jim will not be the starting pitcher if the answer is negative.

$\lceil A \text{ or } Q \rceil$ and $\lceil A \text{ or } I \rceil$ Combinations

Consider (82)-(86), where '?' is to be filled in, if possible, by an imperative or interrogative that does not pertain to a presupposition of A1 (which cases I just covered, and are almost always natural).

- (82) Bush will win the next Republican nomination or ?
- (83) The sky is blue or ?
- (84) You will be home by midnight or ?
- (85) Jim will pitch or ?
- (86) We will find a way or ?

I cannot find any completions of (82)-(86) by an imperative or interrogative that are natural, except those in which Q2 pertains to a presupposition of A1. One might think that (84)-(86) might be completed by imperatives such as 'suffer the consequences' or 'pay the price'. However, I think such completions would not result in genuine $\lceil A \text{ or } I \rceil$ combinations, but rather in elliptical $\lceil A \text{ or } A \rceil$ combinations. For example, (84) completed by 'suffer the consequences' is elliptical for 'You will be home by midnight or you will suffer the consequences; (86) completed by 'pay the consequences' is elliptical for 'You will be home by midnight or you will pay the consequences. Not coincidentally, I also fail to discern any I or Q completions of (82)-(86) that might be members of a predetermined set of alternatives which could help the partners in the talk exchange achieve their conversational purpose. I don't claim that such a completion is impossible; but I do claim that, should one be discerned, the result will be a combination to which the Alternative Principle applies. Hence, because there are so few contexts (if any) in which it is clear that the disjuncts in $\lceil A \text{ or } I \rceil$ and $\lceil A \text{ or } Q \rceil$ combinations are members of a set of possible alternatives that could help the partners in a talk exchange achieve their conversational purpose, $\lceil A \text{ or } I \rceil$ and $\lceil A \text{ or } Q \rceil$ combinations are almost always unnatural (again, save for those $\lceil A \text{ or } Q \rceil$ combinations in which the $\lceil \text{or } Q \rceil$ construction is used to sharpen the point of A1).

「Q or A」 and 「Q or I」 Combinations

I fail to find any natural 「Q or M2」 combinations in which M2 is assertoric or imperative. For example, (87)-(90) do not seem to have any A or I completion that results in a natural 「Q or M2」 combination.

- (87) Where did you put my sweater or ?
- (88) How did you make a billion dollars or ?
- (89) What is for breakfast or ?
- (90) What time is it or ?

I claim that the unnaturalness of such combinations is a result of a combination of aforementioned principles.

「Q or A」 combinations are unnatural because of a combination of the Alternative and Pause Principles. Like 「A or I」 and most 「A or Q」 combinations, I fail to find any contexts in which it is clear that the disjuncts in 「Q or A」 combinations are members of a set of possible alternatives that could help the partners in the talk exchange achieve their conversational purpose. Hence, these combinations are unnatural. Moreover, I claim that if there are any such natural combinations, the Alternative Principle would apply.

「Q or A」 combinations are also unnatural because of the Pause Principle. I trust that the reader will have the same strong intuition to pause after Q1 as I do when uttering a 「Q or A」 combination such as (90'),

- (90') What time is it or I forgot my watch.

「Q or I」 combinations are unnatural because of a combination of the Alternative, Pause and (especially) Aggression Principles. I will not repeat myself with regard to the Alternative and Pause Principles; the reader is by now well aware of what I would say regarding the application of them to 「Q or I」 combinations. Perhaps the most obvious

principle at work with regard to these combinations is the Aggression Principle. (91) and (92) are clearly unnatural in large part because of the discomfort one feels in actual conversation when a move is made from the polite interrogative to the aggressive imperative.

- (91) What time is it or show me your watch.
- (92) Where did you put my sweater or show me where it is.

The same discomfort in using, and hence the same unnaturalness of, [I or Q] combinations will become evident in the next section.

[I or A] and [I or Q] Combinations

I first discuss [I or A] combinations, which are affected by the Alternative and Sharpening Principles and, hence, are almost always unnatural, except in cases in which an [or A] construction is used to sharpen the point of I1, the fourth such construction we've discovered. Consider (93)-(97), where '?' is a placeholder for an assertoric or interrogative.

- (93) Give me liberty or ?
- (94) Tell me the time or ?
- (95) Apologize or ?
- (96) Bring your sweater or ?
- (97) Print clearly or ?

Completions of (93)-(97) by assertorics, except by assertorics that state the consequences resulting from the hearer's failure to obey I1, such as (93')-(97'), are quite unnatural.

- (93') Give me liberty or I won't be able to develop my full potential.
- (94') Tell me the time or I might miss my daughter's school play.
- (95') Apologize or you'll regret it.
- (96') Bring your sweater or you'll be chilly.
- (97') Print clearly or I won't be able to read your application.

The assertorics in these examples are clearly used by a speaker to motivate the hearer to comply with the respective IIs, and hence, to sharpen the point of an utterance of the respective I1's. Therefore, (93')-(97') are quite natural—just as the Sharpening Principle predicts. But I fail to find any completions of (93)-(97) that natural and do not sharpen the point of an utterance of the respective I1s.

The Alternative Principle can account for this dichotomy. For example, it is natural to suppose that a speaker who utters (95') might do so for the purpose of inculcating in the hearer the belief that harboring too much pride can be harmful to him, but, kept in check, is not harmful to him. In such a context, compliance with I1 will suffice for achieving the speaker's objective, for if the hearer obeys his command, he is not likely to suffer the harm that accompanies excessive pride; on the other hand, compliance with A2 will also suffice, for if it is true that the hearer does not swallow his pride and apologize, he will regret not doing so, thereby learning first-hand the harm that accompanies excessive pride. Thus, compliance with either disjunct will suffice for the conversational point. Consequently, 'I or A' combinations are never natural except when 'or A' is used to sharpen the point of an utterance of I1, a result predicted by the Sharpening Principle and explained by the Alternative Principle.

Now consider (93)-(97), this time where '?' is a placeholder for an interrogative. Again I fail to discern any completions of these examples, except (again) those in which the 'or Q' construction is used to sharpen the point of I1, the naturalness of which has already been explained. I need not say again that the Sharpening and Alternative Principles are at work in these examples as they were for previous examples. But, as in 'Q or I' combinations, perhaps the principle that most affects the (un)naturalness of these

combinations is the Aggression Principle. (94") and (95") are clearly unnatural in large part because of the discomfort one feels in actual conversation when a move is made from the aggressive imperative to the polite interrogative.

(94") Tell me the time or what time is it?

(95") Apologize or how will you handle the regret afterward?

Consequently, [I or Q] combinations are almost never natural except when [or Q] is used to sharpen the point of an utterance of I1, a result predicted by the Sharpening Principle and explained by the Alternative and Aggression Principles.

Table 2 summarizes our discussion of disjunctions. That [A or A] and [I or I] combinations are generally natural is explained by of the Alternative Principle. That [Q or Q], [A or Q] and [I or A] combinations are generally unnatural can be explained by a combination of the Alternative Principle and Sharpening Principles. The Alternative Principle can be used to explain why [I or A] combinations are generally unnatural. That [Q or A] combinations are generally unnatural can be explained by a combination of the

Table 2: Disjunctions

<i>Combination</i>	<i>Generally</i>	<i>Principles</i>
[A or A]	Natural	Alternative
[Q or Q]	Unnatural	Alternative, Sharpening
[I or I]	Natural	Alternative
[A or Q]	Unnatural	Alternative, Sharpening
[A or I]	Unnatural	Alternative
[Q or A]	Unnatural	Alternative, Pause
[Q or I]	Unnatural	Alternative, Pause, Aggression
[I or A]	Unnatural	Alternative, Sharpening
[I or Q]	Unnatural	Alternative, Aggression, Sharpening

Alternative and Pause Principles. A combination of the Alternative, Pause and Aggression Principles can explain why $\lceil Q \text{ or } I \rceil$ combinations are generally unnatural. Finally, that $\lceil I \text{ or } Q \rceil$ combinations are generally unnatural can be explained by a combination of the Alternative, Aggression and Sharpening Principles.

Conditionals

General Remarks and the Principle of Conversational Valence

In this section, I (a) offer some introductory remarks about conditionals in general, and (b) show that and explain why only the three $\lceil \text{If } A \text{ then } M2 \rceil$ combinations are natural. But before proceeding, and in order to reduce the chances for later confusion, I explain an ambiguity in some $\lceil \text{If } M1 \text{ then } M2 \rceil$ combinations.

Compare (98)-(100) to (101)-103).

- (98) If she leaves you, (then) what will you do?
- (99) If you fail the exam, (then) will you have to take a make-up?
- (100) If John only went to the store, (then) why has he been gone so long?

- (101) If you can see the car, (then) what color is it?
- (102) If you haven't promised to keep it a secret, (then) when will she return?
- (103) If you won't be breaking any laws, (then) what stocks do you think will rise sharply over the next few days?

In (101)-(103), the conditional takes wide scope over the interrogative markers, while the interrogative markers of (98)-(100) are normally taken to have wide scope over the whole conditional. That is, in uttering (101)-(103), a speaker seeks an answer to Q2 on the *provision* that A1 is fulfilled; in uttering (98)-(100), a speaker seeks an answer to Q2 on the *assumption* that A1 is fulfilled. If you like, one could say that the hearer, if she is to answer Q2 in (101)-(103), is to do so *provided* A1 is true; if she is to answer Q2 in (98)-

(100), she is to do so *while assuming* A1 is true. Suggestive of this scope distinction is that the form of (98)-(100) is perhaps more clearly represented by (98')-(100'), while (101)-(103) are better represented as they are.

- (98') What will you do if she leaves you?
- (99') Will you have to take a make-up exam if you fail this one?
- (100') Why has John been gone so long if he only went to the store?

This is not to say that the conditional form of (98)-(100) cannot be taken to have wide scope over the interrogative markers; indeed they can, which means that the scope of (98)-(100) is (a) ambiguous and (b) disambiguated by context of the utterance.

How would Ludwig's fulfillment condition semantics apply to (98)-(100) if the interrogative markers are taken to have wide scope? Let's use (98) as our example. We saw that the form of (98) is perhaps better represented by (98'), but it is even better represented by (98").

- (98") What is the x such that [you will do x if she leaves you]?

Roughly then,

- (98) is fulfilled_[s, t] in English iff the person addressed by s at t makes it the case that (i) there is a φ such that φ is a completion of 'if she leaves you, you will do x', and (ii) 'you will say φ ' is true_[s, t] in English with the intention of answering the question asked by s at t in which 'if she leaves you, what will you do' was used.

In what follows, I discuss only conditionals like (101)-(103), in which the conditional form takes wide scope over the interrogative marker.

In "Indicative Conditionals," Grice also goes to great lengths to discuss the reasons for introducing the conditional into a natural language. Why should a language community introduce into their language a conditional particle, especially if their

language already contains the negation and disjunction particles—devices that seem to render a conditional particle unnecessary ($(\text{not } A \text{ or } B) \equiv \text{if } A \text{ then } B$).

Like disjunctions, conditionals seem to be particularly apt for a particular method of reasoning; but unlike the method of reasoning typically employed with the use of disjunctions, this method is not essentially concerned with answering "W-questions," nor is eliminativist in nature. This method of reasoning

- (a) is linked to questions in general;
- (b) is directed "toward the building up, on the basis of certain initial information, of a body of knowledge which can be brought to bear, when the occasion arises, upon whatever questions call for solution" (Grice, IC, 76). Characterize this building up of a body of knowledge as "accumulative";
- (c) "consists in an indefinitely prolonged process of interrogative subordination.⁶ Beginning with certain starting points, one adds to these starting points, without discarding any of them, an indefinite multitude of further pieces of information which exhibit the feature of being affirmative answers to questions to which other questions lying earlier in the chain and already affirmatively answered are interrogatively subordinated. Thus, later questions in the chain have in effect already been answered through answering earlier questions which are subordinated to them" (Grice, IC, 76).

These characteristics are of course exemplified by *Modus Ponens*.

Important for our purposes is Grice's key insight that conditional particles are particularly apt for use in methods of reasoning in which "later questions in the chain have in effect already been answered through answering earlier questions which are subordinated to them." Hence, in $\lceil \text{If } A \text{ then } A \rceil$ combinations, the truth of A2 is

⁶ Interrogative subordination is a relation between two questions such that an affirmative answer to one determines an affirmative answer to the second, while a negative answer to the second determines an affirmative answer to the first. Such a relation exists, for example, between the questions 'Does your aunt live in London?' and 'Does your aunt live in England?' (Grice 1989b, 75).

determined by the truth of A1 and the falsity of A1 is determined by the falsity of A2. Again, Grice's main concern was logic, and so he was mainly concerned with assertorics. But since truth conditions are merely one kind of fulfillment condition, it is reasonable to suppose that this key insight ought to be generalizable to all conditionals—and I claim that it is, though it is tricky to get just the right formulation of the generalized insight. One is tempted to generalize the insight in the following way.

Generalization 1: *‘If M1 then M2’ combinations are natural to the degree that fulfillment of M2 is already determined by fulfillment of M1.*

But this generalization cannot be right because it is too strong. Almost all ‘If A then M2’ combinations are natural, as is (104).

(104) If the store is open, buy some milk.

But compliance with an utterance of 'buy some milk' is in no way already *determined* by the truth of 'the store is open', for the simple reason that directives are future directed—i.e., an auditor can only comply with a directive at time later than the time of utterance of the directive—and hence, cannot be already complied with at the time of utterance.

Similar considerations apply to ‘If A then Q’ combinations, as in (105).

(105) If the store is open, when does it close?

One might try to avoid this difficulty by weakening Generalization 1 in the following way.

Generalization 2: *‘If M1 then M2’ combinations are natural to the degree that fulfillment of M2 depends on (but is not determined by) fulfillment of M1.*

Generalization 2 is also too strong, as (107) shows.

(107) If you like milk, then drink it.

Since the hearer can choose to disobey I2 even though A1 is true, fulfillment of I2 cannot depend on compliance of A1. One might try a still weaker generalization.

Generalization 3: *‘If M1 then M2’ combinations are natural to the degree that the speaker intends the fulfillment of M2 to depend on fulfillment of M1.*

But Generalization 3 is too weak since it allows that all ‘If M1 then M2’ combinations be natural, since all that would be required for an ‘If M1 then M2’ combination to be natural is a speaker's intentions—and a speaker can intend anything.

I claim that the right generalization is one that makes use of a certain notion of privilege or importance of an utterance. Call such conversational privilege or importance "conversational valence," a term of art that I elucidate further by adopting and adapting an example of Grice's (IC, 64). Suppose we are discussing the future of the Republican Party and you utter (69), repeated here.

(69) Bush will win the next Republican nomination or Dole will.

I can disagree with you in one of two ways. First, I can say, "That is not so, it won't be either. It will be Buchanan." This statement contradicts your's and, hence, is an example of "contradictory disagreement." Second, I can say, "I disagree, it will be either Bush or Buchanan." This statement does not contradict your's since I am not denying that Bush will win the nomination. This is an example of "substitutive disagreement." Now suppose that we accept as "common ground" that Bush is highly likely to win the nomination, in which case, the only reasonable disjunctive question to which we could be addressing our statements is "Bush or who?" This is a context in which 'Bush will win

the next Republican nomination' is, and 'Dole will' is not, privileged or more important or has a higher conversational valence.

Common ground status is not the only way in which one sentence can have greater conversational valence than another. Another way is for a fulfillment of M2 to depend on M1, in which case M1 would have greater conversational valence. Another way is for M1 to have already been, or to be anticipated as being, introduced into the conversation; for example, if a speaker anticipates that 'Bush will win the next Republican nomination' will be asserted in the conversation in the near future, that sentence will have a very high degree of conversational valence. Thus, common ground status, dependence and anticipation are three ways in which one sentence can have greater conversational valence than another.

What is the relation between conversational valence and conditionals? Suppose you utter (69) in the context of the common ground status discussed a moment ago; doesn't your utterance fail to convey something important, namely, that you think Bush is likely to win? Indeed it does, but how, given such a context, *can* you convey this common ground status? You might make it explicit by saying something such as "I think either Bush or Dole will win the next Republican nomination, but I wish the discussion to be restricted to the question 'Bush or who?'" Is there a less cumbersome way? You might introduce a syntactic device into our language, say by bracketing the written words that convey the common ground status or by certain inflection of voice, syntactic devices that English lacks. But you might use a conditional! Indeed, the common ground status of 'Bush will win the next Republican nomination' *just is* the important, privileged or conversationally salient information that is conveyed by (108),

(108) If Bush does not win the next Republican nomination, Dole will,

and that is lacking in (69). Likewise, suppose the context is such that either (a) you have asserted, or (b) I anticipate that you will assert that Bush will win the next Republican nomination. Such a context is one in which it is more natural for me to utter (109) than (110).

(109) If Bush wins the Republican nomination, the party is in trouble.

(110) (Either) Bush will not win the Republican nomination or the party is in trouble.

In light of the foregoing discussion, I claim that the following Conversational Valence Principle is the correct generalization of Grice's key insight.

Conversational Valence Principle: 'If M1 then M2' combinations are more natural than their logically equivalent disjunction only if M1 has greater conversational valence than M2; otherwise, the logically equivalent disjunction is more natural.

The remaining task is to show that this principle is consistent with data that suggest that all and only 'If M1 then M2' combinations in which M1 is an assertoric are natural.

Accounting for the Data

(111)-(113) are examples of the three 'If A then M2' combinations, (114)-(116) are examples of the 'If Q then M2' combinations and (117)-(119) are of the 'If I then M2' combinations.

(111) If it's three o'clock then I'm late for my class.

(112) If Jim is going to North Carolina then go with him.

(113) If Jim's arm is hurting then should he be pitching tonight?

(114) If what time is it then I'm late for my class.

(115) If is Jim going to North Carolina then go with him.

(116) If how is Jim's arm then should he be pitching tonight?

(117) If tell the time then I'm late for class.

- (118) If go to North Carolina then take me with you.
 (119) If hurt Jim's arm then should he be pitching tonight?

Notice that only (111)-(113) are natural. Hence, if this data were generalized, one would conclude that conditionals that have assertoric antecedents are usually natural and those that have interrogative or imperative antecedents are usually unnatural, a conclusion that I—and I presume most others—would accept. The data can be accounted for as follows.

First, we should consider the relative utility of the various forms. Whether they are all grammatical in English, it is clear that we could provide a semantics for a language in which all of these form appears. This is just what Ludwig's semantics does. However, if it turned out that the forms in (114)-(116) and (117)-(119) would serve no conversational purpose, that would suffice for why they do not appear in English. (While this may be to say that they are ungrammatical, this is to give a pragmatic explanation for that judgment. In other words, the explanation shows that the judgment of ungrammaticality or unacceptability is driven not by the impossibility of a coherent semantic interpretation, but the unavailability of a serious use for these constructions.) I think in fact that if we consider what purpose these various forms could serve in conversation, we'll see that the suspect forms could serve no useful purpose whatsoever.

Let us begin with the acceptable forms. We have already seen that these can be exceedingly useful. (111), as Grice points out, is used when we anticipate the possible introduction of the antecedent of the conditional later in the discourse, or when it has already been introduced and we wish to draw some conclusion from it. That is to say, the form of (111) is made for *modus ponens*. We can put this by saying that the introduction

of a conditional in a conversation is generally appropriate when the antecedent is conversationally salient. (Of course, a conditional may also be introduced when we anticipate employing *modus tollens*, so a conditional may be appropriately introduced also when the negation of its consequent is conversationally salient as well.) A sentence can be conversationally salient if it is relevant in the discourse and both participants are aware of this or can easily be brought to be aware of it. A sentence can be conversationally salient even if it is not known whether it is true or false. The introduction of a conditional, for example, where the consequent is of interest for the purpose of the talk exchanged, may make the antecedent conversationally salient, and its truth value of interest because of the acceptance of the conditional and the relevance of the consequent. The question may then be whether the antecedent is true or false.

Let us turn now to (112) and (113). Of course, these will not be used in arguments, since an imperative or interrogative is not the conclusion of an argument. To take (112) first, the point of an utterance of (112) is to issue a conditional directive. One does this in the standard case when one wants someone to do something only on condition that something obtains. In standard uses, we would use the conditional form only if there were some question about whether the antecedent is true. Otherwise, we'd just use the consequent (of course, we may use a conditional form to signal politeness, or for other somewhat fancy purposes, but we can ignore these uses in an inquiry about the basic function of such devices in the language). Thus, we don't intend that someone should do something unless conditions are, as we can say, propitious, and it is clear that it is very useful to have this device available. Since interrogatives are just specialized imperatives, the same remarks apply *mutatis mutandis* to (113).

When we turn to (114)-(116) and (117)-(119), however, it is much more difficult to see how there could be a conversational point to their use. I will focus on (117)-(119). The remarks about these will carry over straightforwardly to (114)-(116). The key to seeing why a conditional with an imperative in the antecedent is a pointless linguistic device is to consider what its fulfillment conditions are. Let us consider (117). The fulfillment conditions are the following:

(117') 'if tell me the time, then I'm late for class' is fulfilled_[s, t] in English iff if the person addressed by *s* at *t* tells the *s* the time with the intention of obeying the directive issued by *s* at *t* in which 'tell me the time' was used, then *s* is late for class at *t*.

Now the question is, what would one do with an utterance with these fulfillment conditions? What would an appropriate conversational response be? What could be the point of its utterance? First, of course, it is not useful for the purposes of reaching a conclusion on the basis of any assertions made or to be anticipated in the talk exchange. This is true of all conditional in mixed moods. Second, it is not useful for getting someone to do something only if certain conditions not known to obtain do in fact obtain. That would require an assertoric in the antecedent. Third, it would not be appropriate to assert it either because one knew the antecedent was not going to be fulfilled or because the consequent was true, for that would violate the maxim of quantity to no purpose. Furthermore, with regard to the fulfillment conditions of the antecedent, there is nothing that the speaker's hearer would be called upon to do in order to ensure that they failed so that the conditional was fulfilled, since not attending to it would suffice. Thus, there is no intelligible conversational point that (117) could serve.

Now let's consider (118). Of course, many of the remarks just made apply here as well. If (118) has anything more to be said for it than (117), it would have to be because its having an imperative as a consequent gives it a point that (117) could not have. But this would seem to give some point only if we could imagine the fulfillment of the antecedent being an intelligible condition someone would want to place on wanting someone to fulfill the consequent (that was not more easily obtained by some other means). Let us then consider this question in the light of the fulfillment conditions for (118):

(118') 'If go to North Carolina, then take me with you' is fulfilled_[s, t] in English iff if the person addressed by s at t goes to North Carolina with the intention of obeying the directive issued by s at t in which 'go to North Carolina' was used, then the person addressed by s at t takes s with him [to North Carolina].

Now, we can imagine a point to saying to someone, if you are going to North Carolina, then take me with you, and a point to saying take me to North Carolina. But what about (118), given (118')? Note that (118)'s fulfillment is left up to the hearer. The hearer can fulfill it either by taking the speaker to North Carolina with him or by doing nothing as a result of the utterance. Clearly, if the speaker wanted the hearer to take him to North Carolina, he could just have uttered the consequent. There seems to be no standard point that such a construction could have. It is difficult to see why the speaker could want to condition getting the hearer to take him to North Carolina on getting him to go to North Carolina as the result of a directive (in the broad sense covering conditional directives, of course). It might be said that (118) could be used to issue a polite request to be taken to North Carolina, but there are more appropriate forms for that, such as, 'If you wouldn't mind, please take me to North Carolina'. And in the absence of a standard use, uses for

special purposes such as politeness are unlikely to arise if there are easier ways of achieving such purposes already available in the language. Thus, there seems to be no conceivable conversational point to having such forms available in the language, so that even if they are intelligible in the sense that we can give a systematic semantics for them, there would be no point to such forms having any currency in the language. These remarks apply straightforwardly to (119).

With these observations in hand, we can deal with (114)-(116) summarily. Since interrogatives are used to issue specialized directives, our remarks about (117)-(119) carry over to them. We can note in addition, however, that they present a special puzzle of their own. For the interrogatives are fulfilled if they are answered, period, whether or not they are answered correctly. And it is exceedingly difficult to imagine why anyone would want to condition, as in (115) or (116), getting someone to do something simply on the person's answering a question some way or other. We can see that the answers to the questions might be relevant in these cases to whether one wanted someone to, in the case of (115), go to North Carolina, or in the case of (116), answer the question whether Jim should be pitching, but these conditionals do not condition the consequents on what the correct answers to the questions are, but only on their being answered. There is then no intelligible standard use of such conditionals.

To conclude, this shows that the explanation of the absence of the puzzling forms from the language is due to their not having a point, even given an intelligible semantics. That is, no sentence of the form 'if I then M' or 'if Q then M' could have a standard conversational point, and, hence, we should not expect to find such forms used in the

language, even if a general semantics for the language allows them. The data then do not conflict with Ludwig's semantics, but rather can be seen to be predictable from it.

Negation

In this brief section, I (a) offer examples to show that negations of assertorics are almost always natural, while negations of imperatives and interrogatives are always unnatural, for the simple reason that English does not contain any syntactic device to represent the failure of compliance conditions, and (b) use Ludwig's semantic theory to help explain why English does not contain any such syntactic device.

The following few examples should suffice to show that negations of assertorics ((111-113)) are almost always natural while negations of interrogatives ((114)-(116)) and imperatives ((117)-(119)) are always unnatural.

- (111) It is not the case that you are sitting down.
- (112) It is not the case that the Red Sox will win this year's World Series.
- (113) It is not the case that I am tired.

- (114) It is not the case that sit down.
- (115) It is not the case that watch the World Series.
- (116) It is not the case that get some rest.

- (117) It is not the case that are you sitting down?
- (118) It is not the case that will the Red Sox win this year's World Series?
- (119) It is not the case that are you tired?

Clearly, English contains a syntactic construction, \lceil It is not the case that \rceil , that can be used to represent the failure of truth conditions, but it does not contain one that can be used to represent the failure of compliance conditions; and this pragmatic situation suffices to

explain why negations of assertorics are natural while negations of interrogatives and imperatives are unnatural.

One might think that, for example, the negations of 'sit down' and 'are you tired?' are represented by (114') and (119') respectively.

- (114') Don't sit down.
 (119') Aren't you tired?

A moment's reflection reveals, however, that (114') is an imperative typically used to direct the hearer *not* to sit down, while (119') is an interrogative typically used to direct the hearer to state whether or not she is *not* tired, reflections borne out by their respective compliance conditions that, (very) roughly stated, are as follows.

Compliance Condition for (114'): You will not sit down with the intention of complying with this directive.

Compliance Condition for (119'): You will answer 'Aren't you tired' with the intention of complying with this directive.

These compliance conditions simply do not represent the failure of the compliance conditions for (114) and (119) to be satisfied, but rather, represent the compliance conditions for *different* directives.

Why doesn't English contain any such syntactic device? An utterance of an interrogative or imperative is a directive. Formally, the negation of a sentence with compliance conditions is fulfilled iff it is not the case that it is complied with. More specifically, taking 'Sit down' as our example, we get:

'Neg('Sit down')' is fulfilled_[s, t] in English iff it is not the case that the person addressed by *s* at *t* sits down with the intention of obeying the directive issued by *s* at *t* in which 'Neg('Sit down')' was used.

What could the point of an utterance of a sentence with these fulfillment conditions be? It does not say something about the world. It does not direct someone to do something. It does not direct someone to do something depending on the world's being a certain way. It is fulfilled provided that it has no effect whatsoever, i.e., provided the addressee does nothing as a result of the utterance (so he can do anything he wants as long as he does not sit down with the intention of fulfilling the sentence as uttered on that occasion—he can sit down or not as he pleases, as long as it has no reference to the utterance). It is hard to imagine what point such a communicative device could have. Thus, it is easy to see why we do not have it in any natural language. To put it another way, the two main functions of language seem to be to communicate information and to get people to do things. The negation of a sentence with compliance conditions performs neither of these functions. There is then no point to having syntactical devices in the language for this function, which well enough explains our sense that 'It is not the case that sit down' is ungrammatical, and why it is a form that never appears in conversation.

Summary

This chapter has made significant use of a number of pragmatic principles to account for the unnaturalness of a many mixed sentential mood sentences. In particular, it has examined data from a number of examples of mixed-mood sentences, formulated principles based on the data, such as the Correlation, Inheritance, Alternative, and Conversational Valence Principles, to name a few, and made use of (i) these principles, (ii) the fact that an essential element in rational discourse is that there is a point or purpose to the talk exchange, (iii) Grice's Cooperative Principle, and other pragmatic factors, and,

in some cases Ludwig's semantic theory, to account for the data. I conclude then that the (un)naturalness of mixed sentential mood sentences can all be explained on the basis of pragmatic considerations, not semantic one. Hence, Ludwig's semantic theory has not shown to be mistaken merely by the presence of unnatural combinations in English.

CONCLUSION

The purpose of this thesis was to show that the (un)naturalness of mixed sentential mood sentences containing the traditional truth-functional connectives is a result of pragmatic, not semantic, considerations. To the extent the thesis was successful, it has (a) shown that many unnatural mixed sentential mood sentences are nonetheless meaningful, (b) defended Ludwig's semantic theory from a particular objection, and (c) extended the account of how such unnatural mixed moods sentences work in natural languages by showing how Ludwig's underlying semantic theory helps to explain why such forms are not used.

The second chapter showed the following.

1. The relation between sentential mood and semantic force is a similarity in fulfillment conditions between the three types of sentential moods sentences and assertive and directive illocutionary acts.
2. Ludwig incorporates nonassertoric sentences into a truth-theoretic semantic theory by using the Generalized Fulfillment Approach—more specifically, by modelling the fulfillment conditions of nonassertorics after those assertions and directives—to generalize the theorems of a truth theory to theorems of a fulfillment theory.
3. Ludwig's semantic theory accounts for the semantics all mixed sentential mood sentences.
4. One could object to Ludwig's theory on the basis that it works too well: on Ludwig's account, unnatural sentences such as 'If what time is it then show me your watch' are

meaningful; it is *prima facie* wrong to attribute meaningfulness to such sentences; hence, Ludwig's theory must be mistaken.

5. The objection in 4. rests on an unargued for assumption, namely, that the unnaturalness of such sentences results from their semantic features.
6. If the unnaturalness of such sentences could be accounted for by pragmatic considerations, Ludwig's semantic theory would be safe from this objection.

The search for pragmatic explanations to the unnaturalness of some mixed sentential mood sentences began in the third chapter, which provided some basic background material in the field of pragmatics culled from the first two chapters of Grice's important work *Studies in the Way of Words*. Background material covered included the following.

1. Grice's twofold project was to find (i) an acceptable use of a certain kind of manoeuvre common in philosophy of language, and (ii) a method for distinguishing legitimate from illegitimate uses of the manoeuvre.
2. Essential to rational discourse is that it has a purpose or point.
3. According to Grice's Cooperative Principle, a rational, cooperative speaker makes his conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which he is engaged.
4. There is a distinction between what is said, which is closely related to the conventional meaning of the utterance, and what is implicated, which is what a hearer must suppose in order to assume that the speaker is adhering to the Cooperative Principle.

5. There are three kinds of implicature: (i) conventional implicature, which is tied to the meaning of a word in a particular utterance, (ii) conversational implicature, which is connected with the purposes or point of the talk exchange, and (iii) a kind of nonconventional implicature that is connected with aesthetic or social principles, such as 'Be Polite'.
6. Someone adheres to the Cooperative Principle as a result of adhering to the more specific maxims and submaxims of Quantity, Quality, Relevance and Manner;
7. Conversational implicatures are generated by apparent violations of the maxims; for example, B's conversational contribution regarding C's not yet having been to prison was seen to result from an apparent violation of the maxim of Relevance.
8. The maxims can be extended to cover nonassertoric sentences; for example, 'Don't ask for more or less information than is required' and 'Don't direct someone to do something more or less specific than is required' could be maxims of Quantity for interrogatives and imperatives respectively.
9. Grice articulated three tests for distinguishing legitimate from illegitimate uses of the manoeuvre: cancelability, non-detachability, and the requirement that the reasoning behind conversational implicatures be capable of being worked out.

The chapter was not intended to provide background sufficient to cover all the pragmatic considerations used in the preceding chapter, but only to give the reader sense of what a pragmatic explanation is like and the reasoning processes involved in providing one.

The fourth chapter began in earnest our search for pragmatic explanations for the (un)naturalness of mixed sentential mood sentences. The highlights of our search are as follows.

1. The point of a talk exchange was found to be of tremendous pragmatic importance, as was the Cooperative Principle, especially in with respect to the explanation of the unnaturalness of conditionals and negations,.
2. The data suggested the formulation of several other pragmatic principles. The Correlation Principle and Inheritance Principles were found to be highly valuable in explaining the (un)naturalness of conjunctions and the Alternative Principle was highly valuable in explaining the (un)naturalness of disjunctions. (Un)natural conditionals were accounted for by the Conversational Valence Principle and, especially, by the point of an utterance of a conditional. The (un)naturalness of negations was explained by the presence in English, or lack thereof, of syntactic devices that could be used to represent the failure of fulfillment conditions. And the presence or lack thereof of such syntactic devices were found to depend on the usefulness of having those devices in English for making one's conversational point.
3. Besides the pragmatic factors already mentioned, the Shift, Pause, Sharpening and Aggression Principles were all found to affect one way or another the (un)naturalness of mixed sentential mood sentences.
4. In several cases, Ludwig's semantic theory, together with the aforementioned pragmatic considerations, was found to be useful in explaining (un)natural combinations.

In light of our success, I conclude that the unnaturalness of mixed sentential mood sentences containing the traditional truth-functional connectives is a result of pragmatic, not semantic, considerations. I consequently take this thesis to have (a) shown that many unnatural mixed sentential mood sentences are nonetheless meaningful, (b) defended

Ludwig's semantic theory from the stated objection, and (c) extended the account of how such unnatural mixed mood sentences work in natural languages by showing how Ludwig's underlying semantic theory helps to explain why such forms are not used.

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BIOGRAPHICAL SKETCH

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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts.

Kirk Ludwig, Chairman
Associate Professor of Philosophy

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts.

John Biro
Professor of Philosophy

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts.

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This thesis was submitted to the Graduate Faculty of the Department of Philosophy in the College of Liberal Arts and Sciences and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Master of Arts.

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