Title

Permalink
https://escholarship.org/uc/item/4md999zn

Author
Sweetser, Eve

Publication Date
1984
Semantic Structure and Semantic Change:
A Cognitive Linguistic Study
of Modality, Perception, Speech Acts, and Logical Relations

By

Eve Eliot Sweetser

A.B. (Harvard University) 1976
M.A. (University of California) 1980
C.Phil. (University of California) 1982

DISSERTATION
Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Linguistics

in the

GRADUATE DIVISION

OF THE

UNIVERSITY OF CALIFORNIA, BERKELEY

Approved: ........................................ July 27, 1984
Charles Fillmore
Chairman

Pamela Kingsbury
July 27, 1984

John Neeley
August 3, 1984

Johanna Nichols
May 6, 1984

DOCTORAL DEGREE CONFERRED
DECEMBER 18, 1984
Semantic Structure and Semantic Change: 
A Cognitive Linguistic Study of Modality, Perception, Speech Acts, and Logical Relations

Copyright © 1984 by Eve Eliot Sweetser
Semantic Structure and Semantic Change:
A Cognitive Linguistic Study of Modality, Perception, Speech Acts, and Logical Relations

Eve Eliot Sweetser

ABSTRACT

Much current semantic work sees individual word-meanings as Boolean sets defined by a set of universal objective features or dimensions. But this viewpoint is undermined by recent research on polysemy structures, human categorization, frame semantics, and language acquisition. Lexical categories appear to be (1) non-Boolean, in that they are often fuzzily bounded and defined by prototypical instances, and that their complements are not treated as sets; (2) inextricable from general framings of the relevant areas of experience: a lexical item often cannot be defined outside its frame; and (3) frequently interrelated by metaphorical connections which cannot be analyzed in terms of shared objective meaning-features.
This dissertation proposes a unified account of three groups of semantic phenomena: certain common (but hitherto unexplained) trends in semantic change, the root/epistemic polysemy of English modal verbs, and the multiple interpretations possible for many conjoined sentences.

The Indo-European languages have drawn their abstract (mental/psychological) vocabulary in a regular fashion from physical-world vocabulary. "I see" coming to mean "I know" is part of a pervasive structuring of the abstract domain in terms of the sociophysical domain. This analogy between the two domains explains the root/epistemic ambiguity of modals: the epistemic domain is viewed as structured by forces and barriers analogous to sociophysical modalities. Some previously unclassified uses of modal verbs reflect a third application of modality to the domain of speech interaction.

The various interpretations of causal conjunction, of and, or, and but coordination, and of if-then conditionals can be accounted for by the following mechanisms: (1) conjunction applies to all three of the content, epistemic, and speech-act domains; (2) word order is iconic for (inter alia) temporal and causal sequence; and (3)
indirect as well as direct speech-act forces can be conjoined.

The concept of metaphorically structuring one domain in terms of another explains regularities not describable in most theories, and allows unification of synchronic and diachronic analyses.

Charles J. Fillmore
This work is dedicated
with love

To my mother, who diagnosed me as
a linguist long before anyone else,

To my father, who sealed my fate by
teaching me Verner's Law at age eleven,

And above all, to Alex, whose constant
support and unflagging faith in me
have survived even this project, and
have sustained me throughout.
Acknowledgments

Although any dissertation writer owes a debt to teachers and friends, it would be hard to find a more intellectually stimulating group of people than the Berkeley linguistics community. First and foremost, I owe my training as a semanticist to Charles Fillmore, George Lakoff, and Paul Kay. The present work has drawn to an incalculable degree on Chuck's clearmindedness and patience, on George's thoughtful insight and enthusiasm, on Paul's critical mind and humor --- and on all of my committee's willingness to brave the international mails. Johanna Nichols, belatedly pushed into her position as my fourth committee member, has likewise been a source of insightful commentary and encouragement throughout. I am grateful to all of them as teachers and as friends.

Among my earlier teachers, I acknowledge my debt to Calvert Watkins, Jorge Hankamer, and Judith Aissen, and especially to the wisdom and kindness of the late Cedric Whitman.

At Berkeley, James Matisoff's historical semantics course first developed my interest in that area, and he has given me important feedback on Chapter 2. Yakov Malkiel,
Gary Holland, Dwight Bolinger, Elizabeth Closs Traugott, Eric Hamp, and Tom Walsh have also been crucial sources of input for my understanding of historical semantics.

Chapter 3, on modality, has greatly profited from the comments of Dwight Bolinger, Julian Boyd, Gilles Fauconnier, Suzanne Fleischman, Julie Gerhardt, Mark Johnson, Annette Karmiloff-Smith, Robin Tolmach Lakoff, Iskendir Savasir, Dan Slobin, and Leonard Talmy.

Robin Lakoff and Don Forman were both influential in the development of my understanding of conjunction, as represented in Chapters 4 and 5. Naomi Quinn, Dorothy Holland, and other participants in the Princeton Conference on Folk Models have helped to shape my understanding of cognitive structures. Among my contemporaries in the Berkeley Linguistics Department, I thank in particular Claudia Brugman, Mary Catherine O'Connor, Miriam Petruck, Marta Tobey, and Jeanne Van Oosten for their help as colleagues and friends. Kathryn Klar and Brendan O Hehir, my teachers and colleagues in the area of Celtic linguistics, have constantly enriched my general comprehension of language. Orin Gensler holds a unique place in these acknowledgments; as friend, colleague, critic, informant, and finally on-line editor, he has helped with every stage of this work, and his moral support has been invaluable. To other friends in the U.S. and in France, thanks for their help and support as well: especially Morwenna, Annaig, Dominique and Odile, and
the Ugglä family.

Last of all, my family has never lost faith in me. To my siblings as well as to my parents and parents-in-law, my affection and thanks for all their encouragement. As for my husband, only he knows how crucial he has been to my graduate career. I used to think people who dedicated their theses to their spouses were being traditional; if they were, I now fully understand the reason for the tradition.
"In reconstruction we must deal both with forms and with functions. To reconstruct forms alone, without attention to their functional position, is first and foremost to create a hopelessly unrealistic linguistic situation."


"Most of the older morphemic splits --- that₁ and that₂, it₁ and it₂, etc. --- were perpetrated on relatively defenseless grammatical morphemes, in order to accommodate some hypothesis about syntax ... But with the advent of generative semantics, other parts of the lexicon have been exposed to attack."


"In our understanding of language in general, there seems to be a schema for lexicalization the sense of which is that the act of lexicalizing something is the act of presenting it as an established category of human thought. If a lexical item exists, in other words, it must exist as some part of a frame and must correspond to some part of a schema."

Charles Fillmore 1977, p. 135.
# Table of Contents

Dedication i  
Acknowledgments ii  
Table of contents vi  

Chapter 1: Introduction 1  
1.1 Past approaches and problems 4  
1.2 Cognitively oriented recent work in semantics 8  
1.3 Semantic change and polysemy patterns: metaphorical connections between semantic fields 11  

Chapter 2: Semantic structure and semantic change: English perception-verbs in an Indo-European context 15  
2.1 Introduction 15  
2.2 The mind-body metaphor 21  
2.3 Sense-perception verbs in English and Indo-European 27  
   A. Vision 27  
   B. Hearing 32  
   C. Smell, taste, and feel 34  
2.4 The structure of our metaphors of perception 37  
2.4.1 The objective and intellectual mental domain 38  
2.4.2 The communicative and subjective internal self 43  
2.5 Conclusions 50  

Chapter 3: Modality 56  
3.1 Introduction 56  
3.2 The root modals in English 60  
3.3 Epistemic modality as an extension of root modality 70  
   3.3.1 Past unified analyses of modality 70  
   3.3.2 Root modality applied to the epistemic world 74  
   3.3.3 Pragmatic interpretation of modal semantics in two worlds 83  
3.4 Speech act verbs and speech act modality 87  
3.5 Conclusions 96  

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Chapter 4: Conjunction, coordination, and subordination

4.1 Causal and adversative conjunctions
4.1.1 Three readings of causal and adversative conjunction
4.1.2 Comma intonation and causal conjunction
4.2 And, or, and but
4.2.1 'And': Iconic ordering in different domains
4.2.2 'Or': Alternatives and conversational structure
4.2.3 'But': Epistemic and conversational conflict
4.3 Conclusions

Chapter 5: Conditionals

5.1 Conditionals in three domains
5.1.1 Content conditionals
5.1.2 Epistemic conditionals
5.1.3 Speech act conditionals
5.2 Real and apparent ambiguities between classes of conditionals
5.2.1 Comrie's "bicausal" conditionals
5.2.2 Epistemic vs. content vs. speech-act
5.3 'If' as a topic-marker
5.3.1 Protases as "given" information or as sufficient conditions?
5.3.2 "Given conditionals" in English: Why and when protases are topical
5.3.3 Topicality and the universal conditional category
5.4 The 'even-if' reading of conditionals
5.4.1 Relating 'if' to 'even if'
5.4.2 Concessive conditionals in different domains
5.5 Conclusions

Chapter 6: Retrospect and prospect

Appendix (to section 5.1.3)

Bibliography
Chapter 1: Introduction

Generative grammar has rigidly separated synchronic linguistic structure from historical change; most formal semantic analyses to date have thus treated meaning change as inherently irrelevant to analysis of the synchronic system. Few practicing etymologists would agree with this viewpoint, and yet there exists no fully adequate account of either meaning change or its relation to synchronic semantics. Further, to my knowledge there has been little or no attempt in generative grammar to give a principled explanation of polysemy structures. Semantic feature analyses in particular have been guilty of positing separate lexical items to account for variation in a word's syntactic or semantic behavior, tacitly assuming that these (homonymous?) entities were no more closely connected than if their phonological representations had been unrelated. Analysts presumably trust that it will be possible to describe and explain meaning-changes or polysemy relations in any successful semantic theory; but the theory is nonetheless constructed without reference to diachrony or polysemy.

In this dissertation, I shall argue that a successful account of a large class of synchronic polysemy relations
can be given in exactly the same framework needed to account for certain major trends in semantic change. But this unified analysis of synchronic and diachronic meaning relations necessarily calls into question many of the commonest assumptions underlying current theoretical work in semantics.

Recent work in linguistics has tended to view semantics in one of two divergent ways: either meaning is a potentially mathematizable/formalizable domain (if only we could find the right primes or premises for the mathematical analysis), or meaning is a morass of culturally and historically idiosyncratic facts from which one can salvage occasional linguistic regularities. Those who do the former kind of semantics have frequently been eager to separate linguistic meaning from general human cognition and experience, and to keep linguistic "levels" (syntax vs. semantics vs. pragmatics) distinct from one another; formalization is presumed to be easier if the domain can be successfully delimited. Semanticists of the latter sort, on the other hand, are often quite ready to accept the direct influence of experience or cognition on meaning structures, but find it hard to see how such meaning structures could be formalized: how can airtight generalizations be made about experience-shaped semantics, when experience itself is so varied and so far from any complete formal analysis?
I agree strongly with those semanticists who consider meaning to be rooted in human cognitive experience: experience of the cultural, social, mental, and physical worlds. But cognition is structured, not chaotic --- and the apparently disorderly domain of linguistic meaning can often be shown to be structured around speakers' understanding of a given content-domain. Cognitive and experiential semantic analysis need not be less formalizable than traditional objectivist feature-analyses of meaning. I shall argue, in fact, that formal feature-analyses of lexical items have missed crucial generalizations which can readily be expressed within a cognitively framed theory of meaning.

Systematic metaphorical connections link our vocabulary of the sociophysical domain with the epistemic and speech-act domains. Thus, for example, it is not by chance that must is polysemous between social obligation and logical certainty, although it would be hard to find a common objective feature of these meanings. These inter-domain connections are cognitively based, and they pervasively influence patterns of polysemy, semantic change, and sentence interpretation. Since such metaphorical connections are not based on objective similarities, my understanding of meaning cannot be an objectivist one. But neither is it subjectivist: rather, I assume that the real world exists, but our only access to it is through our experience, both physical and cultural. In a sense, this experientialist viewpoint (cf. G. Lakoff 1985) is less subjective than an objectivist
viewpoint, since it seeks to explain the actual categories
of human language and cognition, rather than presupposing
that the real world must necessarily be objectively categor-
ized in such a way as to cause the development of such
linguistic categories. In order to give my approach an
appropriate context it is necessary first to discuss some of
the prominent schools of semantic analysis and explain my
differences with them; I shall then return to the subjects
of this dissertation.

1.1 Past approaches and problems

One common approach to lexical meaning has been to
define each word as a bundle of formal semantic features
(cf. Katz & Fodor 1963). So far as I know, no analyst has
ever attempted to give a full feature analysis of even one
word. The usual procedure has been to discuss the features
relevant to the semantic or syntactic distinctions at hand
(cf. Jackendoff 1972, for example). Individual word-meaning
was considered to be determined only relative to some
contrast-set, and to be interesting only insofar as it was
reflected in concrete linguistic (particularly syntactic)
behavior. In some ways this reflected an older structural-
ist viewpoint: Saussure (1915 [1959]) and his followers had
been successful in making new generalizations about linguis-
tic structure by assuming that structure, rather than con-
tent, was the crucial subject of analysis. American
structuralism followed in this tradition; and generative grammar inherited from American structuralism the idea that word-meaning was to be defined purely by semantic contrast-sets, just as Bloomfieldian phoneme-structure was to be defined purely by minimal pairs (rather than directly by phonetics). Semantic analyses within the Katz-Fodor tradition have tried to account for a wide range of potential meaning-contrasts; they have been interested in entailment relations, contradiction, presupposition, and sentential synonymy, as well as simple lexical synonymy and contrast. But the focus has continued to be on those aspects of meaning which are relevant to differences between lexemes, not on a full account of meaning per se.

The most complete attempts at feature-analyses have been studies of particular contrast-sets within the vocabulary of some particular language (e.g. Lounsbury 1964). Lexical fields such as kinship terms or personal pronouns seem in fact to be naturally structured around a few basic and separable dimensions of contrast. These dimensions provide a naturally chosen group of relevant semantic parameters, used in most possible permutations — thus feature-analysis initially seemed quite reasonable when applied to such domains. (This is not to say that any given feature-analysis is correct, but simply that such domains share a self-contained and decomposable quality which makes them more amenable to feature-analysis than many other areas of meaning.) But when applied to lexical semantics at large,
feature semantics showed obvious limitations (cf. Bolinger 1965). One of its greatest difficulties was its underlying assumption of the existence of a limited number of semantic primes. This set of primes was a supposedly universal building-block set, a prefabricated kit which came as part of each human's language acquisition device. Different cultures might use these blocks to build different complex larger structures; but at some crucial level languages were assumed to share the basic units of meaning, just as basic syntactic categories such as N and V were considered to be universal. However, the task of actually cataloguing the primes for even one language has never been attempted, and the general working attitude has been that the analyst just keeps on adding as many dimensions of meaning as are necessary to make sure that usage distinctions are accounted for. An "elegant" feature system postulates no more meaning dimensions than are necessary --- i.e., such an analysis shrinks from proposing three or four semantic differences between two lexical items when one difference is all that is formally required to keep the words distinct from each other. (Again, meaning itself is irrelevant; meaning- contrasts are all that matter.) But no other limits besides "elegance" have been proposed to prevent proliferation of primes. Recent computational models have shown the same tendency; Schank and Abelson (1977) is a salient example of basically ad hoc creation of primes. Given this situation, claims of the universality of semantic primes are
essentially vacuous.

In the European tradition, semantic field theorists such as Trier and Weisgerber looked at meanings as something more organic than feature-bundles, and as being interrelated with many different aspects of human experience. The success of such an approach is due to its attention to relatively compact areas of vocabulary, where contrasts emerge more clearly than in an entire lexicon taken as a whole (cf. reviews by Basilius 1952, Ohman 1953). Attempts such as that of Osgood (Osgood et al. 1957) to find meaning dimensions relevant to a whole lexicon have, predictably, isolated extremely abstract parameters such as the good-bad dimension; and even then, the results often seem to depend crucially on highly unnatural judgments by speakers. Field theory, on the other hand, is interested above all in the closely-woven interrelationships within clearly delineated areas of meaning. Its limitation, of course, is that it does not immediately apply to the explanation of semantic relationships between fields. Thus field theory would find it as hard as componential-feature theory to explain why the vocabulary of vision should be regularly applied to the domain of knowledge.

Returning to the American tradition, it must be said that recent logically-based (especially Montegovian) semantic work has essentially ignored lexical semantics, preferring to assume that the predicates involved in semantic
logical structures could somehow be defined, and to concentrate on the compositional regularities of combining lexical units. What lexical analysis has been done in this tradition (cf. Dowty 1979) has shared the problems of earlier feature analysis. Syntactic and pragmatic analyses which crucially depend on such a semantic framework (e.g. Gazdar 1979; Gazdar 1981; Gazdar, Pullum, & Sag 1982) must stand or fall to the extent that it proves actually possible to do a full lexical semantic analysis of the kind they presuppose. In particular, their assumption of autonomous levels, and of a purely compositional semantics, seems dubious in the light of recent research (see below). Although practitioners of such theories have sometimes claimed to be modelling human cognitive abilities, these claims seem vacuous given the complete isolation of Montague semantics from cultural, acquisitional, and other cognitive data.

1.2 Cognitively oriented recent work in semantics

A large number of researchers have recently begun arguing for a systematic analysis of language as rooted in general human cognitive abilities. Berlin & Kay's (1969) work on color terms, followed by Kay & McDaniel's (1978) lexical semantic analysis of basic color terms, have proposed that human physiology underlies certain universal trends in semantics. Rosch's work (1973, 1978, and elsewhere) on basic-level categories, and Eve Clark's work (1976)
comparing classifier systems with children's early acquisition of word meanings, have suggested that perceptual and interactional patterns are deeply involved in determination of lexical categories (cf. G. Lakoff's (1985) further analysis of linguistic categorization). Both Rosch and Clark throw serious doubt on an analysis of linguistic categories based on Boolean set membership. Human categorization seems to form internally coherent classes, but the complements of these classes have no natural coherence or shared features --- they are not treated as sets. Fillmore (1976, 1977, and elsewhere) and Coleman & Kay (1980) have argued for changes in our understanding of the internal structure of word meaning; in particular, word meaning exists against a background of our general assumptions about the world (sociocultural beliefs included), and word meaning is frequently prototype-based rather than being composed of checklists of features. The prototypical use of a word will generally fit some normal, frequently encountered case; when deviation from that case occurs, then (1) the category boundaries are fuzzy, not like Boolean sets (G. Lakoff 1972), and (2) word-meanings may not apply at all outside the relevant background assumptions (Sweetser [in press]). In this approach word meaning cannot be analyzed into features, since the meaning and its frame are inseparable from one another.

Lakoff & Johnson (1980) have further proposed that linguistic usages frequently reflect our inherently
metaphorical understanding of many basic areas of our lives; that is, not merely language but cognition (and hence language) operates metaphorically much of the time. Such claims (substantiated by a large corpus of data) would be very difficult to relate to a semantic analysis based solely on logical form and distinctive features. The kinds of "likeness" and metaphors inherent in language do not seem to fall out neatly from the sort of (supposedly objective) features proposed by formal lexical analysts. Rather, the metaphors manifested in most linguistic systems fall out from a more holistic viewpoint which takes language as part of our general cognitive system: linguistic structure is, then, as logical and objective as human cognition, no more and no less.

At the level of sentence semantics, traditional formal analyses have also been questioned. It cannot be maintained that semantics is autonomous relative to syntax and pragmat- ics, nor that sentence semantics is purely compositional (cf. Fillmore, Kay, & O'Connor 1983). There seem to be not only lexical items (e.g., discourse particles) but syntactic structures whose purpose is to signal pragmatic goals. Gordon & Lakoff's (1971) study of structures such as "Why paint your house purple?" has shown that there are cases where a syntactic form (here, a why-question without do you following the why) is employed solely to mark a very specific pragmatic purpose (here, to suggest that the addressee should not do the action described). In general, it is also
impossible to draw rigid boundaries between the logical and social aspects of meaning. Recent work on language acquisition has shown that even so-called logical concepts (such as causation or negation) are acquired through the child's social and physical experience (Bates et al. 1979, Volterra & Antinucci 1979). Indeed, linguistic acquisition is impossible until general cognitive development is at the right stage for the acquisition of that area of meaning (Slobin 1973).

I will base my analysis on this body of cognitively-oriented linguistic research, and also on the general traditions of pragmatic analysis and speech-act theory, which will be discussed in detail at the appropriate points in the ensuing chapters. Like cognitive linguistic analyses, speech-act theory has succeeded in rooting our understanding of language use in our knowledge of broader human behavioral patterns.

1.3 Semantic change and polysemy patterns: metaphorical connections between semantic fields

The chapters which follow comprise a set of studies of four distinct semantic areas: perception verbs, modality, conjunction, and if-then conditionals. I shall argue that the semantics of all four of these lexical fields are inherently structured by our multi-leveled cultural
understanding of language and thought. In particular, we model our understanding of logic and thought processes on our understanding of the social and physical world; and simultaneously, we model linguistic expression itself not only (1) as description (a model of the world), but also (2) as action (an act in the world being described), and even (3) as an epistemic or logical entity (a premise or a conclusion in our world of reasoning). Not only do the semantics of these lexical fields, taken collectively, constitute a strong argument for metaphorically structured cognitive and linguistic understanding of the relevant areas, but they may also throw some light on the interaction between semantics/pragmatics and syntactic structure.

Cognitive semantic studies of polysemy structures (Lindner 1981, Brugman 1981, Brugman ([in press])) have succeeded in uncovering motivation and order behind previously random-looking groupings of meanings. Using the idea of systematic metaphorical structuring of one domain (e.g. the epistemic domain) in terms of another (e.g. the sociophysical domain), cognitive semantics may well be equipped to make headway in the murky area of meaning change, as well as in the area of synchronic semantic structure.

Chapter Two is a historical case study of English and Indo-European sense-perception verbs. Deep and pervasive metaphorical connections link our vocabulary of physical perception and our vocabulary of intellect and knowledge.
An objective, Boolean-feature-based semantic theory could not explain such a connection, but a cognitively based theory accounts for it readily and naturally.

Chapter Three examines English modal verbs in the light of the metaphorical structures discussed in the preceding chapter. It is possible to give a unified analysis of root and epistemic modality, and of some further uses of modal verbs which cannot properly be described as either root or epistemic, by appealing to the notion of metaphorical structuring of the epistemic and speech-act domains in terms of the sociophysical domain. Similarities between root and epistemic modality, and also some apparently idiosyncratic differences between the two, can be shown to fall out naturally from an appropriate understanding of the domains in which they operate.

Chapters Four and Five extend the analysis still further, arguing that sentence conjunction and if-then conditionals must also be understood against a background of this network of inter-domain metaphorical connections. Conjunction and conditionality, I claim, are subject to interpretation in the epistemic and speech-act domains, as well as in the sociophysical domain. Thus it is not simply the interpretation or the history of individual lexical items which is shaped by this cognitive structure. Our interpretation of sentence semantics, and in particular of the relationships between clauses, is influenced as well,
including traditionally "logical" relationships such as and, or, and if. Although logical operators have been assumed to be the simplest part of language for objective logical analysis, in fact their use cannot be successfully described without reference to experientially-based cognitive structure.

It is of particular interest to notice that the same cognitive structure underlies (1) polysemy patterns in lexical meaning, (2) historical patterns in meaning-change, and (3) multiple possibilities for interpretation of conjoined or conditional sentences. There are indications that this metaphorical structure may not be restricted to Indo-European; if it represents any universal semantic tendencies, then this work may be of further use to analysts beyond the limited linguistic area here described. In any case, no formal feature-based semantic analysis can account for the observed regularities; while a cognitively-based analysis can not only describe the observed meaning patterns naturally and elegantly, but motivate them and explain them.
Chapter 2: Semantic structure and semantic change: 

English perception-verbs in an Indo-European context¹

2.1 Introduction

As mentioned in Chapter 1, recent work on polysemy structures (cf. Brugman (in press), G. Lakoff 1985) has suggested that a word-meaning is a structured and unified entity. In order to better understand that structure, we need further investigation of the connections between the different (sub-)meanings of polysemous lexical items. In phonology, analysts have frequently assumed that units were shown to be related, or could be classed together, if they underwent parallel historical changes. For the restricted semantic field of English perception-verbs, this chapter will investigate the interaction between synchronic semantic groupings and parallelisms in historical change of meaning. I shall argue that the historical and synchronic data point to one and the same cognitively-based analysis of the relevant semantic domain.

¹ This chapter draws in part on my earlier unpublished work on English vision verbs (Sweetser 1980). In addition to works explicitly cited, the following sources have been used regularly: Chantraine (1968-1980) and Ernout-Meillet (1959).
The study of semantic change has undergone a long period of relative neglect, largely because the phonological part of word-history proved so much more immediately tractable to systematic analysis. Semantic shifts have been felt to be random, whimsical, and irregular; general rules concerning them are nearly impossible to establish. To many linguists, the non-phonological side of etymology appears non-scientific. This is scarcely surprising; synchronic as well as diachronic linguistics has found sound a more accessible domain for study than meaning. There are natural limits set by our vocal and auditory physiology to the possible parameters involved in phonology. Semantics is limited only by our capacity for meaning, i.e. by our cognitive capacity. And yet lexical semantics, and semantic change, have frequently been analyzed as based on groupings of features, the semantic analogues of phonological distinctive features. Semantic feature-analyses, and feature-based etymologies such as those below, abound in the literature:
In the above etymologies, the supposed common semantic feature of the descendental words is the arched shape or compressed state; this feature is viewed as being retained by the descendental lexemes, while other features are added or dropped. The parallel to phonological rules is again evident; change is equivalent to feature-addition or feature-loss. The resulting proto-meaning thus becomes a sort of "least common denominator" of the descendental meanings.

If we took these feature-based semantic etymologies in general at their face value, the resulting Proto-Indo-European vocabulary as a whole would be an improbably abstract one. It is widely acknowledged that basic vocabulary terms are the most likely to survive in a number of descendental languages. Thanks to studies by Rosch (1977, 1978) and Mervis & Rosch (1981), we have some idea of a plausible abstractness-level for basic vocabulary items; and that level is much closer to the level of abstractness represented by English neck or Greek kolpos than to the
level of the proposed ancestral semantics of *k\textsuperscript{w}elp- or *ken-. Furthermore, such generalizations about semantic change as we do have (cf. Benveniste 1969, 1971, Stern 1931, Traugott 1974, 1982, Fleischman 1982) suggest very strongly that meaning more frequently shifts from concrete to abstract than in the opposite direction; an observation which makes the semantic side of many feature-based etymologies doubly suspect.

As mentioned in Chapter 1, European semantic field analyses have sometimes shown more attention to grounding meaning in the relevant physical and social domains than has American feature-based semantics. But semantic field analyses cannot explain why polysemy and semantic change frequently cross between fields --- for example, why (as will be discussed in this chapter) see and know should be related concepts.

What I am arguing is not, or not YET, that any specific proposed etymologies are wrong. My point is that the whole corpus of received etymological research is subject to question, because we have little or no idea of what constitutes a reasonable semantic reconstruction, or what regularities may be generally observable in semantic change. There has been some excellent work in historical semantics, often by researchers whose thorough knowledge of the older IE languages and good "feel" for word-usage have enabled them to establish intuitively satisfying etymologies in cases
where the descendent words would never have had a common
denominator of features. But early research in IE philology
often paid little attention to realism in the proto-
semantics, since the researchers in question were focusing
on the detailed mapping of phonological and morphological
relationships within the IE language family. Without such
work, historical semantics would naturally be an impossible
endeavor. But realism in semantic reconstruction has
recently taken on increasing importance, as researchers
(following Conveniste's brilliant lead) have attempted to
use reconstructed word-meanings as a data-base for investi-
gating the Indo-European proto-culture and its history.
Given such use of proto-semantics, there is a sudden need
for a realistic model of meaning-change; if we are arguing
from reconstructed IE phytonyms to some hypothesis about the
location of the IE homeland, it behooves us to know whether
the meaning "tree" or "oak" or "strong, trustworthy" is the
historically prior sense of the root *deru-. We cannot
assume that a proto-semantics based largely on the formal
simplicity of supposed feature-changes (that is, a proto-
semantics which is essentially a mnemonic for the groupings
of the various descendent meanings) will necessarily also be
a likely semantics for a real language spoken by a real com-
community, nor that it will be a likely source for the proposed
changes.

Recent work in historical semantics has been particu-
larly lively in the area of grammaticalization --- linguists
such as Fleischman (1982), Mithun (1980), and others have studied the routes by which words travel from lexical-content word status to grammatical-morpheme status. Perhaps even more interestingly, Traugott (1974, 1982) has mapped the semantic development of whole classes of English words from the propositional domain to the textual domain, and thence to the expressive domain.\(^2\) The evolutionary directions in word-history from lexical to grammatical and from propositional to textual to expressive seem well established at this point, and often correlate well with earlier observations of the prevalence of change from concrete to abstract. Such research has laid the groundwork in crucial areas of historical semantics.

But in a more general way, what connects one meaning with another, and how does semantic change occur? Even given a concrete-to-abstract direction, how does one element in the concrete domain become associated with a specific abstract meaning, rather than with some other meaning? Or how do meanings shift within a domain? This chapter is an attempt to map out the systematic connections between meanings --- the routes of semantic change --- for the domain of English perception verbs. The purpose is to increase our general understanding of both semantic relatedness and

\(^2\) Traugott's use of the terms textual and expressive is taken from Halliday & Hasan (1976). I prefer not to use these terms, as they do not coincide neatly with the sets of distinctions I am trying to make.
semantic change.

2.2 The mind-body metaphor

I will begin by offering several historical puzzles, all of which I intend to resolve in the course of this chapter.

(1) Why should words for physical likeness come to mean probability? There is a plethora of examples. English like and likely are of course instances of the same etymon; Middle Irish samlaid "likeness" (cognate with Latin similitudo) gives Modern Irish amlaid "likely"; Welsh tebyg means both "like" and "likely".

(2) Why should "hear" come to mean "obey"? This I shall discuss in detail; the case I have primarily in mind is IE *k'leu-s-, which gives Greek kló̂s "hear", English listen, Danish lystre "obey", and Russian slušat' "listen to"/slušat's'a "obey".

(3) What connects physical holding (or manipulation) with intellectual understanding? This link is absolutely pervasive. Latin comprehendere "seize" is the ancestor of French comprendre "understand"; Greek katalambánō "seize"

---

3 For those interested, the phonological history is as follows. The phrase is samlaid "it is likely/like" was given a new word-division as is amlaid, rather as English a napron suffered reanalysis into an apron.
(used metaphorically also to mean "understand") became Modern Greek katalambáinō "understand"; cf. English "grasp a concept", or "catch onto an idea"; or French j'ai saisi "I have seized", which carries precisely the ambiguity of English gotcha.

(4) Why should words meaning "path" come to mean "however"? This too is a common shift, exemplified by English anyway and also by cases such as Breton forzh "however, no matter", cognate with Welsh fordd "path" and English ford.

In order to solve these puzzles, I must first examine in some detail a semantic lineup which I shall call the Mind-Body Metaphor. Kurath (1921) notes that Indo-European words for the emotions are very frequently derived from words referring to physical actions or sensations accompanying the relevant emotions, or to the bodily organs affected by those physical reactions. (E.g., the heart's physical function of blood-pumping is strongly and noticeably affected by love, excitement, fear, and other strong emotions, therefore the heart comes to symbolize some of those strong emotions — such as courage or passion. Or, because physical brightness is conducive to cheerfulness, "bright" comes to mean cheerful, while "dull" means the reverse.) This trend conforms to the previously mentioned generalization that change proceeds from concrete to abstract. Kurath is inclined to attribute this historical development of emotion-words to the psychosomatic nature of the emotions:
that is, to the inseparability of physical sensation from emotional reaction, or of emotional state from concomitant physical changes. He may well be right in assuming that such a link is at the root of our tendency to derive our vocabulary of the mind from our vocabulary of the body; but it is hard to see how such a linkup could be very directly present in many of the cases. Thus, for example, psychological tests have shown that physical colors (e.g., of the walls of a room) do affect people's emotional state; it would seem that bright colors do indeed help promote "bright" moods. Likewise, emotional tension or feeling low can be linked to physical muscular states of tension or limpness which accompany the relevant mental states. But uses such as bitter anger and sweet personality seem relatively distinct from any direct physical taste-response of sweetness or bitterness. I would regard such uses of bitter and sweet as metaphorical: the anger is unpleasant to our emotions in a way analogous to that in which a bitter taste displeases our tastebuds.

Further examples of this metaphorical extension of our physical vocabulary are numerous, and many of them are totally inexplicable in psychosomatic terms. For example, in English (and in the Indo-European family at large) our lexicon of logic, causation, and conversational structure is based on our more concrete sociophysical lexicon. The must of "You must be home by ten, or I'll tell Mother" describes a real-world force or necessity imposed by the utterance.
But the same word *must* refers likewise to logical necessity, as in "John *must* be home; I see his coat." (cf. Sweetser 1982) Further, the abstract logical (epistemic) meaning of the English modals is historically later than their more concrete sociophysical ("root" or "deontic") usage (cf. Traugott (1982), Shepherd (1981)). *May* meant physical ability before it came to mean social permission or logical possibility.

I can see no objective semantic feature linking sociophysical force or ability with logical certainty or possibility; neither can I see any psychosomatic link between the two senses of the English modal verbs. The only possible link between the epistemic and deontic domains is metaphorical: we view logical necessity, for example, as being the mental analogue of sociophysical force, while logical possibility is the mental (or epistemic) analogue of permission or ability in the real world. The continuing *liveliness* of this metaphor (which certainly is no longer a *consciously* figurative usage in the case of the modal verbs) can easily be seen in current expressions such as "a strong argument", "a weak premise", etc.

It is not only modal verbs which shows this tendency to multi-domain usage: causal conjunctions, speech act verbs, and other lexical fields show widespread semantic developments of the same type (cf. Sweetser 1982). The causality in "He loves me *because* I remind him of his first love" is
basic sociophysical causality; but "He loves me, because he wouldn't have proofread my whole thesis if he didn't" does not express the same kind of causation. A paraphrase "I conclude that he loves me because I know that he wouldn't otherwise have proofread my thesis" shows us what the real causal relations are in the sentence so paraphrased. The point is that we use precisely the same repertory of causal conjunctions to indicate causation of one event by another, and "causation" of a conclusion by a premise. Conversational causation may also be so expressed: in "What are you doing tonight? --- because there's a good movie on", the causation is not between the content of the second and first clauses, but rather between the content of the second clause and the performance of the speech act expressed by the first clause. The understanding of force and causality in the speech-act world in terms of sociophysical force is visible elsewhere in the language as well: "What was the force of that statement?" The linguistic and philosophical concept of Speech Act Force is highly coherent (to say the least) with folk ways of referring to the same set of phenomena; we speak of linguistic acts as having the kind of causal effects which non-linguistic acts have, presumably largely because we in fact use speech acts to achieve many of the social goals that we would otherwise have to achieve by action.

Traugott's (1982) observations concerning the movement from propositional to textual to expressive meanings give
clear evidence for the same kind of development in many other domains; her propositional level corresponds to my sociophysical level, and her textual level coincides at least loosely with my epistemic level. There is, then, a general tendency to borrow concepts and vocabulary from the more accessible physical and social world to refer to the less accessible worlds of reasoning, emotion, and conversational structure.

So we are left with the following conclusions: (1) The link up between our vocabularies of mind and body may have some psychosomatic roots, but it is essentially metaphorical in nature, and this equation of the physical self and the inner self is pervasive in English and in the Indo-European family at large (if indeed it is not a universal); (2) We would profit from a clearer understanding of how one particular unit of meaning on the sociophysical level becomes connected with a particular semantic category at the abstract mental level, rather than with some other category. (Why does ability come to mean possibility, rather than necessity, for example? or why does heart come to mean courage or love, rather than fear?) Given the general Mind-Body Metaphor as a background, in the following sections I will try to explicate the connections between the (earlier) concrete and (historically later) abstract meanings of perception verbs in English.
2.3 Sense-perception verbs in English and Indo-European

I shall now map out the historical routes into and out of the domain of physical perception in English, with a view to their detailed interpretation in the next section. What are the sources of English perception verbs, and for what other domains is the perception-lexicon itself a historical source?

A. Vision

1) The common semantic sources for vision verbs are:

   a) The physical nature of sight (light, the eyes, facial movement, etc.):

      *gh'el- "gleam" > Eng. glimpse (as well as gleam, glint, glitter)

      Eng. to eye (from the noun eye)

      L. Ger. oegen (< oog) > Eng. ogle

      *gh'eij- "yawn" > Eng. gape, gawp

      *ster- "firm, stiff" > Eng. stare

      *leuk'- "light" > Eng. light, Lat. lux, Welsh golug "sight", and Gk. leuk- "white".

   b) Metaphors of vision.

      i) Vision = physical touching, manipulation. This metaphor is discussed in Lakoff & Johnson (1980). Its probable basis is the channeling and focusing ability connected with our visual sense; vision,
far more than the other senses, can pick out ("seize on") and attend to one stimulus amid a multitude of input stimuli.

Examples:

behold, catch sight of
perceive ( < Lat. -cipio "seize")
(both general and visual meanings)
scrutinize ( < Lat. scrutari "pick through trash")

examine ( < Lat. ex + agmen- "pull out from a row")
discern ( < Lat. dis-cerno "separate"
see ( < *sekʷ-, which also gives Lat. sequor "follow")

ii) Visual monitoring = control. The basis for this metaphor is probably the fact that guarding or keeping control often involves visual monitoring of the controlled entity; and the limited domain of physical vision is further analogous to the domain of personal influence or control. Thus *weg- "be strong, be lively" gives English watch as well as wake, and (via French and Latin) surveillance as well as vigil. Likewise scope, which in English has come to refer to the sphere of control ("That problem is beyond my scope") is from the root of Greek skópos, meaning "sight, aim" in
the physical sense.

c) Basic Indo-European vision roots.

There is a set of basic IE roots which seem to have referred to vision as far back as their history can be traced. Examples are:

*spek'- > Lat specere, -spicere "look" > Eng. inspect

*weid- > Lat videre, Gk. eido'n "see"; also Eng. witness

*derk'- > Gk. dérkomai, "see, look", Welsh edrych "look"

(*ok" "eye" --- various verbs, possibly denominatives, such as Gk. ópσomai)

*(s)wer- "watch, guard" --- Gk. horáo "see", éphoros "guardian, overseer" (also possibly cognate with OE waru, NE be-war; hence also with the Germanic-derived guard and regard, come into English from Old French).

2) Target domains for vision verbs. Vision verbs commonly develop abstract senses of mental activity:

a) **Physical sight** = knowledge, intellecction. This metaphor has its basis in vision's primary status as a source of data; not only does English have expressions like "I saw it with my own eyes" to indicate certainty, but studies of evidentials in many languages show that
direct visual data is considered to be the most certain kind of knowledge. Examples:

*weid- "see"  
Gk. ἑιδον "see", perf. ὄιδα "know"  
( > Eng. idea)
Eng. wise, wit (alongside the more physical witness)  
Lat. video "see"  
Irish fios "knowledge"

(Note also that *sek- is the ancestor of Hittite sëkk-/sekk- "know", as well as of Eng. see.)

b) Physical vision = mental vision. This metaphor is probably based on the strong connection between sight and knowledge, and also on the shared structural properties of the visual and intellectual domains --- our ability to focus our mental and visual attentions, to monitor stimuli mentally and visually.

Ambiguous Germanic-derived cases which have either a physical or a mental sense are:
look down on, look up to, look forward to, look back on, overlook.

---

4 Cf. various papers in Chafe & Nichols 1985 [to appear], in particular Slobin & Aksu (1981 ms.).
Cases which have now essentially only a mental meaning are:
oversee, hindsight, look after, see to, foresee.

In order to understand these examples it is necessary to bring in other metaphors besides the understanding of mental vision as analogous to physical sight. Future is understood as forward, while past is backward (cf. Fillmore 1982); up is the direction of authority, while down symbolizes subjection (cf. Lakoff & Johnson 1980). Thus hindsight looks to the past, and foresight to the future; overseeing is done by an authority-figure, and social inferiors may be looked down on. An example of the pervasiveness of this metaphor in the IE family can be found in the case of the word overseer: English has borrowed the precisely parallel Latin and Greek compounds supervisor and episkopos (the adjective episcopal has retained its Greek root-form, although the noun bishop has been phonologically assimilated to English); all three of these compounds coexist in modern English usage.

From the Latin spec- and vid- roots, just as from the Germanic roots, we find that English has both physical and abstract descendants. Some words which have remained in the physical domain are: inspect, spectator, vista, view, survey, vision (some of these have abstract uses as well). Cases which are purely in the
mental domain are: suspect, respect, expect, retrospect, prospect, supervise, evident, provide, prudent (< pro-vid-ent-), envy (< in-vid-ia), revise, advise, interview, clairvoyance. Perceive, discern, and observe all indicate intellectual as well as physical "vision", but in these cases it is possible that the original meanings (physical grasping, picking out, and being attentive to) may have come to mean mental attention or grasping at least as early as they came to mean vision. Our mental focusing abilities are described by vocabulary drawn directly from the domain of physical manipulation, as well as by vocabulary from the domain of vision (see section 2.4).

B. Hearing

IE words for hearing often come from the physical domain. Thus, for example, Latin audire goes back to an extension *aus-dh- of the root *aus- "ear". Various derivatives of the IE root meaning "hear" or "listen", *k'leu-s-, are preserved in descendants such as Greek klōo, Mod. Ir. cloisim, Welsh clywed (all meaning "hear"), English listen, and Russian slušat' "listen".

The meanings derived from "hear" are, however, far more interesting than the semantic sources of hearing-verbs. Buck (1949) notes the surprising fact that nominals derived from IE verbs of hearing generally do not denote sound (the
physical thing heard); rather, they almost invariably denote the content of heard speech. Words for physical sound have most commonly an onomatopoeic origin --- for example, English crash, bang, or pop; sound and its relatives from the son- root in Latin; or Greek ἔχε/-έχο. Words coming from hear-roots mean "tale, report, fame, glory, news".

Thus, although Classical Greek klōss still retains the meaning "hear", its nominal and adjectival derivates, and the related verb klēō, have all taken on this new meaning: klēos (*k'léwos, ~ Skt. śrávas) "fame, glory", klōtos "famous", klēō "celebrate, make famous". The Latin cognate cluer has the meaning "be famous". Similarly, Greek akouō, also meaning "hear", has the derived nominal akōē (Homerīc akouē), meaning "hearing, thing heard, report".

Verbs of hearing themselves often come to mean "listen, heed" --- thus, we have English listen cognate with Greek klōs from a root meaning "hear", as mentioned earlier. From "heed" we have a further semantic shift to "obey" --- Danish lystre "obey" also descends from the *k'lew-s- root, and Russian has slušat's'a "obey" alongside slušat' "listen".

An interesting feature of the hear-heed semantic change is that the opposite direction also seems to be possible: words meaning mental attention or understanding can come to mean physical hearing. Thus, Latin intendere "stretch out, direct one's attention to", comes to mean "take heed of, understand" in later Romance languages --- Old French
entendere, Sp. entender, and It. intendere all mean "understand". But in French the semantic development did not stop there, and entendre in Modern French has the primary meaning "hear" (ousting OF ouïr, the legitimate heir of Latin audire). Something similar may be going on in the domain of vision: in at least one case, a verb seems to have shifted from the realm of intellection to a possibly (if not completely) physical visual meaning, namely recognize, which derives from the Latin root gno- "know". Thus, although the paths of semantic change which I am describing do seem to be primarily one-way (concrete --> abstract, or physical --> mental), nonetheless some verbs may shift in the opposite direction along these same axes.

C. Smell, Taste, and Feel

In all Indo-European languages, the verb meaning "feel" in the sense of tactile sensation is the same as the verb indicating general sensory perception --- Buck remarks on this general identity. It seems furthermore to be the case that sight is the sense most regularly differentiated from general perception, followed by hearing. Even hearing sometimes falls under the rubric of a more general verb, e.g. Welsh clywed "perceive, hear" or Latin sentire "feel, hear". Smell and taste frequently come under general sense perception (cf. French sentir "feel, smell").

---

When smell and taste are differentiated from general tactile sensation, the verbs indicating these senses often derive from specific physical sensations (a sweet smell, a bad taste) or from aspects of the physical act of perception. Thus, English smell has been tentatively linked by Pokorny with smoulder, perhaps via a meaning of "vapor" or "steam". English reek is cognate with German rauchen "smoke". Breton ch'wez means either "breath" or "smell"; the derived verbs ch'wesa (objective) and kaout ch'wez (subjective; literally, "take/get a breath or smell") mean "smell". (Cognate are Welsh chwyth "breath" and Irish setim "blow".) Latin fragrare "to be fragrant" gives French flairer "to smell out, like a dog at a scent". The basic Indo-European "smell" root seems probably to have been *god-, as inherited in Latin odor, odefacere/olfacere, and in Greek ἔξο (substantive odmé). But the Modern Greek verb meaning "smell" derives rather from Classical μυρίζω "to anoint, to perfume".

Taste may possibly have had a basic IE root *g'eus-, whose Greek and Latin descendants (γεύομαι, gustare) mean "taste", while the Germanic and Celtic cognates mean "try" or "choose" (Goth. kiusan "try", OE ceosan "choose"), and the Indo-Iranian cognates mean "enjoy" (Skt. jās-). The direction of semantic development is not, however, clear; the IE root could have meant "try" rather than "taste". English "taste" comes from a Latin root meaning "touch", also giving us tactile; taste comes via French, which still
preserves *tâter* "to touch or try". Other IE words for taste come from good (or sweet) tastes: OE *swæcc* "taste" is cognate with Welsh *chwaeth* "taste" and *chweg* "sweet" (Breton *c'houek*). Greek *chumós* (objective) and *chéusis* (subjective) come from the same root as *chéō* "pour" --- *chumós* in fact basically means "juice".

A particularly interesting case is the Latin *sapere*, meaning both "be wise, know" and "taste". The sense of taste is here evidently connected not merely with general experience or perception, but with mental experience as well. The French verb *savoir* (from *sapere*) has only the sense of "know", but the noun *saveur* (from the Latin noun *sapor*, alongside *sapere*) means "savor, taste".

In general, the target domains of smell and taste are not the intellectual domain of *savoir*, however. The sense of smell has few abstract or mental connotations, although bad smell is used in English to indicate bad character or dislikable mental characteristics ("he's a stinker", or "that idea stinks"), while the active verb *smell* may indicate detection of such characteristics ("I smell something fishy about this deal"). Taste, however, is a physical sense which seems universally to be linked to personal likes and dislikes in the mental world. Latin *gustis* and French *goût*, like English *taste*, may indicate a "taste" in clothing or art as well as in food.
Finally, the sense of touch is not only linked with
general sense perception, but is also closely tied to emo-
tional "feeling". Thus, although there are specific words
meaning "emotion" or "mental state" in many IE languages, it
is most commonly the case that a given language has at least
one basic "emotional feeling" word which comes from the
domain of physical feeling. Thus, Latin sentire indicates
both physical and mental feeling, and Greek πάσχω meant
physical suffering before developing a sense of general
(mental or physical) experience. Celtic and Germanic like-
wise show general homonymy in these two areas: English feel
(and its German cognates), Welsh teimlo, O. Irish ceitbuid
and mothugud, are all both physical and mental. An
interesting shift from one domain to the other is Greek
αίσθημα (from aisthánomai "perceive"), which went from a
Classical Greek sense of "object of perception" (hence the
English word aesthetic) to a Modern Greek meaning of "feel-
ing, emotion".

2.4 The structure of our metaphors of perception

The next question, naturally, is what unifying pattern
can be seen in the network of semantic changes described in
the previous section. Further, are the linkups between phy-
sical senses and mental states (or activities) motivated?
Why is vision connected with intellection, rather than with
obedience/heedfulness or with personal "taste"? Thus, I
will next undertake an explication of the larger metaphori-
cal structure which is the context of these individual meta-
phors and meaning shifts.

2.4.1 The objective and intellectual mental domain

The objective, intellectual side of our mental life
seems to be regularly linked with the sense of vision,
although other senses (as will be discussed below) occasion-
ally take on intellectual meanings as well. There are major
similarities in our general linguistic treatments of vision
and intellection. As shown in Diagram A, physical manipula-
tion and touching is a source-domain for words meaning both
sight (visually picking out a stimulus) and mental data-
manipulation (grasping a fact = understanding). Thus, a
word such as discern, which comes from a root meaning
"separate", now means both "catch sight of" and "mentally
realize". Grasping and manipulation are evidence of con-
trol: Which facts do we have under control, the facts we
understand ("have a hold on", "have grasped") or those which
we do not understand? Similarly, our visual picking out and
monitoring of stimuli is evidence of control (our "scope" in
English is our domain of control, whereas in Greek the word
still belongs to the visual domain).

Thus, vision and intellection are viewed in parallel
ways, partly (as I argued earlier) because of the focusing
Diagram A
The structure of our metaphors of perception

**OBJECTIVE + INTELLECTUAL**

Sight → Knowledge, mental vision
("I see", "a clear presentation", "an opaque statement", "a transparent ploy")

Control, monitoring

Physical Manipulation, Grasping
(grasping = controlling, range of vision = domain of control)

Mental Manipulation, Control
(understanding = grasping)
(understood knowledge is under control)

**INTERPERSONAL + COMMUNICATION**

Hearing → Internal → Obedience
(physical receptivity (Dan. lystre) reception) (heedfulness vs. being deaf to a plea)

**SUBJECTIVE + EMOTIONAL**

Feel → Emotion
Taste → Personal preference
ability of our visual sense — the ability to pick out one
stimulus at will from many is a salient characteristic of
vision and of thought, but certainly not characteristic of
any of the other physical senses except hearing. Even hear-
ing is less consciously and readily focussed than vision ——
I can literally move my eyes from one object to another,
while it may require a good deal of effort to attend to one
auditory stimulus among many (e.g., to the one conversa-
tion in which we are participating, rather than to the five oth-
ers in the room, which are socially considered as background
noise).

But most of all, vision is connected with intellection
because it is our primary source of objective data about the
world. Child language studies (e.g. Clark 1976) have shown
that visual features are among the most marked in children's
early discrimination of one category from another; and, as
mentioned earlier, cross-linguistic studies of evidentials
show that direct visual evidence is considered the strongest
and most reliable source of data. This is reasonable, since
vast numbers of objects in daily life do not give forth
auditory stimuli, and it would be impossible for the child
to constantly taste, smell, or touch every object to be
encountered. As the child matures, social understanding of
appropriate distance also develops; it may not merely be
dangerous to touch or taste, it may be socially inappropria-
ate to get that close. Vision gives us data from a dis-
tance. This ability to reach out is a significant parallel

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
between vision and intellection, since the objective and intellectual domain is understood as being an area of personal *distance*, in contrast to the intimacy or closeness of the subjective and emotional domain (we may keep someone *at a distance* by keeping the conversation intellectual; and if we feel too *close* to someone, then maybe we can no longer be objective about that person).

Vision is also identical for different people --- that is to say, two people who stand in the same place are generally understood to see the same thing. (We must take into account our *point of view*, which means that if you are NOT standing in the same place then you may not see the same thing --- but note that this is assuming that without the effect of a different location, the perception would be identical.) Identity across people is a highly objective characteristic --- a further reason why vision resembles our folk understanding of our intellectual processes as objective.\(^6\)

The vision/intellection metaphor is thoroughly alive today and highly structured; in modern English, much of the

\(^6\) It is particularly interesting to note the behavior of languages such as French or German, which divide knowledge into objective (factual knowledge "that" or "how-to" knowledge) versus personal/experiential knowledge (acquaintance with a person, for example). So far as I can tell, the kind of knowledge expressed by French *connaître* or German *kennen* is not the sort of thing that speakers can say "I see" about, while much of the knowledge describable by *savoir* or *wissen* falls into the "I see" domain.
detailed vocabulary of our visual domain can be used to
structure the description of our intellectual processes.
Thus, just as a physical object may be opaque or transparent
(and impedes vision or not, accordingly), likewise an argu-
ment or a proposition may be "(crystal)-clear", "opaque",
"transparent", "muddy", or "murky" to our mental vision. We
may "shed some light" on a problem which was particularly
mysterious until that moment; and an intelligent idea or
person is "bright", or even "brilliant", presumably because
of a tendency to "illuminate" in this manner (for folks who
were previously "in the dark"). Someone who concentrates on
one particular set of issues, to the exclusion of related
(and/or more important) questions, is said to have "tunnel
vision"; intellectual "breadth" of vision would be the oppo-
site. **Clearsighted, sharp-eyed** and **blind** all have applica-
tions to the facility of a person's mental observations as
well as to physical perception.

"Vision" applies to the religious or spiritual as well
as to the intellectual realm, though in a special sense
which is rather more restricted in modern usage than our
visual metaphor for intellection. In the older Indo-
European cultures, physical and spiritual "vision" were so
strongly connected that physical blindness was considered to
be a necessary concomitant of the highest level of internal
(intellectual and spiritual) vision; the great prototypical
mythical bards and prophets were blind, and ordinary bards
often composed in darkness to remove the outer visual
stimuli and allow themselves to focus on the inner vision. But in these cultures, it must be emphasized, the spiritual realm was not considered to be a purely subjective and personal domain at all --- rather the reverse; it was objective and real just like the world of daily life, but hidden from our everyday mortal sight, and hence only to be seen by those with appropriate inner vision. Nor was there a separation between the intellectual and the religious --- bards filled the position of historians, and prophets were political advisors. Direct religious "vision" (or revelation) was considered NOT as a personal subjective mode of knowledge, but as a simple factual revelation of another level of reality. Modern usage of words such as religious "vision" has become tinged with a coloring of personal hallucination, at least in the world of rationalists; but it is important to remember that spiritual vision started off as a generally accepted part of the intellectual world.

2.4.2 The communicative and subjective internal self

Hearing, it is true, shares some of vision's channeling characteristics, though not the voluntary on-off control which eye closure gives to vision, nor the channeling by physical movement of the sensory organ itself --- auditory "channeling" is mainly a mental activity, while visual channeling is largely physical. Hearing is also, like vision, useful at a distance. But (as previously mentioned) not
everything emits auditory stimuli; sight is a far more generally useful sense for data gathering. The function of hearing par excellence is of course linguistic communication; and since it is our major communicative pathway, it is also our major means of intellectual and emotional influence on each other. As linguistically capable beings, we have no need to constantly resort to physical pushes and pulls to influence other speakers of our language; we can do so in a far more sophisticated and effective manner via the vocal organs and the auditory sense-channel. Thus it is natural that physical auditory reception should be linked with heedfulness and internal "receptivity" ("not being deaf to someone's plea") and hence also to obedience (as seen in the *k'leu-s- descendants which mean "obey", like Danish lys-tre). Internal reception of ideas, in the sense of understanding what is heard, is certainly often connected with the vocabulary of physical hearing. Not only do we have modern English usages such as "I hear you", but we have already noted the semantic shift in the opposite direction on the part of French entendre (although entendre now means simply "hear", idiomatic usages such as the reflexive s'entendre in its meaning of "get along with each other", together with other relics of the older meaning such as malentendu "misunderstanding" or entendu "heard" or "understood/OK", persist as evidence of this shift). But readiness to internally receive and understand implies also a readiness to subject oneself to the influence of the
speaker's content — and hence perhaps a readiness to further respond in the way desired (e.g., to obey if a command is involved).

That hearing and heedfulness are deeply linked in IE can be seen from a glance at the Iliad. An analysis of the use of klúō in Book I of the Iliad shows that it is consistently used to mean "be receptive to, take heed of", and in fact (already in this early text) has primarily gone beyond its original physical meaning of "hear". I was unable to find a single instance referring simply to physical sound reception (the verb aido, "perceive or hear", is used in this sense). Common usage of klúō in the Iliad is well exemplified by Chryses' plea to Apollo (I,37) klúthí meu Argurótox' ... "Hear me, O Silver-bowed one." Chryses naturally does not mean simply physical hearing; one might even argue that (as seen elsewhere in the Homeric corpus) the gods are generally supposed to see and hear all sorts of distant things, without any special mortal appeals. Rather, Chryses means to ask for Apollo's favorable reception of his plea; for the god "not to be deaf" to his prayer. And in fact this entails Apollo not merely agreeing, but acting — hence "hear me" really means "do as I ask." Such a reading is confirmed by the closure of Chryses' prayer: tout d'éklue Phoibos Apollôn ("And Phoibos Apollo heard him"), which is immediately followed by the statement that Apollo came down from Olympos and shot arrows of pestilence at the Greeks (to punish them as Chryses had asked him to). When, later in
Book I, Agamemnon returns Chryses' daughter in an attempt to save his army from the pestilence, Chryses again prays to Apollo, this time in favor of the Greeks: the opening sequence is identical to that of his previous prayer, as is the closing. In this prayer, however, is an even more interesting sequence. Chryses says to Apollo, "Even as you heard me before when I prayed (ἐμὲν δὲ ποτ' ἐμεῦ πάρος ἐκλυός εὐχάνομαι), ... so now fulfill me this desire: ward the loathly pestilence from the Greeks." The equation between "hearing" and fulfilling a prayer is strikingly evident. A final example of equal interest occurs in the argument between Achilles and Agamemnon. Athene, seizing Achilles by the hair, holds him back from fighting Agamemnon and advises him to keep the combat verbal rather than physical. Achilles responds by stating that Athene and Hera have to be obeyed, and adds (I,218) Ἡς κε θεοῖς ἐπιπέδζεται, μάλα τ' ἐκλυόν αὐτῶ, "Whoso obeys the gods, to him do they gladly listen." He means, of course, that the gods grant the prayers of obedient mortals --- there is an exchange wherein the gods will do your will if you have previously done theirs. He uses the verb ἱκύο "hear" to express favorable reception and granting of prayers.

The link between physical hearing and obeying or heed- ing --- between physical and internal receptivity or reception --- may well in fact be universal, rather than merely Indo-European. A partial examination of a Hebrew Old Testament concordance7 alongside an English translation shows
large numbers of instances where the basic Hebrew root meaning "hear" (šāmā) is used to mean "obey" or "understand" or "listen/heed", and in fact is often translated into English by one of these other English words. Examples (instances of the relevant Hebrew verb are underlined in the translated text):

Jer. 22:21 I spoke to you ... but you said "I will not listen."
   (God is here chastising man for disobedience.)

Zech. 7:12 And they made their hearts like flint so that they would not hear the law and the words which the Lord of hosts had sent.
   (Note: they don't just stop their ears (as in 7:11), they harden their hearts against internal reception and obedience.)

Gen. 11:7 Let us confuse their language, so that they may not understand each other's speech.
   (Note: This is God speaking, in the Tower of Babel story. He is not intending to stop their hearing by affecting their ears, but rather their internal "hearing" — understanding — by confusing their language. But the Hebrew text has the verb "hear".)

---

7 Orin Gensler carried out the Hebrew concordance search for me, and is hereby thanked for his help.
It is probably the case, then, that hearing is universally connected with the internal as well as the external aspects of speech reception. Inasmuch as speech is the communication of information or of other matter for the intellect, hearing as well as sight is connected with intellectual processing. It is thus not surprising that "I see" should mean "I understand", but that French entendre "hear" should also etymologically be connected with understanding. But hearing is connected with the specifically communicative aspects of understanding, rather than with intellection at large. (It would be a novelty for a verb meaning "hear" to develop a usage meaning "know" rather than "understand", whereas such a usage is common for verbs meaning "see".) In a larger context, hearing is also considered to represent the kind of internal receptiveness to the speaker's intentions which might subsequently lead to compliance with the speaker's requests -- i.e., with heedfulness and obedience.

We have said that the sense of smell has fewer and less deep metaphorical connections with the mental domain than the other senses. Taste, however, is deeply linked with our internal self, and is used to represent our personal likes and dislikes or "tastes". And the vocabulary of touch and tactile sensation is generally used for emotional sensations of all types --- we can be emotionally "wounded", "stroked", "touched (to the heart)", and so forth. Why should these physical senses carry these particular abstract meanings, and no others?
As previously mentioned, distance is connected with objectivity and intellect, closeness with subjectivity, intimacy, and emotion. Vision and hearing are distant senses, while taste and touch require actual physical contact with the thing sensed. (Of course, sound waves and light waves must actually reach our eyes and ears for sensation to take place; but the object "giving off" the stimuli may be distant.) Taste is a sense which is in fact not only "close" (in that we actually ingest the sensed object) but proverbially subjective in its variability across people —- "one man's meat is another man's poison", and de gustibus non est disputandum. Personal likes and dislikes in other domains —- clothing, music, friends —- are equally variable and equally subjective, and are thus well represented in terms of the vocabulary of physical taste.

Touch is variable as well; pleasure and pain responses differ hugely. Regarding tactile data input, we may remember the story of the blind man and the elephant as an embodiment of the crucial difference between the intimate, non-general, non-objective input of touch, and the more distant, objective, general data derived from vision. This story captures in a nutshell the reasons why our sense of touch is not connected with intellection, but with emotion. Further reasons are (as previously stated) the actual impossibility of using touch for general data gathering, both because of possible danger in many cases and (more often) because of the social inappropriateness of such an intimacy.
as physical contact. But perhaps the most basic factor of all is that discussed by Kurath: in particular for our sense of touch (and for the accompanying general physical senses such as pain perception or thermal and kinesthetic perception) there is not a simple and tidy way to divide physical perception from emotion. Physical pain of any serious nature is bound to make the subject unhappy emotionally, and physical pleasure or well-being certainly promotes a cheerful emotional state; the psyche likewise affects corporal sensation, to such an extent that physicians acknowledge their inability to keep psychic and somatic health rigorously divided. None of the other senses, limited as they are to perception of much more specific data than the agglomeration of physical perception which we connect with "feeling", has such a general connection with our emotional state.

2.5 Conclusions

The vocabulary of physical perception thus shows systematic metaphorical connections with the vocabulary of internal self and internal sensations. These connections are not random correspondences, but highly motivated links between parallel or analogous areas of physical and internal sensation. Nor are the correspondences isolated; Lakoff & Johnson, who correctly link up individual parts of our physical and mental vocabularies (such as understanding =
grasping, or knowing = seeing) in their analysis of metaphor, fail to notice that these are parts of a larger system of the kind which they would refer to as a conceptual metaphor. (I.e., this metaphor involves our conceptualizing one whole area of experience in terms of another.) The internal self is consistently understood in terms of the bodily external self, and is hence described by means of vocabulary drawn (either synchronically or diachronically) from the physical domain. Some instantiations of this metaphor may be fairly common crossculturally, if not universal --- for example, the connection between vision and knowledge --- while others (such as the choice of the vital organ which is thought to be the seat of emotion) may vary a good deal between cultures. (Matisoff (1978) is a fascinating study of the linkups between physical and abstract vocabulary in the Tibeto-Burman family.)

Such large-scale conceptual metaphors are of the highest importance for synchronic and diachronic semantic analysis. Through a historical analysis of "routes" of semantic change, it is possible to elucidate synchronic semantic connections between lexical domains; similarly, synchronic connections may help clarify reasons for shifts of meaning in past linguistic history.

Given our understanding of this particular metaphorical system and the paths of meaning change mapped out by it, let us now return to the "puzzles" with which I began this
chapter. The connections between hearing and obedience and between grasping and understanding have been discussed in some detail already. Now, given a mapping of the physical domain onto our mental domain, we can elucidate the other puzzles as well. The *way in anyway* and in Breton *forzh* historically comes from the physical domain. But logical structures and conversational structures are at least partly understood in terms of physical travelling and motion. An argument or a conversation follows or covers some particular path through the mental areas it traverses. Thus we say "that was off the track of the argument," "the professor guided his students through the maze of tax law," "they didn't let him get very far into the subject," or "where were we?" *Anyway* presumably means "by any mental path we take, we will reach this conclusion."

The historical connection between the lexicon of physical similarity and that of probability or likelihood (the *like-likely* linkup) is a more complex case. We assess similarity or likeness not merely between objects or entities, but between whole situations. Not merely physical likeness is involved; likeness at a more abstract mental level is, however, referred to in terms of physical likeness. In fact, if you say to me "John and Mary are alike," I cannot tell without further data at what level you are comparing them. Further, our Pavlovian reflexes tell us that we can reason from similar situations to probable similar results. In earlier English usage, it was possible to say "He is like
to die," meaning what we would now say as "He is likely to
die." If a person's appearance and situation resemble those
of a person about to die, then (so far as we can tell) that
person is more likely to die than someone whose appearance
and situation are different. Thus physical resemblance and
probable future fate are interconnected phenomena, at least
in our folk understanding. (Compare modern English usages
such as "It looks like Joe will be going to New York" vs.
"It looks like it’s stormy out right now.")

These are simply two more cases of apparently whimsical
meaning shifts which fit neatly into the larger systematic
framework that I have laid out above, using English percep-
tion verbs as my case in point. If we are willing to look
at such large-scale, systematic historical connections
between domains of meaning, it becomes evident that not all
of semantic change is as whimsical and perverse as has often
been assumed. True, prediction of any individual change
remains impossible and seems unlikely to become possible in
the future. Phonological change and morphological change
cannot be predicted on an individual basis, either, so
surely no one expects specific case predictions for semantic
or syntactic change. However, in many semantic domains it
seems possible to determine what would be natural as opposed
to unnatural directions of change, just as in phonology we
know that voiced stops would be likely to devoice in final
position or to become fricatives in intervocalic position,
rather than the other way around.
Semantic fields and semantic changes are then possibly as systematically structured as is the phonological domain, although semantic structuring seems frequently impossible to describe in terms of features. If I know that one perception verb in a given language is connected with the domain of internal self (if, for example, I find that "see" frequently comes to mean "know" historically, or is used to mean "know" synchronically), then I am far less surprised to find that "hear" comes to refer to understanding or obedience in that language, or that "taste" is connected with personal likes and dislikes. In phonology, if I find that b and d are subject to final devoicing, I will expect to find that g is devoiced finally as well. And, just as in phonology I will expect g to devoice to k and b to p (rather than the other way around, g to p and b to k), in semantic change I will expect to find sight systematically linked with intellection and touch with emotion, rather than the other way around, or rather than sight with obedience and hearing with emotion. Internal structuring of and correspondences between semantic domains are equally regular --- as discussed above, it is not an accident that a clear statement aids mental vision while an opaque one impedes it, or that a bright idea sheds mental illumination, rather than causing obfuscation of the issues.

There is coherent, regular structuring within the metaphorical system of interconnections between semantic domains. But until change directions are systematically
examined in the area of meaning, it will be impossible to tell how irregular or how regular meaning-change really is; further, such investigation will be fruitless unless done against the backdrop of our synchronic structuring of the domains in question. Such examination of semantic change has only recently begun to be carried out. For the domain of perception verbs, now that we have examined the system, we have some idea what semantic changes would be "regular" or "normal", and what changes would be abnormal. Phonological change, after all, looked irregular until the relevant parameters were examined and isolated by the Neogrammarians; and it seems fair to suppose that the relevant parameters in semantics are far more complex (not being constrained by limiting factors as narrow as the physiology of speech) than those of phonology. The fact is, then, that we need to continue investigating the least surprising etymologies we can find, like see > know; the boring semantic histories are really the most interesting ones for our current state of research, because we can see the general principles underlying them.
Chapter 3: Modality

3.1 Introduction

In the preceding chapter, I have argued that a pervasive and coherently structured system of metaphors underlies our tendency to use vocabulary from the external (sociophysical) domain in speaking of the internal (emotional and psychological) domain. Historically, this metaphorical system has guided the course of numerous semantic changes; and synchronically, it is represented by numerous polysemous words and extended "abstract" uses of physical-world vocabulary. In this chapter, I shall examine in detail one particular vocabulary domain which shows synchronic ambiguity between the external and internal worlds: modality.

The ambiguity of modal expressions between "root" (or deontic)\(^1\) and epistemic senses has long been recognized. Linguists have characterized as root those meanings which

\(^1\) I shall throughout the ensuing discussion refer to root modality, rather than using the term deontic. Not only is root a broader term (some might take deontic as indicative of purely social or moral obligation), but it also reflects my leaning towards an analysis of epistemic modal meaning as rooted in sociophysical (root) modality.
denote real-world obligation, permission, or ability (as in example 1); and as epistemic those which denote necessity, probability, or possibility in reasoning (as in 2).

(1) John must be home by ten; Mother won't let him stay out any later.

(2) John must be home already; I see his coat.

This ambiguity is not peculiar to English; indeed, there is an evident crosslinguistic tendency for lexical items to be ambiguous between these two sets of senses. Many unrelated languages (Indo-European, Semitic, Philippine, Dravidian, Mayan, and Finno-Ugric, among others\(^2\)) are alike in having some set of predicates which carry both the root and epistemic modal meanings, as English modal verbs do. Frequently this set of predicates is a relatively small, morphosyntactically distinct set, also as in English. Such a crosslinguistic correlation encourages us to search for a broader motivation in the linking of these two apparently disparate semantic domains.

\(^2\) I personally have data showing that modal verbs have a root/epistemic ambiguity in both the Indo-European and Semitic languages families at large, and also in Finnish and Tagalog. Tregidgo (1982) lists a much larger set of languages obtained by Perkins (forthcoming). I have not obtained a copy of Perkins' paper, but the list is as follows: Basque, Classical Aztec, French, German, Italian, Kapampangan, Korean, Luiseno, Polish, Tamil, Thai, Tzeltal, Welsh, and "many ancient Indo-European languages".
There is strong historical, sociolinguistic, and psycholinguistic evidence for viewing the epistemic use of modals as an extension of a more basic root meaning, rather than viewing the root sense as an extension of the epistemic one, or both as subsets of some more general superordinate sense. Historically, the English modals developed from non-modal meanings (such as physical strength or force, e.g. OE magan "be strong, be able") to "deontic" modal meanings, and later still broadened to include the epistemic readings as well (of Shepherd 1981, Ehrman 1966). Shepherd's work on Antiguan Creole gives some evidence that creoles first develop their expression of root modality before going on to extend that expression fully to the epistemic domain. And studies of child language (Kuczaj & Daly 1979, Shepherd 1981) have revealed that children acquire the deontic senses of modal verbs earlier than the epistemic ones. Given these facts alongside the crosslinguistic pervasiveness of the ambiguity, it would seem reasonable to suppose that the link between the two senses is not a simple fact about the vagaries of past historical development.

Past historical changes in this domain, then, were shaped by a general semantic linkage which probably has inherent psycholinguistic motivation. My proposal is that root modal meanings are extended to the epistemic domain precisely because we generally use the language of the external world to apply to the internal mental world, which is metaphorically structured as parallel to that external
world. Thus we view our reasoning processes as being subject to compulsions, obligations, and other modalities, just as our real-world actions are subject to modalities of the same sort. Nor is modality the only area where we treat our epistemic world as analogous to the sociophysical world: setting aside extensions of physical perception verbs to epistemic perception ("I see"), it is generally true that we treat the causality in reasoning processes in terms of the causality of events and actions. An examination of speech-act verbs, adverbal elements, causal and coordinate conjunctions, and if-then conditionals will show that all of these classes of linguistic entities can be applied to the epistemic world as well as to the real world.

The present study will thus argue that modal verbs do not have two separate unrelated senses, but rather show an extension of the basic root sense to the epistemic domain --- an extension which is strongly motivated by the surrounding linguistic system. It must be noted that previous analysts have looked at modal verbs' ambiguity quite differently. Indeed, much recent linguistic work seems to treat English modal verbs as essentially cases of homonymy rather than ambiguity, tacitly assuming that (whatever the historical development may have been) epistemic and root modality are synchronically unrelated (cf. Lyons 1977, R. Lakoff 1972a). Root modal meanings are often treated as lexical predicates involving force or obligation, while epistemic readings are treated as combinations of logical
operators. For the reasons given above, such an analysis is inherently implausible, while the framework laid out in Chapter 2 suggests the direction for my reanalysis.

I shall begin, therefore, by putting forward an analysis of root modality which I have chosen because it is readily extendable from the sociophysical to the epistemic domain. Given our understanding of mental "forces" in terms of real-world forces, this analysis of modal semantics can apply unmodified to the epistemic world. In the final section of this chapter, and in the following two chapters, I shall expand my analysis from the area of modality to propose a unified understanding of causality, conjunction, and conditionality for the sociophysical and epistemic worlds.

3.2 The root modals in English

One of the main obstacles to the evolution of a unified understanding of modality has been the fact that semantic analyses of root modality were not systematically relatable to logical necessity or probability. So we must choose our root modal analysis with care, if we hope to make it mesh with epistemic modality. Talmy (1982) has suggested that the semantics of root modality is best understood in terms of force dynamics, that is, in terms of our linguistic treatment of forces and barriers in general. Thus, for example, permitting (e.g. may, let, and allow) is an
instance of taking away (or keeping away) a potentially present barrier. With let or allow, that barrier may be a physical one (as in 3) or a social one (as in 4); may seems more restricted to social permission.

(3) The crack in the stone let the water flow through.

(4) I begged Mary to let me have another cookie.

Adopting Talmy's basic idea of viewing modality in terms of forces and barriers, I shall offer tentative force-dynamic analyses of all the root modals. My primary object will be to subsequently demonstrate that such analyses are possible and readily extendable to the epistemic domain, rather than to argue strongly for this specific set of analyses as they stand. It should be understood that I do not explicitly take my analyses from Talmy, except in the case of may, nor does he necessarily agree with my unification of root and epistemic modality. Further, he takes the purely physical level of force dynamics (e.g. a stone resisting water) as the most basic of all, while I prefer to view modality as basically referring to intentional, directed forces and barriers. Within the domain of intentional causality, I do feel (as Talmy does) that direct physical manipulation of the environment is more prototypical causality (and hence more prototypical modality) than is indirect or purely social manipulation (cf. Talmy 1976). But this work will not attempt to deal with the relative basicness of different kinds of real-world forces in our
understanding of causation; rather, I shall simply propose a force-dynamic analysis of modality, with the understanding that I am referring to generalized sociophysical concepts of forces and barriers.  

May and must are perhaps the most clearly force-dynamic of the modals. Talmy's understanding of may in terms of a potential but absent barrier seems to me very reasonable, and can be viewed as a restatement of the standard analysis (e.g. "not require not") in terms of the more general concepts of forces and barriers. Must is equally readily understood as a compelling force directing the subject towards an act. Talmy would like to view must as a barrier restricting one's domain of action to a certain single act; and it is true that force or constraint would have the same physical result. But must has the force of an order to do something, a positive compulsion rather than a negative restriction. When I say "You must be home by ten," I indeed restrict my interlocutor's actions (or try to do so); but I do so by compelling the choice of some specific alternative. My attention is fixed not on the excluded alternatives but

---

3 There is a large literature on the subject of more and less prototypical agentivity and causality, which I cannot begin to discuss here. Shibatani (1976), and especially the paper by Talmy (1976), is an appropriate general reference. The other comment I have on the subject of more and less basic causality is that one could easily take the let of sentence (3) as being metaphorical, and claim that we understand non-intentional forces and barriers (like water and stones) in terms of our perceptually more basic concept of intentional force. This is what I feel is going on.
on the realization of the chosen alternative.\(^4\)

*Can* is far more difficult to pin down than *may* or *must*. Talmy analyzes it as parallel to *may* in structure, but with less tendency for the absent barrier to return to its position. This solution would of course explain the frequent overlapping of *can* and *may*’s semantic territories, but I think the overlap is equally explicable in terms of a more intuitively satisfying definition of *can*. *Can* denotes positive ability on the part of the doer; *may* denotes lack of restriction on the part of someone else. The closest physical analogy to *can* would be potential force or energy (note the Latin *potential*, referring to ability) --- and perhaps the best force-dynamic characterization I can give for ability is to say that it is the human physical and social modality in terms of which we view potential energy in physics.

If we can permit ourselves an excursion into the simple physical domain for a moment, perhaps it will become clearer

\(^4\) Viewing the schema of *may* as including a barrier, while *must* involves a force, also seems coherent with their different negation scopes. The negation of removing or holding back a barrier would be leaving it in place; hence *may not* becomes prohibition. *Must not*, on the other hand, is a very forceful prohibition, which is scarcely what one would expect if *must* is a barrier whose negation is an open path. Rather, the internal-negative reading of *must not* indicates an oppositely directed force, a force compelling that one not do whatever it is. Note that the external negation of a force would simply be the absence of the force, which is the reading we get for German *muss nicht*. 

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
why can and may have such a tendency towards overlap. Let us view can as being the equivalent of a full gas tank in a car, and may as the equivalent of an open garage door. These two factors will exert certain similar influences on the situation: neither factor forces the car (or the driver) to travel a given path, and yet if either factor were reversed, then travel would be correspondingly restricted. The full tank is a positive enablement, while the open door is a negated restriction; yet the results are similar enough to allow a good deal of overlap in the larger force-dynamic schemata surrounding the two modalities. Thus it is not surprising to find can used to give permission: the remover of a barrier may even feel that in some sense this removal counts as an act of enablement. And, of course, it is also politer to (cooperatively) enable than to invoke your restrictive powers by overtly refraining from exercising them.

We now come to ought, have to, and need to, which resemble must in denoting obligation or necessity; the difference is largely in the kind of obligation. Ought seems to be less strong than the others, and to have moral overtones, or at least to indicate that the obligation is one socially agreed upon between the imposer and the doer. Have to (as Talmy observes) has more of a meaning of being obliged by extrinsically imposed authority. And need implies that the obligation is imposed by something internal to the doer:
(5) I have to stay home, or Mom will get mad at me.
    ?I need

(6) You have to stay home, because I say so.
    ?You need

(7) I need to stay home tonight to study for the test.
    I have

Either need or have to can be used in (7) because the obligation to study is an externally imposed one in one sense, and an internally imposed one in another (the student is free to neglect studying, though at the risk of failing the test). Talmi would prefer to analyze have to, need to, and ought as barriers; I have once again some doubts about this viewpoint. Ought especially seems to me to indicate a positive compulsion; but need also refers to the necessity for some specific action or object, rather than to restrictions on other possible actions. My own analysis of must, ought, have to, and need to is that they are different kinds of forces. Must has connotations of a directly applied and irresistible force, while have to, ought, and need are resistible forces different with respect to their domains (social, moral) and/or sources of imposition (internal/external), as discussed above. Regarding the question of resistibility, note the contrasts in (8).
(8) ?? I must get this paper in, but I guess I'll go to the movies instead. I have to I need to I ought to

The basic point here is that within the limits of the meaning of each modal, anything that counts as a force can impose the relevant modality. Thus any internally rooted desire, lack, or compulsion can impose the modality need; and any social force which the subject participates in can count as conferring the obligation expressed in ought.

Finally, we come to the borderline modals shall and will (their distal forms, should and would, are highly modal). Shall and will can express simple futurity; but (as Palmer (1979) remarks with some surprise, after examining a large corpus) they don't usually do so in usage, despite grammar books. R. Lakoff (1972a) prefers to regard them as the strongest modals, on the grounds that the very strongest obligation or necessity is certainty of future action (cf. also Huddleston 1979). Certainly the will in examples such as (9)-(10) seems volitional rather than future pure and simple.

(9) All right, I'll do it; shake, mister.

(10) See if John will help you out. (=is he willing?)

Shall in my dialect (also in many of Palmer's examples) indicates the speaker or imposer (rather than the subject of
the action) making him/herself responsible for the carrying out of the action. Thus (11)-(12) have a sense that the speaker undertakes to see to it or to command that the action be done; while in (13) the law is viewed as doing this.\footnote{The commonest use of shall in English is perhaps in consent-requests for mutual action, like "Shall we dance?" In these questions, it is precisely our joint intent to undertake an action which is being queried; so my analysis seems to hold true for these examples as well. Likewise, in singular equivalents like "Shall I marry her?" (note the contrast with "Will I marry her?"), my undertaking to do so is in question. The third-person equivalents of these questions ("Shall he marry her?") still question the speaker's undertaking, of course, rather than the subject's.}

(11) You SHALL go, I insist on it.

(12) If Mr. Jones wants tickets for our concert, he shall have them.

(13) (The law decrees that) all citizens shall constantly carry violet parasols from 3/9/83 on.

The forces involved in (9)-(13) are those of volition and responsibility.

The purely future reading of will (shall has none in my dialect) seems to indicate not some force or barrier, but a completed path to an action or intention. How this fits into a force-dynamic analysis (if at all) is a difficult question. The one mistake which I can clearly identify in some past analyses is the idea that future will is always
epistemic, and concerns future truth-value. Like all the
modals except present-tense shall, will has both a root and
an epistemic reading — contrast the real futurity in (14a)
with the epistemic futurity of knowledge in (14b).

(14a) He will be home in three hours.

(14b) He will be home by now; I just saw the lights go on.

In (14b) the person is or is not at home, in the present;
the will is of future discovery or verification — "If we
check, we will find out that he is home." When an action is
in the future, of course its occurrence is automatically
only knowable or verifiable in the future. But the
epistemic use of will is an extension from the will of
actual futurity to purely epistemic futurity: the actual
event is not in the future, but only its verification. Note
that so long as verification is future, the event can be
past as easily as present — "future perfect" forms are
thus ambiguous between a root will (perfectivity in the
future) and an epistemic will (future verification of per-
fectivity):

(15a) He will have completed his requirements by the end of
this term.

(15b) He will have completed his requirements long ago, of
course — I don't know why I'm bothering to check the
records.
The distal\textsuperscript{6} forms of the root modals express past or conditional modality; distance in either a temporal or a causal sequence is thus marked identically. \textit{Could} expresses past or conditional ability, and \textit{might} (in those dialects where it has a root sense) a past or conditional absence of a barrier. \textit{Ought to} and \textit{must} have no morphologically distinct past forms: both of them can act as either present or past with respect to tense-sequencing in dependent clauses (e.g. He thinks he can/ought to \textit{vs.} He thought he could/ought to), but neither of them has an independent past or conditional form. \textit{Should} has filled part of the distal slot for \textit{ought to}; since \textit{shall} is relatively rare, its distal form was perhaps freed to shift as needed within the modal system. It was a natural choice for this slot, since whatever a speaker is willing to assume responsibility for ("should") is also something the speaker might conditionally agree was morally appropriate or obligatory ("ought"). The pure past of \textit{ought}, however, is usually represented by the periphrastic "be supposed to" form. \textit{Must} is so specifically an expression of direct force that it seems natural for it to lack a distal form; when a past form is required, \textit{had to} is used, but its meaning is not quite a distal \textit{must}. \textit{Have to} and \textit{need to} have past forms; but like all conjugated English verbs, their past forms are not conditionals in main

\textsuperscript{6} The term distal I have taken from Langacker (1978), which uses this term precisely to refer to a generic "distance" within either the temporal or the causal sequence.
clauses --- would have to and would need to are the conditionals, except in if-clauses. Finally, would expresses the distal form of both the future will and volitional-force will. In general, whatever modal forces or barriers the present form of a modal verb expresses, the distal form of the verb will express those forces conditionally or in the past.

3.3 Epistemic modality as an extension of root modality

3.3.1 Past unified analyses of modality

Given the tentative beginnings of a general analysis of root modality in terms of sociophysical forces, barriers, and paths of different kinds, let us now explore the results of transferring this view to the epistemic domain. We would like to achieve a unified analysis of modality. One direction taken by past "unified" analyses (e.g. Kratzer 1977) has been essentially to subsume the root meanings of the modals under very general epistemic readings; thus root can comes to refer to logical compatibility between a person's (or the world's) state and some event, while root must refers to logical necessity of the occurrence of some event, given the state of the world. Even if analyses such as Kratzer's did not have the drawback of entirely ignoring the intentionality inherent in root modality, they would still have the problem of explaining why the historical and
developmental progression is from root to epistemic, rather than the other direction. A slightly more promising line of explanation is that suggested in passing by Lyons (1977), namely that epistemic uses of the modals result from our understanding the logical necessity of a proposition in terms of the forces which give rise to the sociophysical necessity of the corresponding event in the real world.\footnote{Lyons at no point attempts to give a unified analysis based on this suggestion. The suggestion in fact appears at the end of his (separate) analyses of deontic and epistemic modality.} But this too falls down when closely examined: when (16) is uttered, the speaker does not really mean that somehow the proposition must be true because some real-world causes have brought about the relevant state of affairs, but rather that (s)he must conclude that it is true because the available informational premises cause him or her to reason thus.

(16) (looks at nametag) "You must be Seth Sweetser's sister."

Nonetheless, Lyons' idea is a more useful starting point than any of the analyses which assume the existence of a superordinate modality that has deontic and epistemic subclasses. Ehrman's (1966) attempt to find superordinate "core meanings" for the modals resulted in some hopelessly vague analyses, and still left her with two separate meanings for may.
Boyd and Thorne (1969) and Tregidgo (1982) in different ways propose analyses which allow epistemic modals to get readings referring to the necessity or permissibility of the act of stating, while root modals refer to necessity or possibility of the event described in the statement. This is getting warmer, but is still not quite correct, since in fact epistemic modals don't apply to our acts of stating, but to our acts of induction or deduction. Thus (16) does not express the speaker's compulsion to state that the addressee has a certain identity, but his compulsion to conclude that this is the case. Phrases like "I must say" or "I must tell you", which genuinely express modality applied to the act of speaking, have a completely different meaning from epistemic modals.

Finally, Antinucci and Parisi (1971) have suggested that belief figures in the semantics of epistemic modals. Thus they propose that must has two readings analyzable as in (17)-(18):

---

8 Boyd and Thorne, for example, analyze root must as "I state I (or some Pro) (Imp)" , where Imp is an imperative predicate applied to the content of the sentence. Epistemic must, on the other hand, they take to be "I state", applied to the content of the sentence. There is a feature (nec), "necessary", which is marked on the predicate Imp in root-modal must, but on the predicate state in the epistemic must.

Tregidgo contrasts deontic and epistemic must as follows: the deontic "a must b" translates as "X DEMAND Y - Y CAUSE - ab", while the epistemic "a must b" will translate instead as "X DEMAND Y - Y STATE - ab".
(17) You must come home. (deontic)
    \[ \text{CAUSE } \{ \begin{array}{c} X \\ \text{Speaker} \end{array} \} \text{ (BIND (Y GU COME HOME))} \]

(18) You must have been home last night. (epistemic)
    CAUSE (X) (BIND (BELIEVE (SPEAKER) (YOU BE HOME)))

Restated in English, this analysis proposes that epistemic modality binds the speaker to believe the proposition, while deontic modality binds the subject to do the action expressed in the proposition. Antinucci and Parisi are clearly on the right track. I would prefer to talk about conclusions rather than beliefs, since conclusions are precisely that class of beliefs which we are bound to adopt or not to adopt by our reasoning processes. Also, we shall see (in the next two sections of this chapter) that an analysis of modality need not have separate semantic structures for root and epistemic modals; we need not view must as semantically ambiguous between CAUSE (BIND()) and CAUSE (BIND (BELIEVE())). Nor is it necessary for the imposer and impos-ee of the modality to be present in the semantic structure. (If they are present in semantics, then modals are ambiguous between potentially infinite numbers of structures; but in fact, these participants are pragmatically identified --- see the end of this section.)

But the important gap in Antinucci and Parisi's argument is precisely the semantics of the general predicate bind: what does it mean (other than must), and why should it
happen to apply equally well to real events and to reasoning processes? (There is some tacit assumption here that events and conclusions can be treated alike.) I trust that the rudimentary analysis of root modality in the preceding section has given some idea of the elements of my proposed general analysis of modality; in the next section, I shall attempt to explore and then motivate the linkup between real-world modality and epistemic modality.

3.3.2 Root modality applied to the epistemic world

If I view root modality as referring specifically to permission-giving or to social duty, for example, I would appear to have no hope of extending such an analysis to epistemic modality. The *may* of permission-granting and the *may* of possibility seem unconnected, since there is no permission-granter in the world of reasoning. But given that the epistemic world is understood in terms of the sociophysical world, we can see why permission should be the sociophysical modality chosen as analogous to possibility in the world of reasoning. *May* is an absent potential barrier in the sociophysical world, and the epistemic *may* is the force-dynamically parallel case in the world of reasoning. The meaning of epistemic *may* would thus be that there is no barrier to the speaker's process of reasoning from the available premises to the conclusion expressed in the sentence qualified by *may*. My claim, then, is that an
epistemic modality is metaphorically viewed as the real-world modality which is its closest parallel in force-dynamic structure.

Let us set forth some similar analyses for the other modals' epistemic uses, attempting to apply our root modal analyses from section 3.2 to the speaker's reasoning process rather than to the subject's action. We must now recast forces and barriers as premises in the mental world, since no other kinds of obstruction/force exist in that world. As we shall see, this will make some of the modals look rather more similar than in their real-world readings. The majority of the root modals refer to various forces, which is reasonable since we recognize many different varieties of force in the sociophysical world. In the epistemic domain, we have no contrast between internal forces (as in real-world need) and external forces (as in have to). Nor can we differentiate between kinds of authority or obligation; should and ought cannot refer to moral force (as opposed to authority or threats, for example) in a world where no morality exists. In all of the following examples, I shall contrast the use of a modal in its real-world sense (a) with its corresponding usage in the epistemic domain (b).
May (19a) John may go.

"John is not barred by (my or some other) authority from going."

(19b) That may be true.

"I am not barred by my premises from the conclusion that that is true."

Must (20a) You must come home by ten. (Mom said so.)

"The direct force (of Mom’s authority) compels you to come home by ten."

(20b) You must have been home last night.

"The available (direct) evidence compels me to the conclusion that you were home."

This epistemic analysis takes the premises in the speaker’s mind as parallel to the force of authority in (20a). Note that the usual reluctance which is assumed to exist in the compelled person in (20a) has no counterpart in (20b). Such a contrast is a natural consequence of the differences between the sociophysical world and the epistemic world. In the real world, we don’t usually use force unless we need to overcome reluctance on the part of the person we are forcing. But we do not view our mental processes as being affected by such reluctance, or by anything other than the available premises. Furthermore, in the real world, force is usually resented by the victim because freedom is valued. But in the world of reasoning,
we wish to have our conclusions forced or restricted because this gives us more certainties within our belief system, and knowledge is valued.

Can (21a) I can lift fifty pounds.

"Some potentiality enables me to lift 50 lbs."

(21b) You can't have lifted fifty pounds.

"Some set of premises dis-enables me from concluding that you lifted 50 lbs."

Positive can is almost unusable in an epistemic sense.\(^9\)

But its negative and interrogative forms are quite acceptable (cf. Can that be true?) and have the reading of questioned or negated epistemic enablement on the part of the speaker.

---

\(^9\) I would love to be able to explain why some of the root modals transfer better into the epistemic domain than others. Shall seems so much tied to the speaker that it is perhaps reasonable for it to lack an epistemic sense (there is no entity "the speaker" inside the epistemic world). But even that is just a guess. And why can and need should be epistemically used only in negative or interrogative forms, while ought has a full epistemic usage --- perhaps the internality of can and need (while ought is social/external) makes them transfer less fully to epistemic use? But why do they transfer at all, then?
Ought to (22a) You ought to go.

"Certain forces (of moral obligation) influence you towards going."

(22b) That ought to be the right answer.

"The available set of premises (mental obligations or forces) influence me to conclude that that is the right answer."

Have to (23a) He has to be home by ten.

"Some force of authority compels him to be home by ten."

(23b) He has to be a New Yorker, with that accent.

"The available premises, including his accent, compel me to conclude he's from New York."

Need to (24a) He needs to go to the grocery store.

"Some internal forces (e.g. wanting to eat tonight) compel him to go to the store."

(24b) No, he needn't be a New Yorker --- he could just have lived there a long time, or imitate accents well.

"The available premises do not force me to conclude that he's a New Yorker --- they could also lead to other conclusions."
Once again, these analyses show the parallelism between the root and epistemic uses of modals. Sociophysical forces acting on the subject are taken as analogous to the logical 'force' of premises acting on the speaker's reasoning processes. Note that need (like can) is epistemic only in its negative and interrogative forms.

Will (shall is not epistemic)

(25a) John will come.
"The present state of affairs will proceed to the future event of John's arrival."

(25b) (hearing phone ring) That will be John.
"My present theory that that is John will proceed to future verification/confirmation."

Distal forms used epistemically (cf. discussion of root distals, section 3.2)

These distal forms express past or conditional epistemic modalities.

Might (26a) He might go. (conditional)
"If some conditions were fulfilled, then my premises would not bar me from concluding that he will go."
(26b) I thought he might go. (past or conditional)

(The past (root) reading is simply the past of root may; the conditional (epistemic) reading is as above (26a))

Note that conditionals with no expressed if-clause often have conditions so general as to become simply dubitative; but this is a general crosslinguistic fact about conditional forms.

Would (27) The folks you saw with John would be his parents. (conditional)

"If some conditions (like having full data) were fulfilled, my theory that they were his parents would proceed to future verification."

(28) I knew it would be John. (past)

(past tense of the epistemic will in (25))

Could (29) That could be the right choice for the living-room curtains. (conditional)

"If some unspecified conditions were fulfilled, the available data would enable me to conclude that that's the right choice for the curtains."

(30) I was dumbfounded: it simply couldn't be true.

(past tense of epistemic can as in (21))

Should (31) John should be easy to talk to.
As previously mentioned, should is an odd distal form. Perhaps because of its dissociation from its rare present form shall, it has become only minimally conditional (there is no contrast with a non-conditional form any more). The relevant condition appears to be something very general like "if all goes right" or "if all goes as expected." Thus the epistemic should in (31) is a barely conditional expression of epistemic obligation, verging on synonymy with ought. Since shall has no epistemic reading, it may only be by association with ought that should has developed such an interpretation.

Non-auxiliary (conjugated) modals like have to, need to, as previously mentioned, have past but no independent conditional forms. Their (regular) past-tense epistemic uses do not require discussion here.

The preceding description of epistemic modality has been nothing but a transfer of my proposed root-modal semantic analyses to the epistemic domain. I do not propose that epistemic modals have complex generative-semantic predicate structures to differentiate them from their root counterparts. Rather I propose that the root modal meanings can apply in two worlds, the "real" (socio-physical) world and the epistemic world. In the real world, the must in a sentence such as "John must go to all the department parties" is taken as indicating a real-world force imposed by the speaker (and/or by some other agent) which compels the
subject of the sentence (or someone else) to do the action (or bring about its doing) expressed in the sentence. In the epistemic world the same sentence could be read as meaning "I must conclude that it is John's habit to go to the department parties, (because I see his name on the signup sheet every time, and he's always out on those nights)." Here must is taken as indicating an epistemic force applied by some body of premises (the only thing that can apply epistemic force), which compels the speaker (or folks in general) to reach the conclusion embodied in the sentence.

Pragmatic factors will determine which world the modal is taken as operating in: for example, I swayed the interpretation of "John must go to all the department parties" toward an epistemic reading by adding a clause expressing a reason for reaching a conclusion. If instead I had added a clause expressing a real-world cause (such as "because he agreed to be bartender"), then the weight would have been towards a root reading. Sentences concerning past actions are strongly weighted towards an epistemic reading because real-world causality or modality can no longer influence frozen past events --- I cannot inform you (except jokingly) that you are hereby put under an obligation, or given permission, to have done something yesterday. Conversely, modals in sentences concerning future actions are weighted towards a root reading, although an epistemic reading is not excluded.
Any sentence can be viewed under two aspects: as a description of a real-world situation or event, and as a self-contained part of our belief system (e.g. a conclusion or a premise). As descriptions, sentences describe real-world events and the causal forces leading up to those events; as conclusions, they are themselves understood as being the result of the epistemic forces which cause the train of reasoning leading to a conclusion. Modality is a specification of the force-dynamic environment of a sentence in either of these two worlds.

3.3.3 Pragmatic interpretation of modal semantics in two worlds

If a modal verb simply expresses the application of some particular modality towards the event or action described in a sentence, pragmatic factors will determine what appropriate entity is understood as imposing the modality, and upon what entity it is imposed. Thus the root modals have a reading in which the speaker is taken as imposing the modality by stating it, and another reading in which some other entity (which may be elsewhere specified in the discourse) is the source of the modality. This contrast has interesting parallels with Searle's (1979) assertion/declaration distinction; modals are an area of language where speakers can either simply describe or
actually mold by describing. However (as stated in R. Lakoff 1972a), there is a tendency for the describer or reporter of modality to be taken as sympathetic to the imposer, especially with the monomorphemic modals such as **must** (as opposed to **have to**).

Likewise, the deep subject of the sentence is frequently taken as the modal imposee --- the person carrying the obligation or receiving the permission expressed in root modals. This is natural, since obligations and permissions tend to be placed on the person viewed as responsible for doing the relevant action --- often the agent, which in turn is often the subject in an active sentence. However, this interpretation of the subject of the clause as subject of the modality is only a pragmatic tendency (due to our general feelings about who is responsible) and **not** a fact about semantic structure. In fact, as R. Lakoff (1972a) has pointed out, with a few pushes from the context we can see the imposed modality as being incumbent on almost **any** entity in (or outside of) the sentence. Modals are not simply "voice-neutral"; they are semantically neutral towards the choice of the imposee from among the sentence's NPs (or even from the context). Compare the following examples (from Lakoff):

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
(32) The witch must be kissed by every man in the room, 
    a) or the leader of the coven will demote her to leprechaun. 
    b) or they'll all be turned into star-nosed moles. 
    c) because that's the law.

In (a) the obligation to get kissed rests primarily with the witch, in (b) the men are the ones responsible, and in (c) the obligation rests on all the participants, or even on the world at large. Another possible interpretation of the first clause of (32) in isolation would be that the hearer is to see it that the kissing occurs --- hence the obligation would devolve on the hearer. In short, any pragmatically reasonable interpretation of the identities of the modal imposer and imposee is possible. Pragmatically unreasonable ones, such as the identification of hearer with modality-imposer, would take a great deal of context, if indeed they are possible at all.

For epistemic modality, the story is simpler than for root modality. In the epistemic world, only premises count as forces or barriers. The only kind of event is a logical conclusion (or the verification of a theory); and it even has to be the speaker's own conclusion, because the force-dynamic structure of other people's reasoning processes is not readily accessible to us. Sometimes there seems to be a feeling that our reasoning process is a rather general one, which our interlocutor may share --- but the speaker's own
reasoning process is always the primary subject of epistemic modality.

Pragmatic factors explain why modals can be used either to impose or to describe real-world modality, while only description of epistemic modalities is possible. Sociophysical modalities can be imposed by speakers --- epistemic obligations and forces cannot be imposed by anything but premises. Thus a performative (cf. Austin 1962) use of sociophysical modality (doing by describing) is natural, while it is impossible for the epistemic modalities. Epistemic modal sentences thus lack the multiple ambiguities inherent in the pragmatic interpretation of real-world modality: there is no possible doubt as to the nature of the mental modality's imposer and imseee.

This section has presented an analysis of epistemic modality not as a semantically distinct kind of modality, but as an essentially metaphorical application of our sociophysical modal concepts to the epistemic world. We have seen that such a unified viewpoint is possible if we analyze modality in terms of general forces and barriers --- evidently these are the basic sociophysical concepts in terms of which we understand our mental processes. In fact, I have argued that with the proper appeal to our pragmatic interpretation processes, there is no need to differentiate the semantic structure of root and epistemic modals at all. The following sections will further motivate the application
of the same linguistic modalities to the real and epistemic worlds, by setting modality in the larger context of a unified linguistic model of causality.

3.4 Speech act verbs and speech act modality

I have argued that our reason for applying the same modal verbs to the real world and to the epistemic world is that we view the epistemic world as having a force-dynamic structure parallel to that of the real world (allowing for differences in the actual nature of the forces and barriers involved). If this is so, then one might expect other parts of the English lexicon to manifest a similar tendency towards ambiguity between real-world force and epistemic force. And indeed several classes of lexical items (to be discussed in the two following chapters) can be applied to causal forces equally in both worlds. Although all of these classes have been recognized as ambiguous, so far as I know they have not previously been analyzed as parallel to the modal case. However, Tregidgo (1982) briefly mentions the likelihood that the two readings of verbs such as insist, as exemplified in the (a) and (b) examples below, are a manifestation of a larger contrast between root and epistemic senses.

(33a) I insist{ that you go to London.
    on your going to London.
(33b) I insist that you DID go to London (though you may deny it).

(34a) I suggest that you leave the room now.

(34b) I suggest that you left the room to avoid being seen.

(35a) I expect him to be there. (ambiguous)

(35b) I expect that he's there.

In each of the (a) sentences, the speech act involves the speaker's interaction in the force-dynamics of a real-world situation --- the insistence or suggestion is on some actual real-world result to be produced. In the (b) sentences, on the other hand, the same sorts of speech-act interactions are directed at the epistemic structure: insistence or suggestion that a proposition be believed or accepted as true, or expectation that it will prove to be true. As Tregidgo says, even the verb agree is ambiguous between agreement to (do something) and agreement that (something is true). Given the understanding that any sentence can be treated as an expression of some state of affairs in the real world, or as a conclusion in our world of reasoning, it is reasonable that a verb such as insist should be used to express insistence on either the real-world doing of the action expressed in its clausal complement, or the epistemic concluding of the truth of the proposition constituted by that complement.
Such verbs as insist are, then, not merely an argument for forces (such as insistence) being generalizable from the real world (the content world) to the epistemic domain, but also for our viewing all linguistic expression as existing in these two domains simultaneously. Any actual utterance, however, is more than an epistemic reaction to a proposition about some content; it is a speech act achieved by means of the expression of that proposition about that content. One might therefore possibly expect some reflection of the speech-act's own internal force-dynamic structure in the use of modal verbs and similarly ambiguous lexical items. And indeed we find such a reflection. Modal verb uses such as those in (36) and (37) do not appear to fit into the standard root/epistemic dichotomy:

(36) He may be a university professor, but he sure is dumb.

(37) There may be a six-pack in the fridge, but we have work to do.

The relevant reading of (36)-(37) is the reading which presupposes the truth of each example's first clause. Under this reading, (36) means something like "I admit that he's a university professor, and I nonetheless insist that he's dumb," where I admit has been used to roughly gloss may and I nonetheless insist to gloss but. (37), in a context where the interlocutor has offered refreshments by saying "There's a six-pack in the fridge," means something like "I acknowledge your offer, and I nonetheless refuse it," These
readings are to be contrasted with the readings of (38)-(39), where the modal may has a normal epistemic sense:

(38) He may be a university professor, but I doubt it because he's so dumb.

(39) There may be a six-pack in the fridge, but I'm not sure because Joe had friends over last night.

Appropriate paraphrases of the may in the first clauses of (38) and (39) might be something like "It is possible that..." or "I am not barred from concluding that..." But how does the root (absent-barrier) sense of may apply in (36)-(37)?

I propose that (36)-(37) may be paraphrased as (36') and (37'):

(36') I do not bar from our (joint) conversational world the statement that he is a university professor, but...

(37') I do not bar from our conversational world your offer of beer, but...

Notice the ease with which we could also paraphrase (36) by "I'll allow (that/as how) he's a professor, but..." Verbs such as admit and allow (meaning not bar from) normally can't be used to mean admission of an interlocutor's non-assertive speech acts (hence these glosses needed to be replaced with acknowledge in paraphrasing (37)). Legal language might be adduced as evidence of possible broader
uses of admit/allow, however, as in "We can't admit that statement as evidence" or "I must (dis)allow Mr. Jones' plea."

In (36)-(37), then, may does not indicate the absence of a real (content)-world barrier, nor of an epistemic barrier, but rather the absence of a barrier in the conversational world. The interlocutor is being allowed by the speaker to treat a certain statement as appropriate or reasonable, or to present an offer. If "allowing" sounds a little grudging (normally we don't think of permission for speech acts such as statements), it should be noted that (36)-(37) do display a certain grudging spirit on the part of the speaker. In each case the use of may seems to be saying "I'll allow this much, but nothing further" --- i.e. the speaker's "admission" of the first conjunct is not to be taken as indicating that the speaker agrees that professors are all smart, or that the speaker accepts the acknowledged offer in (37).\footnote{Compare the odd use of perhaps in (a) and (b):}

(a) Perhaps he IS a professor; he's still a fool.

(b) Perhaps there IS a six-pack in the fridge; we have to get some work done.

This is parallel to the speech-act use of if-clauses (discussed in Chapter 5, below), as exemplified in (c)-(d).

(c) (Even) if he IS a professor, he's dumb. (on a reading where I assume he's a professor)
If my analysis is correct, then modality applies not only to the content and epistemic domains but also to the conversational interaction itself --- a domain which is inherently present to be referred to in any speech interaction, just as the content and epistemic domains are present. It is difficult to find examples parallel to (36)-(37) using other modal verbs besides may; but there are other possible applications of modal verbs at the conversational level, which seem to include all of the other modals quite regularly. Consider (40)-(43): 11

(40) Mondale advisor giving directions to speech-writer:
"Reagan will/must be a nice guy (as far as the content of the speech is concerned), even if we criticize his policies."

(41) Editor to journalist:
"OK, Peking can be Beijing; but you can't use "Praha" for Prague."

(d) (Even) if there IS a six-pack in the fridge (as we know there is), we have to get some work done.

11 Examples like (40)-(43) were brought to my attention by Gilles Fauconnier. Another example which seems to resemble them, but may also resemble (36)-(37), is (a):

(a) She could be the Pope, and I still wouldn't see her.
(42) To smoker of long cigarette, from speaker who recognizes that "cigar" dialectally signifies "long cigarette":
"In New Or'leans, you would be smoking a cigar right now."

(43) Lawyer to plaintiff:
"Remember, the mobsters can be as guilty as you like, but you mustn't suggest the police are implicated, or the jury will stop being sympathetic."

The second clauses of (41) and (43) suggest appropriate glosses for the modals in the first clauses:

(41') OK, you can refer to Peking as Beijing,...

(43') Remember, you can say that the mobsters are as guilty as you like,...

Similar paraphrases work for (40) and (42):

(40') The speech will/must talk about Reagan as if he were a nice guy,...

(42') In New Orleans, one would
\[
\begin{cases}
\text{say that you're smoking a cigar.} \\
\text{call what you are smoking a cigar.}
\end{cases}
\]

In all of these examples, the modality clearly applies to some speech act in question; in no sense is epistemic
possibility/necessity or real-world permission/obligation being predicated of the contents of these sentences. For example, (40) cannot be understood (under the relevant reading) as being about Reagan's future as a nice guy, or Reagan's being obligated to behave nicely, or the speaker's certainty about Reagan's niceness.

In some cases (notably (41)-(42)) a use/mention distinction seems to be involved, in that the speaker is applying the relevant modality to the choice of linguistic form, not to the content. But cases like (43) show fairly clearly that this use of modality is not restricted to issues of form --- in (43) it is the purport of the plaintiff's future statement that is in question. These are all cases of modals being applied to the speech-act world; whether they apply to the production of a given form or to the production of a given content seems not to matter.

It is not clear whether (36)-(37) should be grouped with (40)-(43) or not. The presupposition of the first clause's truth in (36)-(37) seems to show different behavior on the part of may in those clauses. On the other hand, may does not seem to be as freely usable as the other modals in sentences like (40)-(43); although it might be possible to use it in (43), it seems marginal, and I find it anomalous in (40), where one might expect it to be good (can is fine in (40)). It may be that speech-act may has been specialized to the sort of use exemplified in (36)-(37).
Speech-act-domain uses of modal verbs (or metalinguistic uses, as we would probably call them in examples (40)-(43) at least) need a good deal more investigation. However, it seems evident that a modal verb may be interpreted as applying the relevant modality to:

(a) the content of the sentence: the real-world event must or may take place.

(b) the epistemic entity represented by the sentence: the speaker is forced to, or (not) barred from, concluding the truth of the sentence.

(c) the speech act represented by the sentence: the speaker (or people in general) is forced to, or (not) barred from, saying what the sentence says.

It is worth commenting on the fact that modals can be used either to impose or to describe (report) modality in both the content and speech-act domains, but can only describe in the epistemic domain (see section 3.3, above). The speech-act domain is, like the general "real-world" content domain, an area wherein speakers can suppose themselves able to mold as well as to describe.

It is not clear why speech-act uses of modals have the (relatively restricted) readings that they do; for example, they generally do not refer to the speech act being performed by the speaker. In order to apply a modality to the speech act being performed, one would typically say, e.g.,
(44) I must tell you that your father wants you home, though I'd rather not.

However, it is rare to express certain modalities towards the speech act being performed; although not rare to request permission, it is rare to assert it:

(45) May I ask you where you are going?

(46) *? I may ask you where you are going.

So the question of interpretation of speech-act modals may depend at least partly on general principles of expression of modality towards speech acts, whether the speech acts are implicitly or explicitly performed.

3.5 Conclusions

This chapter has set forth an analysis of linguistic modality as being generalized or extended from the real-world domain to the domains of reasoning and speech acts. The advantage of such an approach is that it allows us to unify the semantic analyses of the modal verbs, and of other similarly ambiguous lexical items such as insist. Such words are not so much ambiguous between root, epistemic, and (if applicable) speech-act senses, as between basic applications of their senses and extended applications of those senses to the epistemic and speech-act domains. My proposed analysis is also coherent with the historical and
developmental linguistic evidence, which suggests that an extension from the sociophysical domain to the epistemic domain would be normal, while an extension in the opposite direction would be unnatural.

Talmy's approach to deontic modality and causality in terms of forces and barriers has given us a way to look at root modal senses which can be extended to the epistemic and speech-act domains. Attempts to find single superordinate analyses which include both root and epistemic modal meanings have proven unsuccessful (cf. Ehrman 1966), and would be even less helpful if applied to speech-act uses of modal verbs as well. But the problem is removed by taking into account our understanding of mental processes (and of the current speech-act utterance) as involving forces and barriers analogous to those involved in "real-world" physical and social interactions. Without taking into account this background metaphor, trying to unify deontic and epistemic modal meaning is like trying to find the common semantic features of "optimism" and "pink sunglasses" without basing our analysis on the knowledge that physical sight is a primary metaphor for world-view in the mental domain. But given the priority of the real world, and the structuring of the epistemic and speech-act worlds in terms of that prior world, it then follows naturally that the same understanding of modality will apply to all three worlds.
Among current semantic theories, Fauconnier's ([in press]) concept of "mental spaces" is particularly useful for an understanding of these multi-domain ambiguities. Fauconnier would say that the three domains I have discussed (content, epistemic, and speech act) are three mental spaces, and that logical necessity is the counterpart in the epistemic domain of compulsion in the real-world domain. Polysemy structures (like reference structures) seem to be able to name counterparts with the same lexical item.

The single semantic analysis of the modals which I have proposed is a very simple one. It would not extend so easily into the epistemic domain if it explicitly mentioned a complex set of possible identities for real-world imposers and targets (imposees) of modalities. Rather, it leaves these identities to pragmatic interpretation. I consider this to be a further advantage of my analysis, since the semantics of the modals appears to be indeterminate in this area. That is, the semantic structure of the modal verbs does not explicitly pick out either subject or object (or any specific syntactic or semantic role) as the participant on whom the modality rests; rather it is the pragmatic factors inherent in the speech-act setting, together with our understanding of utterances as multi-leveled objects, which easily account for the possible ambiguities of modals with respect to the origins and targets of forces.
An utterance is content, epistemic object, and speech act all at once. There are areas of meaning which are naturally circumscribed within one of the three worlds in which utterances exist. But our linguistic treatment of causal force, and of the closely allied concepts of different modal forces, can only be fully understood by examining how these forces apply to more than one of the three domains.
Chapter 4: Conjunction, Coordination, and Subordination

While modality may offer self-evident cases of polysemy (between the root and epistemic senses), there are other areas of the lexicon where few would even suggest that differences in usage correspond to a polysemy between linguistic domains. The purpose of this chapter is to show that conjunctions, like modal verbs, are "ambiguous" among usages in the content, epistemic, and conversational domains. A simple analysis of conjunctions as logical operators will prove far too weak to explain the ambiguities in their usage, or to account for the fact that ambiguities between domains are to be observed equally in simple conjunction (and disjunction) and complex lexical conjunctions such as therefore or although. Not only must conjunctions be given a more complex lexical semantic analysis, but their contribution to sentence semantics must be analyzed in the context of an utterance's polyfunctional status as a bearer of content, as a logical entity, and as the instrument of a speech act.
4.1 Causal and adversative conjunctions

4.1.1 Three readings of causal and adversative conjunction

Let us begin by comparing the uses of because in the sentences below:

(1a) John came back because he loved her.

(1b) John loved her, because he came back.

(1c) What are you doing tonight, because there's a good movie on.

In the first example, (1a), real-world causality connects the two clauses: that is to say, his love was the real-world cause of his coming back. In the second sentence, however, the causality would appear to be reversed, but is not. (1b) does not mean that the return caused the love in the real world; in fact, under the most reasonable interpretation, the real-world causal connection could still be the one stated in (1a), though not necessarily. Rather, (1b) is normally understood as meaning that the speaker's knowledge of John's return (as a premise) causes the conclusion that John loved her.

---

1 An earlier partial discussion of these causal conjunction phenomena appears in Sweetser 1982.

2 In section 4.1.2, I shall discuss the presence of commas in (1b)-(1c), and the commalessness of (1a).
Going a step further, (1c) would be a totally incomprehensible sentence if the conjunction were understood in the content domain. Since the main clause is not even a statement, the because-clause cannot be understood as stating the real-world cause of the event or situation described in the main clause. Rather, the because-clause gives the cause of the speech act embodied by the main clause. The reading is something like "I ask what you are doing tonight because I want to suggest that we go see this good movie."

The "causality" is Gricean. In order for a suggestion to be felicitous, I must first know that compliance is not already impossible beforehand; hence, conversely, I can justify an inquiry as to possibility on the grounds that I hope to follow it up with a suggestion.

As with modals, there are examples where only context can disambiguate the domain of conjunction, e.g. (2):

(2) She went, because she left her book in the movie theater last night.

It would be possible to read (2) either as an assertion of a person's departure, followed by a real-world reason for the departure, or as a logical conclusion: I know she went (to the movies), because I discovered that she left her book in the movie-theater. (The commaless reading pretty much forces a content-conjunction rather than an epistemic-conjunction interpretation, but I will discuss this phenomenon later on.) Given sufficient context, we can
almost always force either a content-conjunction reading or an epistemic-conjunction reading on any pair of clauses conjoined with \textit{because}; it is just harder to find reasonable contexts for some readings than for others. Thus, for example, (1a) above could be taken (with a comma added) as meaning that I \textbf{conclude} that he must have come back, because I \textbf{know} that he loved her; while (1b) could be taken as meaning that his return actually caused his love in some way. The exception to this rule, of course, is speech-act conjunction; if an utterance is imperative or interrogative in form, then it cannot be reasonably be causally conjoined except at the speech-act level.\textsuperscript{3}

My point, then, is that conjunction may be interpreted as applying in one of (at least) three domains; and that the choice of a "correct" interpretation depends not on form, but on a pragmatically-motivated choice between viewing the conjoined clauses as representing content units, logical entities, or speech acts.

Application in three different domains is easily exemplified for the whole range of causal and adversative conjunctions: the ambiguities are perhaps the clearest for this

\textsuperscript{3} It is not impossible for content conjunction to occur in an imperative or interrogative speech act, but such conjunction must be interpreted as inside the scope of the imperative or interrogative force. In cases like (1c), the conjunction is taken as outside the interrogative force, joining it to a separate assertive speech act. See footnote 7 for a discussion of related issues.
class of conjunction, although (as we will see) they are present in the usage of a much larger class of lexical items. Thus therefore, since, so, although and despite\(^4\) (properly a preposition, forming part of a frequently-used conjoining phrase despite the fact that) all show such multiple usage. The (a) examples below are cases of content conjunction, the (b) examples are epistemic conjunction, and the (c) examples are speech-act conjunction:

(3a) **Since** John wasn't there, we decided to leave a note for him.
    
    (His absence caused our decision in the real world.)

(3b) **Since** John isn't here, he has (evidently) gone home.
    
    (The knowledge of his absence causes my conclusion that he has gone home.)

\(^4\) While, interestingly, shows ambiguity between the epistemic and speech-act domains as a causal conjunction — (a) is epistemic and (b) is a speech-act conjunction:

(a) **While** Paris is large, it is not impersonal.
    
    (Paris' largeness might lead me to conclude that it is impersonal, but despite this, other data lead me to a different conclusion.)

(b) **While** I sympathize with your troubles, bring me a paper on Monday or else!
    
    (I command you despite my sympathy.)

However, in the content domain, while seems to have only its original sense of simple cotemporality. It is noteworthy (cf. Traugott 1982) to what an extent we draw on our lexicon of space and time to describe other relations such as causality and adversity.
(3c) Since we're on the subject, when was George born?

(I ask you because we're on the subject, or because you're so smart --- the fact that we're on the subject, e.g., enables my act of asking the question.)

(4a) The rules cannot be broken, therefore you will have to spend two hours collecting trash.

(The rules' unbreakability causes my decision in the real world.)

(4b) The rules cannot be broken, therefore the Dean knew some way around them that allowed him to hire John.

(My knowledge of the rules' unbreakability causes my conclusion that the Dean knew a way around them.)

(4c) The rules cannot be broken, therefore "No".

(The rules' unbreakability causes my act of saying "No".)

(5a) He heard me calling, so he came.

(The hearing caused the coming, in the real world.)

(5b) (You say he's deaf, but) he came, so he heard me calling.

(The knowledge of his arrival causes the conclusion that he heard me calling.)
(5c) Here we are in Paris, so what would you like to do on our first evening here?
   (Our presence in Paris enables my act of asking what you would like to do.)

(6a) Although he didn't hear me calling, he came and could hardly walk, saved my life.
   (His coming occurred in spite of his not hearing inability to walk which might naturally have led to his not coming.)

(6b) Although he came and saved me, he hadn't heard me calling for help.
   (The fact that he didn't hear me is true in spite of the fact that he came, which might reasonably have led me to conclude that he had heard.)

(6c) Although I sympathize with your problems, get that paper in tomorrow!
   (I command you, in spite of my sympathy.)

(7a) Despite their threats, she kept right on doing her job.
   (The real-world doing occurred despite the threats.)

(7b) Despite the fact that she never wavered, (we now know that) she was being threatened the whole time.
   (The knowledge of the threats occurs despite the likelihood of the contrary conclusion.)
(7c) Despite all the regulations about TA-student relationships, how about dinner at Chez Panisse tonight?

(The speech act of inviting occurs despite the apparent obstacles.)

Note that the statements, as well as other kinds of speech acts, are subject to causal conjunction. The stated cause then naturally relates to the conditions of making the assertion in question:

(8) The answer's on page 66, since you'll never find it for yourself.

(I make this assertion because it gives you information which you can't acquire independently. A Gricean condition of informativeness is thus invoked as the "cause" of a statement.)

(9) Mary loves you very much, Tom --- although I'm sure you already know that.

(I make this assertion despite its lack of Gricean informativeness, a violation which I feel bound to comment upon.)

Because (as I have tried to make clear) the choice of domain for the interpretation of conjunction is essentially a pragmatic one, certain contents almost force interpretation at a given level. Thus, for example, (8) and (9) are extremely difficult to interpret as examples of anything but speech-act conjunction: the answer's actually being on page
200, and my belief that it is on page 200, are equally independent of my interlocutor's ability to locate it there. An example like (7b), with explicit mention of the speaker's knowledge state, practically forces an epistemic interpretation, as does (10):

(10) Since you are wearing your new tennis shorts, you aren't going to the library, I conclude/guess/suppose.

It is harder to force a content-conjunction reading, since almost anything which can cause or impede events in the real world can also cause (or impede) our conclusions about these events (although the converse is not the case). However, we have briefly mentioned the fact that the commaless examples (e.g. (1a)) require a content reading, and I will discuss this in more detail below.

I have tried to show clearly the three possible usages of words such as because --- a task which is the more necessary because such ambiguities have been treated incompletely elsewhere. Ross (1970) and Davison (1973) both treat examples of what I call "epistemic conjunction" as cases of speech-act conjunction --- i.e., they interpret sentences like (11) as meaning something like "I say to you that he loves me because I am justified by the evidence to that effect":

(11) He loves me, because he wouldn't have proofread my thesis if he didn't.
What I trust has been clarified by the arguments above is the impossibility of following Ross' proposal. There is a class of causal conjunction uses in which the causality is that between premise and conclusion in the speaker's mind (as in (11)), and there is another class of uses in which the causality actually involves the speech act itself (as in (8)-(9) or the (c) examples above). Note that (11) could perfectly well be used to represent a thought sequence pure and simple; following our omniscient narrator into our heroine's mind, we might find her thinking (11) without any speech act at all. The because-clause may in fact secondarily buttress a speech act of assertion (once again assuming (11) to be a speech act), inasmuch as our conversational rules make it incumbent upon us to say things we believe to be true, rather than things we understand to be false. But its primary function, surely, is to explain the epistemic act of drawing the conclusion "he loves me". The because-clause is fully sufficient as a cause for the act of concluding, but evidence of truth need not by any means be a sufficient cause for the act of stating something. Speech-act conjunction examples, as we have seen, would more likely refer to the relevance or irrelevance of a state of affairs as causing or impeding the speaker's action. Other possible causal explanations for, or impediments to, an act of stating include the hearer's probable ability or willingness to respond appropriately (for example, to respond by believing a statement, answering a question, fulfilling a request, or

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
obeying a command). Thus examples of speech-act conjunction like (12)-(13) occur:

(12) I'm innocent, although I know you won't believe me.
    (I assert this despite the fact that you are not an appropriately receptive hearer.)

(13) It may seem crazy to most people, but since you say you've had similar experiences yourself -- I saw my father's ghost on the battlements last night.
    (I only assert this because you are an appropriate hearer.)

Once again, note the impossibility of a content-conjunction reading of such examples. Even though the form of (12) may be precisely parallel to that of examples like (6a), the reading of the conjunction cannot be parallel; there is no way in which we can reasonably interpret a person's guilt or innocence as dependent on whether their story is believed by a hearer, whereas we easily and normally understand assertions of guilt or innocence to be influenced by a hearer's cynicism or credulity.

All this is simply to say that causal conjunction in the speech-act domain indicates causal explanation of the speech act being performed, while in the epistemic domain a causal conjunction will mark the cause of a belief or a conclusion, and in the content domain it will mark "real-world" causality of an event. All of this seems only too obvious,
given the existence and nature of the three domains. But this brings us back to the question of justifying my claims as to the existence of the domains. The first major argument is one which I have already advanced in the preceding discussion of modality, and which I will continue to use in succeeding discussions of similar issues in other lexical fields of English: why should ambiguities of this sort recur so frequently? If we failed to notice our general application of "content-domain" vocabulary (such as the root modals) to the epistemic domain, we would have no explanation for any of the large number of lexical items which show regular, parallel ambiguities of this kind. That is to say, postulating the existence of these different domains as part of the background to semantics is useful, in that it allows us to state generalizations which we would otherwise miss.

The second argument is that the three domains to which I refer exist, independent of the polysemous vocabulary under analysis; by which I mean simply that it seems reasonable to talk about utterances as having content, speech-act force, and some kind of epistemic status. We are not multiplying domains without necessity; indeed, we would be surprised if extra domains kept randomly surfacing to cause ambiguity in our language. Rather we are using known facts about the multi-faceted nature of language to explain lexical ambiguity.
My final argument for the existence of these domains is that there are languages whose vocabularies distinguish more clearly among the domains than is the case in English. Although English because is triply polysemous, we may note that since already has a strong tendency towards an epistemic or a speech-act reading, rather than towards a content-conjunction reading. But French parce que "because" is used specifically for content conjunction, while puisque is the correct causal conjunction at the epistemic or speech-act level. This shows that English did not have to use the same vocabulary for real-world causation and epistemic causation. We should note that this makes the English polysemy case a more interesting one than it would otherwise be: we have concrete proof that the domains in question are distinct and distinguishable, and yet we can see that there are too many systematic polysemies of this variety for the domains to be unrelated. The relationship thus cries out for explanation; and that explanation is impossible except in the larger context of our general linguistic understanding of thought and speech.

5 Examples of parce que and puisque:

(a) Il va l'épouser parce qu'il l'adore.
   "He's going to marry her because he adores her."
   (content reading: adoration causes engagement.)

(b) (Mais si,) il va l'épouser, puisqu'il l'adore.
   "(But of course) he's going to marry her, since he adores her."
   (epistemic reading: we conclude the marriage is certain from our knowledge that he adores her.)
4.1.2 Comma intonation and causal conjunction

If my analysis is correct, we might suppose it likely that differences in usage between, e.g., content-domain conjunction and epistemic-domain conjunction might turn out to be explicable in terms of the difference between the two domains, just as certain differences between root and epistemic modality fall out from the differences between the domains. One obvious question which I have not yet addressed is why, for those causal and adversative conjunctions which do not require a comma separating the clauses, the commaless conjunction cases are obligatorily interpreted as cases of content conjunction. And I now propose that this apparent quirk of usage is a result of the inherent and independently-motivated differences between the content domain and the epistemic and speech-act domains.

Chafe (1984) notes that "bound" (commaless) because-clauses may presuppose the truth of the main clause, and assert only the causal relation between the clauses. Thus (14) may be read as presupposing that Anna loves Victor, and asserting simply that this love is caused by her memories of her first love:

(14) Anna loves Victor because he reminds her of her first love.

On the other hand, (15)'s comma intonation at the end of the main clause forces the alternative reading, wherein Anna's
love for Victor is asserted, and the cause is asserted, too. (This is assuming we don't give (15) an epistemic-conjunction reading, which would take it as asserting both my conclusion that Anna loves Victor and the causal relation between that conclusion and the relevant data.)

(15) Anna loves Victor, because he reminds her of her first love.

The comma in (15) appears to mark a sentence-final intonation drop at the end of the sentence-initial main clause, rather than simply marking a pause. Sentence-final intonation, then, marks the presentation of a clause as an independent assertion rather than as a presupposition. In content-conjunction cases such as (14) and (15), either possibility exists: i.e., a speaker could equally well have a reason for saying (14) and presupposing that Anna loves Victor, or for saying (15) and asserting it. The option is not, however, present with all conjunctions: in fact, most causal and adversative conjunctions require comma intonation and assertion of both conjuncts, as in (16)-(17) (assuming we can get a content-conjunction reading for (16)):

(16) Anna loves Victor, since he reminds her of her first love.

(17) Anna loves Victor, although he doesn't resemble her first love.
The commaless equivalents of (16) and (17) are not very plausible sentences, if they are possible at all. But for certain conjunctions, such as because and despite, both options exist.

For epistemic-domain and speech-act-domain causal conjunction, however, a commaless intonation pattern is impossible. Why should this be so? Commaless intonation tends to present an initial main clause as presupposed; and in content-conjunction cases the main clause has, as it were, the option of being treated as presupposed. But in epistemic causal conjunction cases, the main clause represents the speaker's logical conclusion; and in speech-act causal conjunction cases, the main clause represents the speech act being performed by the current utterance. Can either of these things reasonably be taken as presupposed material? Let's look at example (18):

(18) Anna loves Victor, because she told me so herself, and besides, she'd never have proofread his thesis otherwise.

(I conclude that she loves him because I know the relevant data.)

The speaker's internal act ("concluding that X") is precisely what must be asserted in example (18); or at any rate it is precisely what cannot be taken as presupposed (it is surely impossible to talk about asserting such an epistemic force, or the force of the current speech act, in
the way that one asserts the content of an assertive speech act. Because the act of concluding is speaker-internal, it cannot be assumed as common knowledge between the speaker and the hearer, and hence cannot be presupposed. The speech act being performed is likewise something which cannot reasonably be taken as background already shared with the hearer: if it were really shared, the speech act would already have been performed.

It is harder to find examples of "potentially comma-less" speech-act causal conjunction --- i.e., cases where (1) the main clause precedes the subordinate clause expressing causation or adversativity, (2) the "main clause" does not have some formal characteristic affecting its intonation (e.g., interrogative or imperative form), and (3) the relevant conjunction also allows comma-less intonation in those cases. But something like (19) may be an example:

(19) No (you may not), because I can't take the responsibility for letting you do that.

Precisely the non-presuppositional part of (19) is the speech act itself ("I say 'No'"), rather than the causal subordinate clause or even the auxiliary assertion of the causal relationship between the two clauses.

We may note here that there does exist a well-known class of cases where the force of the in-progress speech act is literally asserted --- namely, performative speech acts.
Thus it would be possible to rephrase (19) as the performative equivalent (19a):

(19a) I tell you no, because I can't take the responsibility for letting you do that.

(19a) performs the act of telling the hearer something by asserting that the act in question is being performed. Such cases confirm our earlier hypothesis that the current speech-act force cannot be presupposed⁶; the speech act is only performed by virtue of the actively assertive status of the performative clause. Compare (19a) with (19b), an apparent parallel with commaless intonation:

(19b) I tell you no because I can't take the responsibility for letting you do that (and not because I want to be mean).

(19b) can indeed be read as presupposing the act of telling --- but NOT as performing it. My only reading of (19b) is one where the speaker is understood to have already told the hearer "no" (or habitually does so under certain circumstances), and is now just explaining this already-completed speech act by asserting a causal relation between some situation and the completed act. (19a), on the other hand, is ambiguous (like most performative utterances) between a performative interpretation equivalent to (19) and

---

⁶ Self-referential presupposition seems an inherently contradictory concept.
a straight descriptive interpretation like (19b) (though without the same presupposition of the main clause). My claim is that this ambiguity is possible only because of the comma intonation which indicates that the act of telling is asserted; and that this is why (19) has no possible commaless equivalent.

The same distinction can be observed in the epistemic domain: (20) is equivalent to only one of the two readings of (20a), and (20b) is equivalent only to the other reading of (20a):

(20) You're going to the library, because (I know) you wouldn't be taking your pack of books to the movies.

(20a) I conclude that you're going to the library, because I know you wouldn't be taking your pack of books to the movies.

(20b) I conclude that you're going to the library because I know you wouldn't be taking your pack of books to the movies.

(20) has only a reading wherein the act of concluding is expressed as concurrent with the speech act, while (20b) has only a reading wherein the act of concluding is presupposed and its cause is asserted. (20a) is ambiguous between a reading equivalent to (20) (but with the act of concluding overtly asserted rather than conveyed by the pragmatics) and a simple descriptive reading more closely equivalent to
(20b) (although, once more, without the presupposition of the initial clause). The first reading might be called an epistemic performative reading --- "I hereby conclude (or decide)" , rather than "I hereby state (or ask or order)" , as in performative speech acts. An epistemic performative is interpreted essentially as an act of thinking out loud, rather than an act of describing one's thought processes subsequently. It is not the same as a performative speech act, but an epistemic performative reading bears the same kind of relation to the equivalent descriptive reading that a performative speech act bears to its corresponding descriptive reading: in the one case, the speaker is doing in saying, and in the other case the speaker is describing a separately-performed action. But in order to "do in saying", the action described cannot already be part of a presupposed background. Hence (20) cannot (as an example of epistemic conjunction) have the commaless presupposition-bearing intonation; and (20b) (without commas), conversely, cannot have an epistemic-conjunction reading.

What emerges from the preceding discussion is the understanding that an essentially unitary semantic entity (such as because) can (1) not only be "polysemous" by dint of being applicable to different domains, but (2) can even have different grammatical behavior when applied to these different domains --- without necessarily being thereby several separate entities. Such regular contrasts in grammatical behavior, observed in large numbers of lexical
items, may be due to our understanding of the relevant
domains themselves, rather than to polysemy on the part of
the lexical items in question.

We will now leave the area of causal/adversative con-
junction, and continue to the larger area of conjunction in
general. A discussion of and, but, and or (the most basic
coordinating conjunctions of English) will show us that
ambiguity between domains is not a property of causal and
adversative conjunction alone.

4.2 And, or, and but

From the above discussions of modality and causal con-
junction, it should be clear that our vocabulary of real-
world force and causation is the basis for our lexicon of
the epistemic and speech-act analogues of force and causa-
tion. The linkup is not (for example) between the content-
domain usage of because and the epistemic-domain usage of
because; rather, it is between real-world causality and the
epistemic causation of a conclusion by premises. But we
have seen, in Chapter 2, the extent to which the general
vocabulary of our internal world is drawn from our "real-
world" (external-world) lexicon. So it should come as lit-
tle surprise to find that even apparently grammatical-
function items such as and (often analyzed by semanticists
as a logical operator devoid of further lexical content)
show evidence of polysemy between the content, epistemic, and speech-act domains. In this section, I will present evidence for the epistemic and speech-act usage of and, or, and but. My proposal is that not merely the lexical items, but the conjunction process itself, applies analogously in the three domains.

4.2.1 'And': Iconic ordering in different domains

And is, of course, the most general connective in English. Haiman (1980) suggests that many of its apparently multiple meanings may in fact be due to an iconic usage of the general concept of addition or connection. Thus, for example, the and of (21) may be simple setting of two items side by side, but that of (22) requires further explanation:

(21a) John eats apples and pears.

(21b) King Tsin [a Chinese restaurant] has good eggplant, and China First has excellent dim sum.

(22) John came into the room and closed the door.

The asymmetricality of (22) --- the fact that we change the interpretation of the sentence if we change the order of the two clauses --- is apparently due to the iconic conventions of narrative word order. The order of the clauses parallels the real-world order of the events described in the clauses, so that it becomes unnecessary to add further specification
of the temporal ordering of the events being narrated. And does not in itself indicate temporal succession (in the way that such meaning may be attributed to the then of and then); but the order of two and-conjuncts may by convention be iconic for the actual sequence of the events described. I would propose that this narrative usage of and is in fact only one of many such ways of exploiting the interaction of language's inherent linearity with the general concept of "putting things side by side".

Let us compare the uses of and in (23) and (24):

(23) What happened to Mary?
    Answer: She got an M.A. in basketweaving and she joined a religious cult. ( ... so she left the math department.)

(24) Why don't you want me to take basketweaving again this quarter?
    Answer: Well, Mary got an M.A. in basketweaving, and she joined a religious cult, ... (so you might go the same way if you take basketweaving).

(23) is a normal example of iconic narrative word order, with and as a connective: it is tacitly assumed that Mary's M.A. preceded her joining the religious cult, and the opposite order of events would be the reasonable interpretation of "She joined a religious cult and she got an M.A. in basketweaving." (We also assume that the causality is in
accord with the temporal sequence: earlier events cause later events rather than vice versa.) But in (24), the clauses are ordered on the basis of a different principle. Rather than narrative events set side-by-side, here we have logical premises set side-by-side. The order of the premises is significant, and the sense would change if they were reversed; the change would not, however, be one of temporal ordering, but of what was being taken as logically prior in the epistemic world. Thus, "Well, Mary joined a religious cult, and SHE got an M.A. in basketweaving" would indicate that one could reasonably conclude the likelihood of a basketweaving M.A. from somebody's cult membership, while (24) seems rather to be saying that one concludes the likelihood of cult-joining from the knowledge that a person has a basketweaving M.A.

In example (24), the "and-so" sense of and is as much a product of iconic word order as the "and-then" sense (which may also naturally involve suppositions of real-world causation) of and in (23). But the ordering of (24) is iconic on the logical processes, rather than on the real-world events involved. That the two clauses of (24) are set side-by-side in a logical world rather than in an event world is evident from the different conclusions that can follow (23) and (24). (23) can reasonably be followed by a real-world result of the events previously narrated, while (24) cannot. (24) must rather be followed by an epistemic result, a conclusion which results from the premises previously stated.
In no sense does Mary's life history cause my hearer's history to take a parallel course; rather it causes me to conclude that my hearer's history could take the course in question.

Why should it be the case that epistemic "priority" (such as the priority of premise over conclusion) should be reflected in iconic word order in exactly the same manner as temporal priority of events? Once again, we can observe the pervasive modelling of our linguistic expression of the internal world on our expression of the external "real" world. Note that in this case we have evidence from the lexicon to motivate the iconic use of word order in the epistemic domain. Not only the applicability of words such as priority to the logical world (literally, it means "previousness"), but the logical-domain uses of such phrases as "A follows from B", or "But that doesn't necessarily follow" --- these usages show the conception of logical priority drawing its vocabulary from the domain of temporal order.

Our examination of epistemic and-conjunction has simply shown that more than the lexicon is "borrowed" from the domain of temporality to express logical priority; conventions of word order may be borrowed as well.

And may also connect epistemic entities without any particular asymmetry or priority, in a manner analogous to the content conjunction in (21a-b). In (25), the premises conjoined by and are simply set side-by-side as coequal
pieces of evidence for some conclusion; no premise has an
and-so relationship with another.

(25) Did Mary leave for London last night?
    Well, nobody has phoned from England to ask why she
didn't come, and her suitcases are gone, and John said
he taught her French 2 section for her this afternoon.
    (Conclusion: Yes, she went.)

And has thus both content-domain and epistemic-domain
usages. In the content domain, our conventions of narrative
word order decree that setting things side-by-side with and
may further allow their order in the narrative to be an icon
for real-world temporal order; real-world causality may also
be (secondarily) implied, because we know that earlier
events can exert causal force on later ones but not vice
versa. In the epistemic domain, setting things side-by-side
also allows their order to be taken as iconic under certain
circumstances; but it is an icon of logical precedence (the
only ordering relevant to the atemporal epistemic domain),
rather than of temporal precedence.

And conjoins speech acts as well as content items or
logical premises; consider examples (26)-(30):

(26) Go to bed now! and no more backtalk!

(27) Glad to meet you, sir; and what makes you think I can
    be of assistance to your work?
(28) Thank you, Mr. Lloyd, and please just close the door as you go out.

(29) Darling, you're wonderful, and how about dinner at Chez Panisse tonight?

(30) The Vietnam War WAS morally wrong, and I'll gladly discuss the reasons why I think so.

In examples (26)-(29), the mere form of the conjunctions betrays the fact that normal content-domain conjunction cannot be involved. In example (30), grammatical form\(^7\) does not tell us definitely in which domain the two clauses are conjoined. But, given the stress and intonation pattern of the first clause, it has to be interpreted as meaning something like "I hereby assert again (or insist on asserting) that the Vietnam War was morally wrong." This reading, in

---

\(^7\) Conjunction is theoretically a relationship between clauses, not between utterances. My claim is that conjunction between clauses in interpreted in (at least) three major distinct ways relative to the content of the clauses. It is interesting to note the approach of earlier work (cf. Ross 1967, Emonds 1970) to the problems of conjunction and subordination. Ross is concerned that the same transformations must apply (Across-the-Board) to all conjunctions of a conjoined structure; Emonds is trying to account for the fact that transformations like Subj-Aux Inversion only apply in Root clauses (or, of course, across the board in conjunctions immediately subjacent to a Root clause). Examples like (1c) or (27)-(30) do not fit either set of generalizations; precisely when conjunction of clauses is intended to conjoin speech acts, the conjoined clauses behave as syntactically independent. This is because they are linked not at the syntactic but at the pragmatic level. Ross' and Emonds' theories do not account for such an interpretation of conjunction, nor for the accompanying syntactic behavior.
fact, conjoins much more reasonably with the content of the second clause than a straightforward content-conjunction reading would: the structure of the conjoined sentence is now "I assert that X and I propose that we discuss X."
Without the stress, the first clause might have quite a different reading, as can be easily seen if we conjoin it to a different second conjunct:

(31) The Vietnam War was morally wrong, and its results are still haunting the world today.

Here, content conjunction is involved; the structure is simply "I assert that [X and Y]", where X = "The war was wrong" and Y = "The results still haunt the world."

And has thus (at least) three different domains of application. Not only will the connection between the conjuncts be perceived differently depending on the domain in which they are taken to be conjoined, but the iconic usage of word order will (naturally) be iconic on the ordering principles inherent in the domain in which conjunction takes place (temporal ordering and causality in the real-world domain, but logical priority in the epistemic domain). Many of the multiple interpretations given to and-conjunction (including the so-called symmetric vs. asymmetric senses) are regular and predictable; given (1) Haiman's concept of iconic word order, and (2) the understanding that conjunction may be a joining of speech acts or of logical entities rather than a joining of content, these senses are
manifestations of the basic sense of setting things side-by-side additively.

In arguing that \textit{and} is a unified semantic entity (or a set of closely and systematically related senses), rather than several discrete entities (including perhaps such a divergent sense as temporal conjunction), have we also produced arguments for what kind of semantic entity it may be? Grice's (1978) celebrated analysis of \textit{or} showed that by taking account of certain conversational principles, one could simplify the meaning of \textit{or} back down to something fairly closely equivalent to the logical operator $\cup$. Have we in fact achieved this for \textit{and} and $\cap$? My answer is that I, at least, don't feel comfortable with such a solution, for two reasons. The first reason is that an equivalence between \textit{and} and $\cap$ makes more sense when the things conjoined are propositions than when they are epistemic or conversational actions. Unless we wish to return to the mechanisms proposed by generative semanticists (cf. Davison 1973, for example) --- in particular, to the inclusion of a higher clause specifying speech-act force as part of the actual semantic content of a sentence --- it would be difficult to prove that we are conjoining \textit{propositions} in the examples of \textit{and}-conjunction from the epistemic and speech-act domains. And I feel that the original reasons for abandoning such abstract syntactic analyses were sound.\textsuperscript{8} What I hope to do

\textsuperscript{8} In fact, the bizarreness of an abstract syntactic analysis would be increased by the addition of epistem-
is to catch the real insight which such mechanisms were intended to express (and which has been much neglected by subsequent workers), namely the fact that any utterance simultaneously takes part in several different domains. Without resorting to the mechanism of including essentially pragmatic phenomena in the sentence semantics, it is still possible (unless one insists a priori on a pragmatics-free semantics) to understand and formulate the relationships between semantics and pragmatics, and the effects of both on interpretation. But it is not immediately obvious that pragmatic entities such as speech-act forces should be formalized as propositions in the same way that linguistic content is formalized --- and therefore it is not obvious that conjoining such entities is equivalent to logical conjunction or disjunction.

My second reason is related to the first. If we assume that the word and in language has the grammatical function of conjoining linguistic units (including sentences) as co-equals --- does that necessarily means that its semantic function is precisely that of logically conjoining the content of two units? Given that it conjoins at other than the propositional-content level, does that mean that the ic, as well as speech-act, higher predicates.

9 A logical-conjunction analysis of and requires that it conjoin only propositions at the semantic level (sentences, at the syntactic level). But for natural language, there seems to be every reason to doubt that and's semantic behavior is limited to proposition-joining. (Cf. footnote 7.)
other uses are relevant to its semantics, or not? This is a
difficult question, but it looks simpler when stated from
another point of view. Given that and has some uses which
do not parallel those of the logical operator ∩, as well
as some which do, does that mean we should analyze ∩ in
terms of and, or and in terms of ∩? My feeling is that it
is a mistake to analyze natural-language words like and as
being identical to entities of the man-made logical termi-
nology which so clearly derives from natural language
(rather than the other way around) and so clearly has needs
and purposes distinct from those of natural language. What-
ever "putting things side-by-side" may mean in natural
language, it only sometimes means something equivalent to
∩. Perhaps the closest we can get to stating the relation
between and and ∩ is to say that ∩ is a mathematical
crystallization of one of the most salient uses of and. In
the next section, we will examine some of the uses of or
(including some uses neglected by Grice (1978)), and some of
the same issues will come up.

4.2.2 'Or': Alternatives and conversational structure

Or, frequently analyzed as a logical operator
equivalent to ∪, has the same sort of ambiguity between
domains as and. Its basic meaning seems to be that of con-
joining alternatives; these alternatives are normally taken
as jointly filling all possible options, so that one or
another of them must be the right alternative. In the con-
tent domain, conjoining with or thus indicates that some one
of the conjuncts must describe the genuine state of affairs
in the real world.

(32) Every Sunday, John eats pancakes or fried eggs.
    (On a given Sunday, either "John is eating pancakes"
or "John is eating fried eggs" describes the situation
truthfully.)

(33) Mary will go to the grocery store this evening, or John
will go tomorrow morning.
    (Either "Mary will go" or "John will go" truthfully
describes the future state of affairs.)

Notice that, in contrast with the logical operator ∪, or
normally carries with it an expectation that ONLY ONE of the
expressed options will in fact be the correct one. It would
not be impossible to say (32) if John sometimes had fried
eggs alongside his pancakes, and (33) would not be false if
two trips to the grocery store occurred. But (32) and (33)
do not create such expectations. Further, it would be abso-
lutely aberrant to say (32) if we knew that John always had
eggs and pancakes together --- although, from a logical-
operator analysis, (32) would, of course, be true. As Grice
(1975, 1978) has pointed out, this aberrance is conversa-
tional. Our conversational maxims require us to be as
informative as necessary; under many circumstances, such
informativeness is not provided by the presentation of two
or more disjunct possibilities, or at least it would be much more effectively provided by the presentation of one single certainty. Therefore, the statement of disjunct possibilities causes the conversational implicature that the speaker (who presumably would be more helpful, hence more specific, if it were possible) does not know which of the possibilities is correct. Grice does not mention the fact, but a fortiori his solution also explains why hearers of disjuncts assume that it is not the case that both possibilities are correct; if the speaker had any good basis for the statement "X and Y", to state "X or Y" would be at least as uninformative as it would be in the case where the speaker simply knows that "X".

The epistemic use of or is exemplified in (34)-(35):

(34) John is home, or somebody is picking up his newspapers.

(reading: The only possible conclusions I can reach from the evidence are (1) that John is home to pick up his newspapers, or (2) that somebody is picking them up for him.)

(35) John will be home for Christmas, or I'm much mistaken in his character.

(reading: The only possible conclusions I can reach from the evidence are (1) that John will come home, or (2) that I don't understand his character at all.)
Actually, (34) could also be given a content reading: something like "At any given time, it is the case that John is at home, or it is the case that somebody picks up his newspapers for him." But the epistemic reading given in the gloss above, wherein the conjuncts are seen as alternative conclusions drawn from the available evidence rather than as alternative possible real-world states, is surely the likeliest reading. It would be hard to imagine an intelligible content-conjunction reading for (35): the two clauses don't express normal real-world alternatives, but they do express normal epistemic alternatives. A proposed prediction about somebody's future behavior is presumed to be based on some comprehension of the person's character, and hence an alternative to the prediction's validity would be the speaker's poor understanding of the subject's character. However, since we don't usually offer predictions with the intention that they be thought incorrect (again, for Gricean reasons), the speaker cannot cooperatively be offering genuine alternatives here. The assumption made by any hearer of this apparent violation will be that the prediction does reflect the speaker's real conclusion. The second clause, which by itself would have no informational value to the hearer, would (if true) further violate the Gricean maxims by stating that the speaker doesn't know what he/she is talking about. The cooperative hearer, noting that or allows a choice of alternatives, will have no trouble deciding that a cooperative speaker must have intended the first
clause as the "right" alternative, and the second clause as the "wrong" one. Why would the speaker have bothered to say (35)? It is true that a simpler "John will be home for Christmas" follows logically from (35) plus the conversational maxims. But (35) is a stronger statement, in that it explicitly as well as implicitly puts the speaker on the spot and says "I'm willing to believe myself an incompetent reasoner if what I conclude is not correct."

Finally, or can conjoin speech acts, as in (36)-(37):

(36) Have an apple turnover, or would you like a strawberry tart?

(37) King Tsin has great mu shu pork, or China First has good dim sum, or there's always the Szechuan place just around the corner.

Notice that in (36)-(37) there is no possibility of either an epistemic or a content reading of the conjunction. In (36) the imperative and interrogative forms of the conjunctions assure us that only speech-act conjunction can be involved: the hearer is either to take the speaker's speech-act force as suggesting (via a polite imperative) that the hearer eat an apple turnover, or as suggesting (via a yet-politer interrogative) that the hearer eat a strawberry tart. Of course, because of the nature of language, both conjunctions have to be said, in order for the hearer to choose between them --- so, in a way, both speech acts have been carried
out by the speaker. But they are presented as alternatives, in that the hearer can choose which of them will form the basis for a response --- it is not necessary to respond to both conjuncts. In (37), the declarative form of the conjuncts makes the speech-act conjunction at first less obvious, but there is no sensible reading wherein the conjuncts of (37) are real-world alternatives, or even reasonable alternate conclusions in the speaker's epistemic world. Only when we see all three conjuncts of (37) as conveyed suggestions, can we get a reasonable reading --- the hearer is requested to respond to one or another of the suggestions that "we should go to X restaurant" (which are being conveyed by mentions and commendations of the relevant restaurants).

It is worth noting that (37) is evidence of explicit lexical conjunction linking indirect speech acts; there are no other "alternatives" for or to be marking, besides these indirect suggestions. Speech-act conjunction apparently doesn't need to distinguish direct from indirect speech acts. It is also perhaps worth comparing (37) with (21b), where the first two clauses of (37) are conjoined with and. With and, a perfectly reasonable content-conjunction reading of these two clauses is possible ("King Tsin has great mushu pork" and "China First has good dim sum" can be true simultaneously). Of course, the resulting conjunction of contents could, as a conjoined entity, be used as an indirect speech act --- e.g., as a suggestion that we eat at
one of the two places. But if we added the third conjunct of (37) to our string of and-conjuncts, we would have (37a), which almost forces a speech-act-conjunction interpretation of the and because the conventional suggestion force of "there's always" gives the third conjunct an independent status as a suggestion:

(37a) King Tsin has great mu shu pork, and China First has good dim sum, and there's always the Szechuan place just around the corner.

Does word order play a part in the interpretation of or-conjunction, as it does with and? In fact, it plays a prominent part, and iconicity may be involved in this case, as with and. R. Lakoff (1971) mentions the asymmetric use of or, which can be contrasted with a symmetric use. In fact, as with and, these two uses are possible in more than one domain of conjunction. Thus, in the content domain, we can contrast the symmetric (38) with the asymmetric (39):

(38a) On Friday nights Mary goes to the movies in Berkeley(,) or (she) drives to Tahoe to see Fred.

(38b) On Friday nights Mary drives to Tahoe to see Fred(,) or (she) goes to the movies in Berkeley.
(39a) On Friday nights Mary goes to see her aunt, or her parents call her and scold her on Saturday morning.

(39b) Mary's parents call and scold her on Saturday morning, or on Friday nights she goes to see her aunt.

In the symmetric (38), the two alternatives are mutually exclusive but independent and equivalent to each other (two things Mary could do on Friday evening, not linked except by mutual exclusiveness). But in the asymmetric (39), the second alternative depends on the first, rather than being an independent and equivalent item. It would be perfectly possible for both events to take place; the either-or situation does not have to do with either mutual exclusiveness or incomplete information. Rather, our interpretation is that Mary's visit to her aunt will cause the potential subsequent scolding to be averted. In examples of asymmetric-or content conjunction like (39), the independent conjunct must always precede the dependent conjunct. This could be said to follow a general principle of iconicity, in that (1) the independent conjunct is causally prior, and (2) in this case, and in most such cases, the independent conjunct has to refer to a temporally prior event, in order for the necessary causal relations to hold.

In the epistemic domain, asymmetric (41) contrasts with symmetric (40):
(40) A: Yesterday was the day you were supposed to get the decision about that job you applied for.
   B: Yeah. Well, (evidently) the mail delayed it, or they got held up making their decision, or there was some problem ...

(41) (looking at six boxes of pancake mix in John's kitchen cupboard) John eats pancakes for breakfast, or I'm the Shah of Iran.

In (40), any of the or-conjuncts is an equally possible conclusion in the speaker's epistemic world --- and, in fact, more than one might be possible simultaneously. The reading of (40) is something like "I conclude that the evidence leaves me with a set of alternative conclusions: X, or Y, or Z, at least one of which is right." (41), on the other hand, doesn't really have equal, independently-possible conjuncts. As in (35), the alternatives are one reasonable conjunct and one Griceanly impossible conjunct (given that the speaker and hearer are assumed to know that the speaker is not in fact the Shah of Iran). But, being cooperative, the hearer will understand the message, which is "The only alternative to this conclusion is absurdity --- hence the conclusion is very strongly supported." And, being likewise cooperative, the speaker doesn't begin by stating the absurdity which is simply the non-alternative to his certainty, but by stating the certainty itself. From the point of view of priority in the epistemic world, this word order is
equally reasonable; the "I'm the Shah of Iran" clause is only a highly contingent member of the represented epistemic world, irrelevant except as it may serve to reinforce the only real conclusion which the sentence presents. In (40), the speaker might well reason normally from the falsity of one conjunct to the truth of some other, starting from almost any conjunct without much affecting the meaning: "Well, if the mail didn't delay it, (then) they (probably) got held up making their decision" --- or, "Well, if they didn't get held up making their decision, (then) the mail (probably) delayed it" are equally possible. Hence the ordering of the or-conjuncts is equally flexible; none of them has epistemic dependency on another. But in the case of (41), the second clause is secondary because it lacks any independent value in the reasoning process, serving only to reinforce the first clause. It is true that technically the logical structure of (41) is identical to that of (40) --- the falsity of either conjunct compels the reasoner to conclude the truth of the other; however, this equality is only apparent in (41), and the real structure is simply "John eats pancakes for breakfast," with the or-conjunct added to reinforce the real conclusion.

In the speech-act domain, symmetric uses of or such as (36) and (37) contrast with asymmetric uses like those in (42)-(45):
(42) Happy birthday! or did I get the date wrong?

(43) How about coming over this evening? or haven't you got the car running YET?

(44) Your money or your life!

(45) Give me liberty or give me death!

As R. Lakoff (1971) points out, (45) has apparent symmetric parallels like (46):

(46a) Give me a hotdog or a salami sandwich.

(46b) Give me a salami sandwich or a hotdog.

But in my opinion the explanation for the contrast between (45) and (46) is fairly simple. In (46), the or conjoins independent coequal possibilities --- the hearer is really being asked to respond to one speech act or the other. But in (45), the request for death (an apparently maximal absurdity) depends on the prior failure of the maximally reasonable previous request for liberty. Thus, as in (39), the speaker is indeed presenting alternatives --- but not independent ones. Similarly, the speaker of (42) has no desire for a response to "did I get the date wrong?" unless in fact the real speech act ("Happy birthday!") is a failure because it's not the right day. And the speaker of (43) might well not even care about the state of the car, as long as the hearer is somehow able to accept the invitation for the evening. The primary, independent conjunct precedes the
secondary, dependent conjunct. In all the asymmetric cases of speech-act or-conjunction that I have been able to find, the secondary dependent conjunct is subordinate in the Greek schema: it either gives the speaker a "loophole" against potential infelicity (as in (42) and (43)), or bolsters the primary conjunct by presenting an unacceptable alternative (as in (44), (45), or (47)):

(47) Give me that book, or I'll throw your cat into the lake.

The hearer of (47) is asked to choose between responding appropriately to the initial command "Give me that book," or having the second speech-act force (the ensuing threat) come into effect. Since the hearer presumably cannot possibly want the threat, the result is in principle just a strengthened command. But if the initial, primary speech-act force fails or is infelicitous, then the second speech-act force will be the alternative.

All cases of or-conjunction, then, present alternatives at some level --- in the content domain, in the speaker's epistemic domain, or in the conversational domain. The presentation of alternatives (as mentioned earlier) commonly carries with it the conversational implicature that both (or all) alternatives are not simultaneously correct. Hence, mutual exclusiveness of the different options is a frequent default interpretation of or-sentences, although it is not a necessary interpretation of most of them. However, in order
for an or-conjoined utterance to be conversationally cooperative at all, it must be interpreted as offering the hearer at least one correct option. Independent options are presented with "symmetric" or --- that is, the ordering of the conjuncts is irrelevant. For two independent options, of which at least one is true, it would be as reasonable to say "If not B, then A" as to say "If not A, then B." The free ordering of the or-clauses reflects the lack of priority of one option over the other.

If, however, the two options are not independent of each other, then another factor enters the picture. "Asymmetric" or reflects the dependence of one of the alternatives on the other. The two conjuncts still need not be mutually exclusive in themselves --- that is, when I say "Mary gets home by midnight, or her parents are furious," I don't mean that the two events described could not both occur. But I am implying that there is a one-way relationship between them. Taking "Mary gets home by midnight" as A, and "her parents are furious" as B, we can (as always with or-conjunction) reason either "If not A, then B" or "If not B, then A." However, in the real world, we know that A (Mary's time of coming home) is not only temporally prior, but actually exerts a causal influence on B (her parents' furiousness). And we know that the converse cannot be true: in no way can her parents' subsequent furiousness influence the time of her previous homecoming. Note that from the point of view of epistemic or-conjunction, it would actually
be possible to reverse the two conjuncts --- e.g., "Mary's parents are furious (now), or (else) she got home by midnight." Here, since real-world alternatives are not at issue (one or the other already is in effect), only epistemic alternatives can be in question; and neither one has definite priority over the other, in the way that one real-world alternative causally controls the other.

My hypothesis, then, is that the order of asymmetric or-conjuncts reflects the priority of one conjunct over the other, or the dependency of the second on the first. This dependency may be at the content level (not-A controls or causes B in the real world), the epistemic level (A is a real conclusion, and B is only presented as a non-alternative in support of A), or the speech-act level (the infelicity or poor success of speech-act force A would cause me to replace it with speech-act force B) --- we have seen examples of all three. In all cases the independent, primary conjunct precedes the dependent, secondary conjunct, in what might be easily seen as another example of iconic word order.

A final question regarding or is, naturally, whether Grice (1978) was correct in reducing its semantics back down to $\cup$. I do not dispute his explanation of the conversational implicatures of or-sentences; as has been seen, I rely on it as the basis for my more extended account of or. As in the case of and, however, it becomes strained to
imagine logical conjunction or disjunction of epistemic and conversational actions. It seems more reasonable to view the logical or as a neatly-trimmed piece of the natural-language or's semantics, whittled to fit philosophers' needs, than to see $\cup$ as the basic semantics of the word or.

4.2.3 'But': Epistemic and conversational conflict

The semantics of but are the final subject of this chapter. But presents two conjuncts which clash with each other in some way --- it is contrary to our expectations to see the two presented side-by-side. The clash can occur in at least two of the three domains we have previously mentioned. At the epistemic level, the available premises may clash with an apparently necessary conclusion (as in (48)), or with other apparent premises (as in (49)):

(48) John keeps six boxes of pancake mix on hand, but he never eats pancakes.

(The premise that he stocks pancake mix would lead me to the conclusion that he's a pancake-eater, which clashes with the otherwise well-evidenced conclusion that he never touches a pancake.)
(49) Do you know if Mary will be in by nine this evening?

    Answer: Well, she's nearly always in by then, but (I know) she has a lot of work to do at the library, so I'm not sure.

    (The two premises, "Mary's usually in by then" and "Mary has lots of library work" clash in that the first supports the conclusion that Mary will be in by nine, while the second supports the conclusion that she will not.)

    At the conversational level, apparently clashing speech acts may be conjoined with but:

(50) (Please) look up that phone number --- but don't bother if it will take you more than a few minutes.

    (One speech act requests or commands the hearer to do something; the other countermands the order, albeit conditionally.)

(51) King Tsin has great mu shu pork, but China First has excellent dim sum.

    (The initial indirect suggestion of going to eat at King Tsin apparently clashes with the subsequent indirect suggestion of going to eat at China First; both suggestions cannot, presumably, be followed simultaneously.)

The use of but in (50) and (51) signals the speaker's consciousness of presenting two at least partially
discordant speech acts side-by-side. In both cases there are good reasons --- the speaker is not simply being self-contradictory. (50), with its conditional countermanding of an order, simply results in a conditional speech act equivalent to "Please look up that phone number if it won't take you too long"; I will discuss conditional speech acts in some detail in the next chapter. (51)'s apparent clash of alternatives is in fact just one way of offering the hearer options which are acknowledged as mutually exclusive. It is politer to present such options, and allow the hearer to choose among them (cf. R. Lakoff (1972b, 1973)) than to offer only one of the possibilities. Since both suggestions must be performed in order for the hearer to choose, the result is an apparent self-contradiction by the speaker, who seems to be simultaneously proposing two mutually exclusive options.

Notice that there can be no question of epistemic conjunction or content conjunction in (50) or (51). In (50) the imperative force tells us that we are dealing with conjoined speech acts. In (51) there is no clash between the conjuncts in the content domain (the speaker doesn't mean that there is any problem for the simultaneous existence of both restaurants, with menus as described) or in the epistemic domain (the speaker doesn't mean that it is hard to simultaneously believe both statements); only the conveyed speech-act forces of suggestion clash with one another.
A more complicated speech-act use of but is discussed in R. Lakoff (1971):

(52) George likes Peking Duck, but so do all linguists.

The interpretation of this sentence is as follows. I tell you that George likes Peking Duck; a normal speech-act implicature of my telling you something is that I assume you don't already know it or I don't consider it obvious. This implicature clashes with my subsequent statement that all linguists like Peking Duck, because that statement (given George's identity as a linguist) implies that I think it is obvious that George likes Peking Duck. In this case I have just taken away the basic conversational justification for the first of the two conjoined speech acts. Once again, as in the cases of (50) and (51), there may be good reasons for this apparent clash of purposes. For example, the speaker may not want to appear too Griceanly informative (e.g., for fear of seeming officious); or the speaker's entire purpose may be, not to present a fact and then take away its interest, but to comment on the obviousness of the fact. Nonetheless, the apparent clash remains; and conjunction with but marks the clash.

The obvious question which I have left unaddressed is whether there is a content usage of but. Every other conjunction we have seen has had a basic content-domain usage, alongside extended uses in the epistemic and speech-act domains. Why should but be different? It is hard to answer
this question definitively one way or the other. I have already noted that we frequently tend to reason from known real-world effect to likely real-world cause; but, of course, we also often reason from known real-world event (a potential cause) to probable real-world effect of that cause. In section 4.1 on causal conjunction, I mentioned the frequent apparent ambiguity between epistemic-domain and content-domain causal conjunction, which is caused by the expression of the latter mode of reasoning. Comma intonation helps to disambiguate in certain cases between causal conjunction in the two domains:

(53a) He's going to marry her because he loves her.

(Only reading: real-world causation of the marriage by love.)

(53b) He's going to marry her, because he loves her.

(Ambiguous: either real-world causation as in (a) but with assertion of the first clause, or (more likely) the knowledge of the love causes the conclusion that the marriage will happen.)

Less ambiguity usually results from epistemic causal conjunction when it reflects effect-to-cause reasoning, but even then we can usually find a pragmatic context which would allow us to give a content-conjunction reading. All we need to do is presume real-world causality to be reversed.
(54) He loves her, because he's going to marry her.

The most likely interpretation of (54) is "I conclude that he loves her, because I know he's going to marry her" --- but if we can bring ourselves to conceive of engagement causing love in the real world, we can also get a successful content reading for because.

Returning to the problem of but, it is true that many but-examples might, prima facie, seem connected with "real-world" clash or contrast. Thus, for example, cases like (55) or (56) might at least have initial credibility if put forward as examples of content-but:

(55) John eats pancakes regularly, but he never keeps any flour or pancake mix around.

(56) John is rich but Bill is poor.

Now, in (55), John's eating pancakes might lead him to stock the relevant ingredients in the real world; hence we could say that there is a clash, in that a normal real-world causal sequence seems disrupted. The problem is that we could equally easily claim that the clash is epistemic. The naturalness of a pancake-eater's stocking flour would lead us to conclude from John's habits that he stocks flour. However, this conclusion clashes with the (otherwise well-supported) fact that he doesn't stock flour. How can we prove that content conjunction is involved? We have, on the other hand, clear evidence elsewhere for epistemic
conjunction with but; cases like (48) and (49) do not readily admit of a content-conjunction reading. What about (56)? At what level does John's richness clash with Bill's poverty? There is no bar in the real world to the simultaneous existence of poor and rich people. In the epistemic domain, there is likewise no initially obvious intrinsic clash, in that we can perfectly well believe in both John's wealth and Bill's poverty simultaneously. It would be possible to say simply (57), however, if no clash or contrast were intended between the two clauses:

(57) John is rich and Bill is poor.

The but in (56) does indeed indicate contrast: an epistemic contrast between two semantically opposed propositions. They are not contradictory propositions (note the impossibility of (58)), but they involve opposite logical structures (A and ~A, rich and poor).

(58) *John is rich but he is poor.

Having said all this, I am still not sure I want to state categorically that there is no such thing as a content-domain use of but. However, I have not been able to unearth any indubitable content-conjunction examples with but. And in fact there seems to be a plausible explanation for the use of but in only two domains, while other conjunctions are used in three. Causation, side-by-side co-presence, and either-or status actually exist in all three
domains. That is to say, in the real world A may cause B, or A and B may coexist, or A and B may be the only possible alternative outcomes of a given real-world situation. But what does it mean to say that A and B "clash" or "contrast" in the real world? How can discordance or contrast exist outside of the speaker's mental concept of harmony or non-contrast? In a sense, if two states coexist in the real world (and conjunction with but does present both conjuncts as true), then they cannot be said to clash at a real-world level. A sentence like (59) does not really express a contrast between real-world Catholicism and real-world socialism, but rather the speaker's beliefs about the likelihood of the two coexisting.

(59) France is Catholic but socialist.

(Clash between (1) my belief that Catholic countries aren't usually socialist, so that I normally reason from Catholicism to capitalism, and (2) my knowledge that France, nonetheless, is socialist.)

So, for the moment, I see no reason to conclude that but has a content-domain usage, and indeed some naturalness to the idea that it lacks such a usage.

Of course, contrast inheres in our conversational goals, quite as easily as in our epistemic world per se. We have seen examples of conversational goals which are seen as conflicting, and noted that conjoined speech acts bearing such conflicting goals are conjoined with but. The
conversational world, being a mental world like our world of reasoning, includes speakers' judgments as to what conflicts with what. Sometimes only pragmatic context can tell us in which of the two mental domains the contrast is being presented to us. Thus the ambiguity of (50) is noted by R. Lakoff (1971), who calls the two senses opposition and denial of expectation:

(60) John is rich but dumb.

Lakoff's "denial of expectation" sense of (60) is the reading in which someone is assumed to have previously asserted that rich people are usually smart (that's how they got rich), and John is being produced as a counterexample to this normal expectation. This can be seen as an example of epistemic but-conjunction; in my normal train of reasoning, a belief in someone's intelligence would follow from my knowing the person to be rich --- but this train of reasoning conflicts with the otherwise well-supported fact that John (a rich man) is dumb.

Lakoff's "opposition" sense of (60), on the other hand, is one in which someone is proposing or evaluating John for some purpose (e.g., as a possible husband). Here, John's richness and stupidity need not have any connection with each other in the real world or in the logical world (I need not be able to draw conclusions about either one from the other); but they are in conflict because his wealth suggests that it would be a good idea to marry him, while his
stupidity suggests the reverse. This is a case of what I have called speech-act or conversational but-conjunction; the two opposed speech acts "I suggest that you marry him" and "I suggest that you not marry him" are conjoined, and the perceived conflict between them is expressed by the use of but. Notice, as we observed earlier in (51), that speech-act conjunction in (60) does not conjoin direct (surface) forces; the conveyed speech-act forces are recognized as contrasting, and it is therefore the conveyed suggestion-forces of the two conjuncts that are conjoined with but.

Lakoff gives the contrast between symmetric and asymmetric but perhaps the fullest treatment of any subject touched on in her paper. She is not particularly classifying in terms of a (content vs.) epistemic vs. speech-act division of domains, but much of what she says in her analysis of symmetry and asymmetry can be carried over into the analysis of but which I have just given. Her basic generalization, despite problematic cases which she discusses at length, is that "opposition" but is symmetric, while "denial of expectation" but is asymmetric. This generalization does seem to hold, and I think that my preceding analysis in fact affords us the necessary background for an explanation of why it should hold.

Lakoff's "semantic opposition" but in fact corresponds to cases where the two conjuncts are presented as equal and
independent, but conflicting or contrasting — for example, "John is rich but Bill is poor" as an epistemic contrast, or "King Tsin has great mu shu pork, but China First has excellent dim sum" as a clash between conflicting speech-act forces. In these cases, either of the two conjuncts could come first, and the interpretation would be essentially the same because they are independent of each other.

Lakoff's "denial of expectation" but, on the other hand, corresponds to cases where there is not direct and mutual (coequal) contrast between the two conjuncts, but rather the second conjunct conflicts or contrasts with some implicative dependent on the first conjunct. Thus, in the epistemic domain, "John is rich but dumb" might express a conflict between a supposed chain of reasoning from the fact of John's wealth (to his intelligence) and the actual known fact of John's stupidity. Or in the speech-act domain, "I love you, but PLEASE take those wet boots off the carpet!" might express a conflict between the supposed expectations set up by a speech act like "I love you", and the actual reproofs which follow. Lakoff actually analyzes one conversational case in some detail — essentially the case of my example (52). After some discussion, she finally, and I believe correctly, decides that this particular example falls under her "denial of expectation" heading: "My saying that George likes mu shu pork might lead you to expect that this is something inobvious enough to deserve declaring, but in fact it's an obvious fact because all linguists like mu
shu pork."

In all these asymmetric cases, Lakoff comments that but seems to be the contrastive equivalent of an asymmetric and; symmetric but, on the other hand, she takes to be the contrastive counterpart of symmetric and. In one sense, she is right. Symmetric but, like and, displays two elements side-by-side --- with the added feature of contrast or conflict, which need not be present with and (although it is not barred from being present in and-conjoined sentences). Asymmetric and has an and-then or an and-so sense (only and-so in the epistemic domain) --- that is to say, it conjoins elements which are either in temporal sequence or in a relationship of causality or logical priority with one another; the temporally or causally or logically prior conjunct must precede the other conjunct. Asymmetric but might be taken as the contrastive counterpart to this asymmetric and, in that it conjoins a causally or logically prior first conjunct, and a second conjunct which is in contrast to the normal result of causal or logical sequence from the first conjunct. (Note that but does not have the simple temporal-sequence use that and does; presumably this is because we don't have an element of contrast in the temporal/real-world domain, although we do in the other two domains.) That is to say, the second conjunct of an asymmetric but is dependent on the first, in that its purpose is to contrast with some "normal" second conjunct which would have a "normal" causal or logical dependency on the first
conjunct. Thus, there is a sort of counter-"and-so" sense to asymmetric but. As we have now come to expect, the dependent conjunct (the structural equivalent of the and-so clause) must follow the independent conjunct.

Let us take a look at a couple of asymmetric but examples before going on to some of Lakoff's problem cases. A parallel to example (24) from the section on and is given as (61) below, and (24) is reproduced alongside for comparison.

(61) Well, Mary got an M.A. in computer science, but she joined a religious cult. ( ... so nothing is a safe field any more.)

(24) Well, Mary got an M.A. in basketweaving, and she joined a religious cult ... (so you might go the same way if you take basketweaving.)

The common factor in (61) and (24) is that the speakers evidently reason from the subject of a person's M.A. to the likelihood of that person's joining a religious cult. Compare (61) and (24) with (62a,b), where the order of the conjuncts is reversed:

(62a) Well, Mary joined a religious cult, but she got an M.A. in computer science.

(62b) Well, Mary joined a religious cult, and she got an M.A. in basketweaving.
(62a,b) seem to presume that religious cult membership is the prior data from which one reasons to likely M.A. fields, rather than the other way around (as in (61) and (24)). In the two but-examples, the consequent is unexpected from the prior data, while in the and-examples it is expected, but in either case it seems clear that the first clause is taken as prior and the second clause as dependent upon it. Notice that although but always indicates contrast, the versatile and allows the interpretation of contrasting elements, as well as that of harmonious one:

(63) Q: What, you don't think even computer science is a safe field?
   A: Well, Mary got an M.A. in computer science, and she (went and) joined a religious cult (just the same).

(64) I've spent weeks doing this report, but/and they won't accept it because of the typos.

(63) and (64) are standard examples of asymmetric and, wherein the first clause is considered to be temporally or causally or logically prior to the second. However, as is obligatorily the case with asymmetric but, the second conjuncts of (63) and (64) show an unlikely or abnormal sequential relationship to the first clause, rather than a normal sequence. The order of the clauses still reflects their dependency relationship, whether that relationship is viewed as normal or aberrant.
Let us return as promised to some of R. Lakoff's (1971) problem cases of but. She first remarks on the strangeness of the fact that (65)-(68) are all acceptable (her examples (71)-(74) are given below as (65)-(68)):

(65) Bill murdered Alice, but he was caught.

(66) Bill murdered Alice, but he got away.

(67) Bill murdered Alice, and he was caught.

(68) Bill murdered Alice, and he got away.

What she claims is that there must be two types of asymmetric but, in order to account for both (65) and (66). Only one of these two can be the usual denial-of-expectation but, since the two sentences would deny different expectations. Lakoff finds (68) only questionably acceptable, stating that (unlike (67)) it requires a special context like a discussion of the prevalence of unpunished crime; she therefore suggests that being caught does not run counter to our normal expectations about murderers (hence (67) is more normal than (68)), while getting away does run counter to these expectations. (66) is thus to be read as a case of denial-of-expectation but, while (65) is a case of some other variety of asymmetric but (perhaps one "whose asymmetry derives from temporal priority"10).

Although I find Lakoff's treatment of (65)-(66) insufficient, her own work (1972b, 1973) and that of Gumperz (1982) have suggested some approaches to this problem. In Lakoff (1972b) she shows in detail, for a set of politeness cases, how speakers' contextualization affects their interpretation of speech acts. Gumperz (1982) contains an explicit discussion of our techniques for creating context by using forms appropriate to the desired context. Just as context and presupposition influence choice of linguistic form, so a chosen form marks the supposed existence of some given context or presupposition — and hence can be deliberately used to evoke that context or to communicate that set of presuppositions. Lakoff (presumably showing faith in the police and the legal system) finds that her normal expectation is that murderers are caught rather than allowed to escape. Hence she finds (67) more normal in a default context than (68). However, she freely admits that a different context would easily make (68) acceptable. My proposed solution to the difficulty of (65)-(66) is to say that the same asymmetric use of but occurs in both sentences. However, in one sentence, the speaker is presupposing (or presenting him/herself as presupposing) the normality of a criminal's escape, while in the second, the normality of a criminal's capture is presupposed.\footnote{Two separate lines of reasoning seem to be involved in the presupposition that the criminal's capture would be normal, versus the idea that escape is normal. The idea that an unjust situation is normally followed by a reassertion of justice would lead us to}
Lakoff also presents as a puzzle the following group of sentences:

(69) John is a doctor today, but he failed chemistry.
(70) John would be a doctor today, but he failed chemistry.
(71) John thought he would be a doctor, but he failed chemistry.
(72) John wanted to be a doctor, but he failed chemistry.
(73) *John managed to be a doctor, but he failed chemistry.
(74) *John realized he would be a doctor, but he failed chemistry.

The first mystery is why the factive verbs manage and realize, which presuppose the truth of the complement "John is a doctor," should give bad examples ((73) and (74)); while (69), which simply states that "John is a doctor," should be a perfectly acceptable sentence. I am by no means convinced that (73)-(74) are impossible sentences (in the way that, e.g., "John is rich but poor" seems impossible in a non-metaphoric reading); however, I agree with Lakoff that their bizarreness needs explanation. In order to try to give such an explanation, I will first turn to the "good" sentences (69)-(72). Lakoff argues that only (69) is an example of expect the capture; the idea that somehow injustices proliferate (once started) would lead us to expect the escape.
denial-of-expectation but, while the others are examples of some other variety. The problem with (70)-(72) is that the second clause in these sentences not only does not seem to deny any rigid expectation created by the first clause, but it further carries with it the strong implicature that John is not a doctor. The second clause in (69) certainly carries no such implication.

My understanding of (70)-(72) is as follows. A statement of John's plans or hopes, or of some expected normal course of events (as in, e.g., "John would be a doctor today"), naturally gives some motivation for a line of reasoning ending in the fulfillment of the expectations: John's becoming a doctor, and hence probably passing chemistry along the way. But of course such a statement does not give us the assurance of John's success which the direct statement in the first clause of (69) automatically provides. When we add "but he failed chemistry" as a second conjunct in (69), there is no possibility of contradicting what is directly stated in the preceding clause (otherwise we would have a "John is rich but poor" clash); so there is assumed to be merely a contradiction of our expectation that John passed chemistry. But in (70)-(72), the line of reasoning to John's success is still only tentative, and the contradiction of one part of his progress towards his goal (failure in chemistry) tends, if unqualified, to make us conclude that his whole medical career failed as well. Such a conclusion is especially well-supported by the normal
counterfactual reading of *would* in (69)-(70). 12 Note that (71) in particular could more easily escape a counterfactual reading of the first clause. It would be perfectly possible to say "John wanted to be a doctor, but he failed chemistry, and in the end his father had to force him to retake it and bribe him to go on and get his M.D."

My conviction is that (73) and (74) need significantly more context than (69), but that they are not in themselves ungrammatical or "less grammatical". Consider, for example, a context where John knows that he will have to be a doctor whatever he does --- his fate was decided by the government at age ten. His failing chemistry will only result in a longer training period and more frustration along the way, so we would expect him to do his duty to the state and avoid such an eventuality if possible. Then, it seems to me, (74) is a perfectly acceptable utterance. The reason why (74) is normally unacceptable is that it is hard to find a context where someone's realization that he will be a doctor is independent of his passing chemistry; and we know that the first clause of a but-conjoined sentence cannot be dependent on the second. Note, conversely, the somewhat greater ease of finding a context for (75), where the dependency of the relevant realization on chemistry grades is appropriately mirrored in the word order:

12 Note the strong counterfactual force of *would* when followed by *but*; a following *but* adds to the dubitativity of *could* and *should* as well.
(75) John failed chemistry; but he realized he would be a doctor, so he retook it in hopes of not killing too many patients.

For (73), which I already consider marginal rather than totally ungrammatical, consider a context wherein the hearer had asked the speaker if John would be a good person to consult on certain medical subjects. (73) would, it seems to me, be a normal enough response, and would have the same basic structure as (69). Again, it seems to me that the difficulty lies in creating a context wherein John's "managing" is not taken as dependent (in our reasoning) on his failing or passing chemistry. Note that (76), wherein the dependency-relationship is an expected one given the order of the clauses, is acceptable:

(76) John failed chemistry, but he managed to be a doctor.

Note also that in (69)-(72), the first clause is taken as independent of the second: John's hopes, opinions, or default expected career are not dependent on his subsequent failing of chemistry, in the way that his ultimate realization of his future, or his success in becoming a doctor, might easily be understood as dependent on his chemistry grades. Nor is his present undisputed status as a doctor (in (69)) dependent on anything at all: such a separate and unqualified assertion seemingly forces us to make the assumption that John's doctorhood is independent of his chemistry grades --- an assumption which we apparently had
more trouble in making for the presupposition cases of manage and realize ((73)-(74)).

But is thus used both symmetrically and asymmetrically, in (at least) the epistemic and speech-act domains. In the epistemic domain, the postulated difference between asymmetric and symmetric uses is the difference between coequal premises (or contrasting propositions) and cases where the train of reasoning leads from the first clause to the second clause. In the speech-act domain, the difference is between contrasting or conflicting but coequal speech acts (such as mutually exclusive suggestions) versus cases where the second clause follows from the first (e.g., conditionally supersedes the first) or otherwise depends on the first clause (e.g., crucially refers to the felicity conditions evoked by the first clause).

4.3 Conclusions

The essential point of this chapter has been that we can interpret syntactic conjunction of clauses in three distinct ways: as conjunction of content, as conjunction of premises in the epistemic world, and as conjunction of the speech acts performed via the utterance of the clauses in

---

13 Direct statements are generally more independent than presuppositions --- and hence presuppositions are cancellable, while direct statements are not.
question. The interpretation actually given to a conjoined pair of clauses is pragmatically determined.

If we add the idea of iconic word order to this multiple interpretation of conjunction, we can explain most of the differences between symmetric and asymmetric coordinate conjunction. With the basic coordinate conjunctions and or, the linear asymmetry of word order is open to iconic interpretation, since there is no inherent asymmetric semantic relation between the conjuncts. With subordinate conjunctions such as because, word order can no longer be iconic because the conjunction already expresses an asymmetric relation between the clauses, however they are ordered. The different natures of the content domain and the epistemic domain are reflected in the interpretations given to iconic word order. The sequence of and-conjuncts in the content domain tends to take on an "and-then" reading of temporal sequence, and often a causal reading based on temporal sequence, while the same sequence of conjuncts in the epistemic world takes on an "and-so" reading of logical sequence in reasoning.

Intonational differences between content-domain causal conjunction and epistemic or speech-act causal conjunction fall out from the differences between the content domain and the other two domains. A comma intonation (indicating non-presupposed content of the protasis) is typical of epistemic and speech-act causal conjunction, precisely because a
speaker's in-process epistemic and conversational acts are not shared ground between speaker and addressee.

It is important to note that and and or have often been treated as logical operators (cf. Horn 1972), hence as the most fundamental evidence for the inherent logical structuring of natural language. This chapter has shown that and and or, like but, and like causal and adversative conjunction, partake of a much broader set of functions than the logical joining of propositions. In particular, cases where syntactic form clearly shows that speech acts are conjoined (e.g. "Where were you last night(?), and don't give me any nonsense about staying late at the office!", or "Please look up that phone number, but not if it's too much trouble.") would be serious problems for a unified theory of conjunction if propositions alone were thought of as being potential conjuncts. The conjoining of indirect speech acts is especially interesting, since it appears that speakers can use either the conjunction appropriate to the literal readings of the conjuncts or the conjunction appropriate to the conveyed readings. Assuming that an abstract syntactic analysis (higher syntactic predicates of saying, or of concluding) is not an acceptable alternative, only an analysis which takes into account an utterance's multi-domain existence can possibly explain the three pragmatically conditioned interpretations of conjunction in the different domains.
Chapter 5: Conditionals

Conditionals are one of the most controversial subjects in current linguistic analysis. This chapter is intended to show how if-then conjunction fits into the framework I have described in the preceding chapters, rather than to propose any full theory of conditionals. My analysis will often support some particular view of the phenomenon of conditionality, rather than another, or suggest motivations for previously proposed analyses. But the main object will be simply to elucidate the functioning of conditionality in the content, epistemic, and speech-act domains.

5.1 Conditionals in three domains

5.1.1 Content conditionals

The first step is an examination of "real-world" or content-domain conditionals. It has often been observed (cf. Comrie 1983, Haiman 1978, 1983, Austin 1961) that the natural-language use of conditionals is not in fact identical with the conditionality defined by logical if-then (⇔). Most obviously, speakers of natural languages reject
as bizarre whole classes of logically well-formed and "true" conditionals such as (1):

(1) If Paris is the capital of France, (then) two is an even number.

Logically, a conditional is only false if the antecedent is true but the consequent is false. But natural language speakers apparently require more than the appropriate truth values in order to accept a conditional as well-formed: they require a connection between the two clauses. Natural language uses conditionals to talk about related things. Examples like (1) are bizarre because we cannot imagine a relationship between the contents of the protasis and apodosis; under what circumstances would the evenness of two be conditionally dependent on or related to Paris' being the capital of France? Van der Auwera (1983) argues in favor of the "Sufficient Conditionality Thesis" --- i.e., if p, then q means "p is a sufficient condition for q". Despite disagreements with Van der Auwera (we will see later that his definition needs to be broadened to deal with concessives), I will accept this hypothetical definition as a starting point. Such a view is structurally similar to the one held by Gazdar (1979) and Stalnaker (1968), that conditionals simply mean that the consequent is true in every case where the antecedent is true. However, it differs in assuming a connection between the truth of the antecedent and the truth of the consequent.
In the content domain, then, conditional if-then conjunction indicates that the realization of the event or state of affairs described in the protasis is a sufficient condition\(^1\) for the realization of the event or state of affairs described in the apodosis. Thus (2) means that if the real-world state of affairs includes Mary's going, then it will also include John's going:

(2) If Mary goes, John will go.

Here the connection between antecedent and consequent may be a causal one; Mary's going might bring about or enable John's going, or Mary's not going could in some way cause John's not going.

Depending on the pragmatic context and the linguistic form, the fulfillment of the sufficient condition presented in the protasis may appear more or less likely. Comrie (1983) gives an excellent argument that counterfactual conditionals are not in fact really counterfactual, nor are "ordinary" hypothetical conditionals inherently non-counterfactual. Pragmatic context can reverse the effects of supposedly counterfactual verb forms; for example, either (3) or (4) could be used as a way of getting the hearer to bring the speaker some coffee:

\(^1\) By "sufficient", I mean sufficient in the real-world sense: e.g., the event described in the protasis might be a sufficient cause for the event described in the apodosis. I do not mean "sufficient" as in the logician's "(necessary and) sufficient".
(3) If you get me some coffee, I'll give you a cookie.

(4) If you got me some coffee, I'd give you a cookie.

(4) certainly represents the protasis as being less likely than (3) does, but neither version is counterfactual. However, in many contexts, verb forms such as those used in (4) would be understood as pragmatically indicating counterfactuality, as in (5):

(5) If I were President, I'd sell the White House's Limoges china to fund bilingual education.

Given that the speaker is known not to be the President\(^2\), the use of the past-tense verb in the protasis and the conditional modal would in the apodosis may be interpreted with certainty as counterfactual markers, whereas (as we have seen in (4)) their literal linguistic import is simply that of dubitativeness, marking a high degree of hypotheticality.

Whatever the degree of hypotheticality, the relationship marked by if-then remains the same: the fulfillment of the protasis, likely or unlikely, is a sufficient condition for the fulfillment of the apodosis. In content conjunction, this often means that there is assumed to be a causal relationship between the two, as in (2), where the most

\(^2\) It is not normal for a speaker to make dubitative statements about his/her own present or past --- areas where the speaker is presumably the primary authority. Hence (5) necessarily presumes the speaker not to be President.
likely interpretation is probably that Mary's going (if it occurs) will cause John to decide to go. Equally, there may be a negative causal relationship involved: for example, one could take (2) as meaning that Mary's not going would somehow prevent John's going, although her going would not be an active cause in making him decide to go too. (5) is most easily read this way: it is the speaker's not being President which prevents his/her selling the White House china, although being President would not cause the sale in question. In these cases, the fulfillment of the antecedent condition is rather an enablement than a cause of the consequent; and the enablement is further viewed as being sufficient to assure the consequent's fulfillment --- i.e., in (5), the will involved in making the decision is already committed, so no further positive causality is needed, and enablement suffices. Enablement and causation are linguistically treated as identical with respect to conditionals, as they often are elsewhere (cf. section 4.1 on causal conjunction). But either a hypothetical enablement or a hypothetical cause may be a sufficient antecedent for the fulfillment of some consequent event or condition.

A frequently-observed fact about if is that it is often read as "if and only if" ("iff") --- that is, a common reading of if-then conjunction is one wherein the protasis is taken as being not merely a sufficient but a necessary condition for the apodosis. Many of the preceding examples easily receive this reading as a default interpretation.
Comrie (1983) argues convincingly, however, that this "if and only if" reading of \textit{if} is not part of the semantics of \textit{if}, but is rather a conversational implicature which easily follows from the sufficient-conditionality use of \textit{if}. Take, for example, a sentence such as (2):

(2) If Mary goes, John will go.

It is not impossible, upon hearing (2), to imagine that subsequently John could go even though Mary stays home. But one very obvious interpretation of (2) is that John (a) will go if Mary goes, and (b) won't go if Mary doesn't. Comrie argues that (b) follows conversationally from the statement of (a) in many circumstances. Suppose, for example, that I want John to go: (2) would suggest to me that Mary's going will bring about what I want. Presumably, however, the speaker would not have bothered to tell me that Mary's going will ensure John's going, if there were a reasonable likelihood of John's going anyway. For example, if John's going were certain and Mary's doubtful (in which case (2) would still be a perfectly well-formed logical \textit{if-then}), there would be no point at all in stating (2). Thus there is a conversational implicature that John is at least unlikely to go if Mary doesn't go. This conversational implicature is cancellable: imagine the case where I'm interested in catching Mary alone without John, rather than in ensuring John's going. In that case, (2) may be uttered with little or no chance of receiving an iff interpretation; it will be quite
irrelevant what John's independent habits are, and the statement will simply be taken as meaning that Mary's going will ensure John's going — hence there is no chance that Mary will be the only one going. Particularly in cases like (3) and (4), where the speaker is attempting to get the hearer to do something ("If you do X, I'll do Y"), there would be little point to the conversation if the speaker intended to do Y whether or not the hearer did X. The conversational implication must be that the speaker would not normally do Y. The normal interpretation of such sentences is thus "I'll do Y if and only if you do X". I take examples such as these to be fairly solid evidence that the "if and only if" reading is not part of the inherent semantics of if, but rather a frequent default conversational interpretation of if-then conditional sentences.

5.1.2 Epistemic conditionals

In the epistemic domain, if-then conjunction expresses the idea that knowledge of the truth of the hypothetical premise expressed in the protasis would be a sufficient condition for concluding the truth of the proposition expressed in the apodosis.

(6) If she's divorced, (then) she's been been married.

The tautological conditional expressed in (6) might be read as follows: the knowledge that the proposition "she's
divorced" is true is a sufficient condition to ensure my concluding that "she has been married" is also true. A non-tautological epistemic conditional is expressed in (7):

(7) If John went to that party, (then) he was trying to infuriate Miriam.

In (7) there is no inherent linguistic or logical connection between protasis and apodosis. Presumably the speaker has a general, tacitly assumed data base; and the addition to that data base of the truth of "John went to that party" will suffice to allow the conclusion that the proposition "he was trying to infuriate Miriam" is also true.

Note that this analysis of epistemic conditionals is formally parallel (as is the preceding discussion of content-level conditionals) to a treatment which assumes that if a, then b means "when a is true, b is always true". However, even under such an analysis, one would still have to gloss (7) as "When a reasoner knows that John went to the party, that reasoner always concludes that he went to infuriate Miriam". Even this gloss is slightly odd --- it is not enough to recognize that the conditionality is between epistemic states rather than between propositions, it is further necessary to assume some connection between knowledge and conclusion. The causal link involved in (7) is certainly not at the content level, but is easy to see at the epistemic level --- the knowledge causes the conclusion.
Epistemic conditionals are, not surprisingly, the ones closest in usage to the formal logical if-then structure; they express our understanding of our logical reasoning processes, and hence reflect to some extent the same structures inherent in a more formal mathematical understanding of logic. But they too differ quite clearly from purely formal-logical if-then structures: suitable truth values of antecedent and consequent, although necessary, do not suffice to ensure the felicitousness of an epistemic conditional any more than that of a content conditional. Natural-language epistemic conditionals must have some presumed relationship between the two clauses, just as any conjoined clauses in natural language are assumed to be related. If we were to try to give (1) a natural-language epistemic interpretation, we would have to create a significant amount of context relating protasis and apodosis.

(1) If Paris is the capital of France, (then) two is an even number.

Here we might imagine Woody Allen assuring himself of his sanity after a prolonged hallucinatory nightmare in which geography and mathematics were equally bizarrely disarranged. The truth of "Paris is the capital of France" assures him that he is in the normal real world rather than still being in the nightmare, and his knowledge that he is in the normal real world allows him to conclude with certainty that mathematics is normal, and hence that two is an
even number. This is a complex pragmatic connection between the contents of the two clauses, and is totally unlike the simple truth-value requirements imposed by a logical if-then.

5.1.3 Speech act conditionals

It has been recognized for some time that conditional speech acts exist (cf. Van der Auwera 1983), and classic examples include cases like (8)-(10):

(8) If I may say so, that's a crazy idea.

(9) If I haven't already asked you to do so, please sign the guest book before you go.

(10) If it's not rude to ask, what made you decide to leave IBM?

In these cases, the performance of the speech act represented in the apodosis is conditional on the fulfillment of the state described in the protasis (the state in the protasis enables or causes the following speech act). Thus, (8) purports to state an opinion only conditionally on the hearer's permission; (9) purports to make a request if that request has not already been made; (10) purports to ask a question if it's not rude. The conditions on these speech acts are, not surprisingly, overt statements of the sort of general appropriateness conditions discussed by Grice (1975)
and R. Lakoff (1973). Thus Lakoff's maxims would bar the statement in (8) and the question in (10) if they forced the hearer into an optionless acceptance of an opinion or an optionless need to answer a question (one of her proposed maxims is "Leave options").

I have said that these speech acts "purport" to be conditional, since in fact their actual pragmatic status is somewhat nebulous. The sort of politeness conditions stated in (8) and (10) don't in fact prevent (8) from actually stating, or (10) from actually asking a question. Given that the apodosis is actually present in such speech acts, the conditional speech act is in some sense always accomplished --- at least in the sense that the utterance expressing that speech act is produced. However, (9) might be read as "For the purposes of our interaction, we'll consider that I make the following request if I didn't previously make it." Although one might say that the request has been made, whether it is appropriate or superfluous, we may note that in fact the usual compliance conditions bind the hearer precisely if the request is appropriate. So we may say that the speech act is fully accomplished --- in that its illocutionary force actually takes effect --- only conditionally. Similarly, in the cases of (8) and (10), the statement is made and the question is asked --- but not quite fully. Although it is hard for a hearer to reply overtly, "No, you may not say so," or "I'm sorry, it is rude to ask that," nonetheless politeness conditionals somehow do

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
allow the hearer a little more room to maneuver. "If I may say so" has perhaps become so idiomatic that it no longer has any genuine conditional value; for most speakers it simply marks politeness rather than carrying its literal meaning. But in (10), at least, it seems to me that the hearer could more easily reply, "Well, I'd rather not discuss that" than if there had been no conditional attached. In so doing, the hearer would tacitly be taking advantage of the conditional, and thus not assuming the usual responsibility of replying to a question.3

The cases discussed above are generally-accepted examples of conditional speech acts. However, by applying the same analysis to some less obvious examples, we can simplify a number of troublesome cases which have been worrying linguists and philosophers ever since Austin's classic "Ifs and Cans" (1961). Let us take as our first instance Austin's example (1961, pp. 210-212):

(11) There are biscuits on the sideboard if you want them.

---

3 Conversationally, these speech-act conditionals can be regarded as a self-protection mechanism on the speaker's part --- a way of saying possibly inappropriate things, while nonetheless insuring against potential reproof or responsibility by merely saying these things conditionally. In this sense, the use of speech-act conditionals parallels the use of certain self-excusing expressions which are often used to guard against potential criticism (cf. Baker 1975). It is harder to make a direct criticism of a speaker who has already self-critically made excuses for the fault in question.
Austin never fully resolves the difficulties inherent in (11), but observes correctly that in no sense can the actual presence of the biscuits be said to be conditional upon the hearer's desire to eat one. In my opinion, (11) is a conditional speech act parallel to (8)-(10) above --- we should read (11) as, "If you want biscuits, then (let us consider that) I inform you that there are biscuits on the sideboard." Notice that, in a slightly more complex way, this conditional speech act invokes the Gricean maxims just as (8)-(10) invoked them. The act of informing the hearer of the biscuits' presence is only relevant in the case of the hearer's being supposed to be hungry for a biscuit. So even though the speaker did not state a condition expressly invoking relevance or informativeness (such as, "if I haven't already told you"), the condition "if you want them" presents us with the Gricean sufficient condition for making the previous statement --- and, equally, for the offer inherent in the statement. A better reading for this example at the speech-act level might in fact be, "I hereby offer you some biscuits on the sideboard, if you want them." Given this reading, the speech-act status of if comes out even more clearly: the offer is conditional on its potential acceptability to the hearer (Searle's felicity condition for an offer (1969)).

An expanded definition of conditional speech acts would thus include all cases where the performance of the in-process speech act (the apodosis) is presented as being
conditional on some some factor expressed in the protasis. It is my belief that all such cases are inherently Gricean (or Searlean), in that the conditional protases in question invariably refer to some relevance condition or felicity condition of the relevant speech-act category. However, some such speech-act conditionals are overtly Searlean (one might say, overtly metalinguistic) in that they explicitly invoke rules of linguistic interaction (cf. (8)-(10)) such as, "don't be rude", or "be informative (hence, don't repeat)". Others, such as (11), invoke the same sort of felicity conditions at a lower level, or more implicitly --- e.g., "if you want them" is a lower-level instance of "if you want me to make this offer" or "if it will fulfill the appropriate desire in the hearer".

Another example of such an implicit invocation of general felicity conditions may be seen in (12):

(12) If you went to the party, was John there?

Let us set aside for the moment a reading which asks whether, for all past "goings to the party", corresponding events of John's presence there occurred.4 The other

---

4 We may call this excluded reading a "questioned conditional"; my focus throughout this work is rather on "conditional questions" as one instance of the more general category of conditional speech acts. The difference is clearly conveyed by the following formulas:

Questioned Conditional: $Q (\text{IF}(x) \text{ THEN}(y))$
Conditional Question: $\text{IF}(x) \text{ THEN } Q(y)$
reading of (12) is a conditional question, which may be interpreted as, "If you went to the party, then consider that I ask you whether John was there." For a question to be felicitous (Searle (1969)), the hearer must be presumed to potentially know the answer. And in fact the only reasonable understanding of this speech-act conditional reading of (12) is one in which the hearer's going to the party is the condition which enables him or her to have the relevant knowledge. Thus, a higher-level paraphrase might be, "If you do know the answer, then take me as asking this question seriously."

An allied but not identical case of implicit Searlean conditionality is (13):

(13) If you went to the party, did you see John?

Now, (13) may be used as a less direct way of asking (12). But it may also be the case that the speaker is actually interested in whether the addressee has managed to see John, rather than in John's presence at the party, but the speaker also knows that the only likely place for the addressee to have seen John lately was at the party. In this case, the question "Did you see John?" is presented as being asked conditionally on the addressee's having gone to the party, not because the past party-going would enable the hearer to answer the question, but rather because the past party-going would make the question relevant. Questions are only felicitous when the speaker does not already know the answer.
If the hearer didn't go to the party, then the speaker already knows the answer --- hence the question is unnecessary.

It thus becomes clear that there are a great variety of conditional speech acts, some more overtly referring to the general felicity conditions on the relevant class of speech acts, while others refer implicitly to these general conditions by referring overtly to some more specific felicity condition on the particular utterance (a subcase of the general condition). All speech-act conditionals have in common the fact that they are appropriately paraphrased by "If [protasis], then let us consider that I perform this speech act (i.e., the one represented as the apodosis)." This reading is to be contrasted with both content conditionals (which do not need paraphrases involving speech acts or logical processes) and with epistemic conditionals, which are appropriately paraphrased as "If I know [protasis], then I conclude [apodosis]." 5

---

5 For a somewhat different perspective on conditional speech acts, see my discussion of Van der Auwera (1983) in the Appendix.
5.2 Real and apparent ambiguities between classes of conditionals

5.2.1 Comrie's "bicausal" conditionals

Comrie (1983) discusses examples parallel to (11), in particular (14):

(11) There are biscuits on the sideboard if you want them.
(14) If it will amuse you, I will tell you a joke.

Comrie's interest in examples like (14) is that such cases are ostensibly counter to the normal direction of causality and conditionality. Real-world causality would normally be thought of as involving the joke as cause of the amusement, whence one might rather expect to find conditionals like (15):

(15) If I tell you a joke, it will amuse you.

But in (14), the potential resulting amusement is the cause of the joke's being proffered (motivation, rather than cause in any deterministic sense) --- and will presumably also be the cause of the joke's being told, if that occurs.

Comrie recognizes that (14) must be understood as a speech-act conditional, although he does not give it a complete analysis. However, he (mistakenly, in my view) refers to (14) as "bicausal", in that the conditionality of the if seemingly operates in both directions: from joke-telling to
amusement and from amusement to joke-telling. Comrie has mixed up speech-act conditionality and content conditionality in these cases: the former is involved in (14) and the latter in (15), but Comrie evidently wants to see both as co-present in (14).

In order to show that (14) is not really "bicausal" --- i.e., that the conditional form of (14) marks only speech-act conditionality (whatever other causal and conditional relationships may be pragmatically present) --- let us compare (14) and (11). So far as I can tell, the if of (14) is precisely parallel to the if of (11); both reflect the purported presentation of a speech act (an offer, in both cases) as conditional on the addressee's potential receptiveness. The major felicity condition for an offer is (as mentioned above) that the speaker assumes the hearer to want the thing offered. An offer is therefore infelicitous (or even irrelevant, in Gricean terms) if it fails in fact to respond to a desire or need on the part of the addressee. At an informational level, the statement, "There are biscuits on the sideboard" is only a usefully informative act if it provides information which the hearer's current situation makes relevant. The indirect offer accomplished via this statement is likewise only felicitous if the addressee is potentially receptive to it. The same is true of the offer to tell a joke in (14): the addressee's potential readiness to be amused by the joke renders the offer felicitous. Thus far I can see no difference between the
conditional structures of (11) and (14). Both are essentially "I hereby offer X, if X is a felicitous offer," which is a normal conditional speech-act structure.

What about the fact that in (14) the joke will supposedly cause the amusement at the content level, as well as the intended amusement causing the offer of the joke at the speech-act level? Certainly there is no parallel to this problem in (11): there is no necessary intimation in (11) that the biscuits' presence is a condition or a cause for the addressee's wanting them (although such might be the case in fact). And my claim is that no such content-level conditionality is linguistically represented in (14), either: it is simply a fact that (15) and (14) may both be true. There is a general motivation behind such a relationship, namely our understanding that if X causes Y (or Y is conditional upon X), then our desire for Y may make us desire X in order to get Y. Thus, from a pragmatic viewpoint, the truth of the content conditional in (15) --- the fact that in the real world a joke will presumably cause amusement --- may be intimately connected with the felicitousness of the speech-act conditional in (14). I make my offer of joke-telling conditional on potential resulting amusement precisely because I know that amusement may be conditioned by joke-telling in the real world. But this is not to say that both conditions are linguistically represented in (14). In fact, (14) seems precisely parallel to (11) in linguistic structure --- it is at the pragmatic
level that we feel (14) to be different and to be linked to (15).

5.2.2 Epistemic vs. content vs. speech-act

Comrie also conflates epistemic and speech-act conditionals (as does all work in the area to date), and this may be the moment to examine some of the ways in which uses of conditionals in the three domains can appear indistinct from each other. Take, for example, the content-domain conditional in (16):

(16) If he's already gone, (then) they will have to leave a message.

The most natural reading of (16) is one wherein "his" absence is a sufficient condition for "their" leaving a message, in the real world. There is a potential link of causation between the two events in the real world. This link might, at first glance, seem to be reversed in a case like (17):

(17) If they have to leave a message, (then) he's gone already.

Here it seems that the message-leaving is a condition for the absence. But this is an illusion. (17) is an epistemic conditional, which may be understood as meaning, "If I know that they have to leave a message, then I conclude that he's
gone already." The reversal of protasis content and apodosis content between (16) and (17) is a result of the fact that (as previously remarked in section 4.1.1) we often reason from effect to cause, as well as from cause to effect. Likewise, if event or state X is conditional on the existence of event or state Y, then (supposing the conditionality to be a strong iff conditionality, as in (16)) our conclusion that Y is in effect may be conditional on knowing X to be in effect. We may, under appropriate conditions, reason from apodosis to protasis, as well as from protasis to apodosis.

Individual sentences may even be ambiguous between content and epistemic conditional readings, e.g. (18):

(18) If he was already gone, (then) they had to leave a message.

One reading of (18) is a content-domain conditional reading, which might be paraphrased as, "Whenever, in the past, he was gone before their arrival, they were (thereby?) obliged to leave a message." The other is an epistemic reading, which might be paraphrased as: "If I know that he was gone before they arrived (in this instance), then I conclude that they were obliged to leave a message." Notice that (as with modals) verb tenses help sway interpretation from epistemic to content or vice versa: the future tense in (16)'s apodosis helps make a content reading likely, although not inevitable.
Continuing to the speech-act domain, I have already remarked that Comrie's "bicausal" conditionals appear to reverse the usual direction of causality and conditionality. In fact, this is due to Comrie's failure to distinguish clearly between content-domain conditionality and speech-act-domain conditionality. If a speaker hopes that his speech act will have some real-world result (which result will be conditional upon the performance of the speech act, in the content domain), then he may (in the speech-act domain) present the performance of the act as conditional upon its having that result.

Finally, most previous work has shared one other major confusion, which Comrie perpetuates: like epistemic causal conjunction (cf. Davison 1973, Ross 1970), epistemic conditionals have been understood as cases of speech-act conjunction. Thus Comrie presents as speech-act conditionals both cases like (19) and cases like (20):

(19a) If you're so smart, what's the ten-word summary of Wittgenstein's thought?

(19b) If it will satisfy you to know it, Mary is already on her way here.

(20) If he believes in reincarnation, he's too crazy to bother about.

The cases in (19) are actual speech-act conditionals —— the protasis is a supposed condition for the performance of the
speech act in the apodosis. The speaker of (19b) purports to be reluctant to tell the addressee of Mary's impending arrival, but states it conditionally on its having the result of satisfying the addressee's concern. (20), on the other hand, does not purport to be a conditionally-performed illocutionary act. Rather, the protasis expresses the sufficient condition for the speaker's concluding the truth of the apodosis. (20) is therefore an epistemic conditional.

Despite ambiguous sentences which may be read as conditionals in more than one domain, the three separate domains and their three uses of if-then conditionals remain distinct from one another. Conditionality exists in the content, epistemic, and speech-act domains, just as causal conjunction and other varieties of conjunction are manifested in all three of these domains. A given example may be ambiguous between interpretations in two different domains, as in (18), but no one interpretation of an if-then sentence (such as the most reasonable reading of Comrie's (14)) simultaneously expresses conditionality in more than one domain.

5.3 'If' as a topic-marker

Haiman (1978), remarking that various unrelated languages show identity or morphological relatedness between the topic marker and the protasis marker, argues convincingly that this apparently odd formal convergence is due to
a close affinity between the two categories. The crucial characteristic of a conditional, says Haiman, is that the protasis forms a background against which a comment is proffered. This claim, of course, is revolutionary inasmuch as it explicitly formulates a prototype for conditionals which has nothing to do with formal logical conditionality. What conditionals have in common, according to Haiman, is not a logical structure but an informational structure. Or, perhaps more precisely, a conditional protasis is to logical informational structure what a topic is to a more general kind of informational structure: the groundwork for some forthcoming addition to the scene.6

Although Haiman's claims clearly have some truth behind them --- the formal correlation between topic markers and protasis markers is a point not to be ignored --- it nonetheless seems to me that conditionals are more complex in meaning than Haiman suggests. Among the issues to be considered are (1) the degree and nature of the identification between protases and topics: given that there is sufficient similarity between the two categories for them to be sometimes identically marked, what does that tell us? What about various other supposed characteristics of linguistic conditionals: hypotheticality of the protasis, or the

---

6 Haiman's analysis might be taken as fitting in well with interpretations of conditionality as involving a "speech act of supposing" --- e.g. Mackie (1973) (quoted in Van der Auwera (1983)), or Ducrot (1972).
(nebulose) link between conditionality and causality? (2) If Haiman's Hua conditionals really "are" topics, does this mean the same is true of English conditionals? Haiman himself states that different languages demarcate the conditional category differently. Hua does not mark as "conditional" the semantic equivalents of English counterfactual conditionals, while English grammarians (cf. Jespersen 1940, 1964, for example) have generally considered atypical the "given that X" sense of if-clauses which is typical in Hua. Haiman feels the prototype for "conditional" is nonetheless the same crosslinguistically, and hence the English and Hua categories should be identified with each other.

I think these questions can profitably be examined in the light of the analysis I have just presented. Conditionality "means" different things in different domains, and the degree of convergence between conditionality and topicality needs to be understood against the background of the basic content/epistemic/speech-act ambiguity.

5.3.1 Protases as "given" information or as sufficient conditions?

If conditional protases are to be understood as topics (in the sense of "given information"), then the words "topic" and "given" must undergo a certain amount of redefinition. I set aside the much-discussed issue of whether
givenness can be taken as the primary attribute of a topic, a view which Haiman (1978) supports. Whether the topic is old information (given as opposed to new) or mentally present information (what is talked about), an English counterfactual protasis can hardly be said to be a traditionally-defined topic. In order to make a counterfactual protasis a topic, we must assume that a topic is any linguistic unit which expresses a background relative to which something else is presented. Such a background need not be "given" in the sense of already being accepted as certain in the minds of speaker and addressee. A protasis is, rather, "given" in the sense that its acceptance (even if hypothetical) must presumably precede any consideration of the contents of the apodosis: it is given only relative to the apodosis.

However, even supposing we accept that a protasis is given or topical, does this observation define conditionality? Surely not. Many other linguistic structures present one thing as a background against which something else is dependently presented. For example, since-clauses could be said to have this function, and so could "given that" and "assuming that" as conjunctions. Compare the examples below:

(21) Well, if (as you say) he had lasagne for lunch, he won't want spaghetti for dinner.
(22) Well, since he had lasagne for lunch, he won't want spaghetti for dinner.

(23) Well, \{assuming that\} he had lasagne for lunch, he \{given that\} won't want spaghetti for dinner.

(21)-(23) are similar in structure: in each case, the first clause forms the basis for supposing the truth of the second clause. But there are crucial differences as well. Since expresses a more overt causal link between the two clauses that any of the others, and also presupposes the truth of its complement. Given that also tends towards presupposition of the complement, while assuming that and if do not presuppose anything; if anything, the given that example might be taken as more traditionally topical than the if example. But we are missing the point if we fail to notice that the conditionality expressed by if (as opposed to the causality expressed by since, or the presupposition of given that) is in itself a semantic component independent of the given-new information dimension. Although conditional protases may frequently present given information, they have other more specific functions, and topicality is not a definition of conditionality.

Returning to my earlier definition, the idea of conditional protases as sufficient conditions for the fulfillment of the apodosis would certainly elucidate the link between conditionality and causality, and also the hypothetical
status of conditionals. Von Wright (1975) neatly captures the inherently causal nature of conditionals when he argues that our human capacity for deliberately intervening in events (thus changing their default course) is at the root of our understanding of both conditionality and causality: the idea of a possible causal intervention is the essence of conditionality. If Von Wright is correct, the frequent (although not invariable) hypothetical nature of conditional protases would fit in well with his scheme; as has often been suggested, the protasis would be the introduction to a hypothetical world, resembling the real world except in the one change caused by the possible intervention. The causal intervention in question (whether human and agentive, or not) is presumably to be seen as sufficient to enable or bring about the truth of the apodosis. Such a view seems coherent with our previous observation that conditionality has a meaning above and beyond topicality.

Can a sufficient-condition definition of conditionality be reconciled with the observation that conditionals (like various other linguistic structures) frequently show a correlation with topicality? Can we even perhaps explain the correlation between protases and topics on the basis of this earlier definition? If we could manage to do this, we would simultaneously define conditionality in such a way as to distinguish the semantics of (21) from that of (22)-(23), and yet also be able to take into account Haiman's observed correlations.
5.3.2 "Given conditionals" in English: Why and when protases are topical

So-called "given conditionals" (conditionals with "presupposed" protasis content) are among the crucial points in Haiman's argument for identifying conditionality and topicality. As previously remarked, "given" conditionals have often been treated as atypical by English grammarians, but are central members of the class of conditionals in the Papuan language Hua, and may also be common in other languages. Before treating the question of identity between conditionals in different languages, let us examine the class of English conditionals where the protasis is indisputably given information, to see why and how conditionality and topicality cooccur in these cases.

The first thing to note is that (as far as I have been able to discern) English "given" conditionals are all epistemic or speech-act conditionals. I will later attempt to explain why this should be so; for the moment suffice it to say that content-domain conditionals always remain at least somewhat hypothetical. Thus, typical epistemic examples of "given" protases in English include (21) and (24) (the parenthetical expressions are intended to force a "given" protasis reading):

(21) Well, if (as you say) he had lasagne for lunch, he won't want spaghetti for dinner.
(24) If (as they just announced) they're looking for an
apartment, they're planning a wedding before long.

(21) and (24) are ordinary epistemic conditionals: in each
case, the structure is "If I know that X is true, then I
conclude that Y." (Knowing X is a sufficient condition for
concluding Y.) In (21), we can contrast the "given"
epistemic reading (the reading that we might loosely para-
phrase by replacing if with the complement-presupposing
since) with a content-domain reading wherein the protasis is
not given. Remove the parenthesized portion of (21), and
there is a content-conditional reading wherein the real-
world refusal to eat spaghetti is conditional upon a previ-
ous real-world eating of lasagne (X happening is a suffi-
cient condition for Y happening). But, in contrast with the
epistemic-conditional reading, the lasagne-eating cannot be
taken as a given; rather, we must assume that it is still
hypothetical (the speaker is uncertain whether in fact the
subject ate lasagne for lunch).

Note that even for the epistemic reading, the "given"
protasis is not rigidly presupposed. We can continue (21)
with "but I don't believe he had lasagne for lunch." The
"givenness" which Haiman finds typical of conditionals seems
to reside rather in the speech setting than in the condi-
tional semantics proper. One common way of using condi-
tionals is to argue from an already-shared belief of speaker and
hearer to a not-yet-shared belief.
For (24), a content-conditional reading is not easy to produce. The reason is that (as we have seen in various earlier examples) the speaker is reasoning from effect to cause. Knowledge of an apartment hunt may be sufficient condition for a conclusion about wedding plans in the epistemic world; but in the real world it is more reasonably the wedding plans which are the sufficient condition for carrying out the apartment hunt. (25), which is appropriately ordered for a content-conditional reading, is ambiguous in exactly the same way as (21):

(25) If they're planning a wedding, they'll be looking for an apartment soon.

Once again, I find it impossible to get a "given" ("as we both know") reading for the protasis under a content-domain conditional interpretation of the whole sentence: the protasis is hypothetical if the conditional is content-domain.

Some examples of "given" speech-act conditionals are seen in (26)-(28) below:

(26) If (as we both know) you were at the party, how's Harry these days?

(27) If you're so smart (as you seem to think), what was the date of Charlemagne's coronation?

(28) If I was a bad carpenter, I was a worse tailor.7

7 From Jespersen (1940), p. 378; discussed in Haiman
(26) and (27), like the epistemic "given" conditionals discussed above, could easily be paraphrased with since replacing if --- the synonymy between the since and if sentences indicates the presupposed status of the protases in the conditional examples. The structure of (26) and (27) is "If X is the case, then I present myself as carrying out the speech act represented in the apodosis."

(28) is a more complex case, but unlike Haiman I cannot read the protasis of (28) as a simple topic. (28) does not mean "Given that I was a bad carpenter, I was a worse tailor." Rather, it means something like, "(Even) if (I admit that) I was a bad carpenter, (I still insist that) I was a worse tailor." I will return to the question of "even if" readings of if in the next section; suffice it to say that in (28), the "even if" force of if indicates the odd sequence of an admission of the speaker's poor carpentry being followed by an assertion of worse tailoring. One can imagine the sequence continuing to say either, "and so I am right to give up on making a living" or, "and so I am right to go back to carpentry." In either case, however, the speech-act force of the conditional is evident, and the protasis is presupposed.

(1978). Jespersen terms this a "pseudo-condition". The interested reader can look up the quote itself in Defoe's Robinson Crusoe, p. 149 [Modern Library edition].
I cannot interpret (28) as a content-domain conditional, probably because (if my hypothesis is correct) such an interpretation would necessarily correlate with a hypothetical reading of the protasis, and it would be odd for a speaker to make a hypothetical if-statement about his/her own past. If we change the sentence from the first person to the third, and give it content which readily allows of a content-conditional interpretation, we can get an example parallel to (28) which is ambiguous between content-domain and speech-act-domain conditionality:

(29) If he was a bad governor, he'll be a worse President.

Assuming that speaker and hearer do take the protasis of (29) as given, the sentence is interpreted as either a speech-act conditional or an epistemic conditional. The speech-act reading might be paraphrased as, "(Even) if it's true he was a bad governor (so you want to kick him upstairs), nonetheless (I insist that) he will be a worse President (so he'll do more harm there and should remain governor)." The epistemic reading might be paraphrased as, "If, as I/we know, he was a bad governor, then I conclude he will be a worse President." If, however, we assume that the if-clause of (29) is hypothetical, then a content-reading becomes possible, which might be paraphrased as, "(I don't know what sort of a governor he was, but) his being a bad governor is a sufficient condition to enable his becoming a worse President." Once again, we see that a non-given if-
clause is necessary in order for a conditional to have a content reading.

So it seems that, at least in English, "given" conditional interpretations exist only in the speech-act and epistemic domains. Why should this be so? My answer is: because we have social reasons to present our own speech acts and conclusions as conditional even when we know or strongly believe the precondition to be true, while we normally have equally strong social reasons not to present real-world events as conditional unless the precondition really is hypothetical (and the resulting event thus still in doubt).

In a sense, "given" conditionals are unreasonable. "If X, then Y" logically reduces to "Y" when "X" is already one of the basic premises. So it would be more informative just to say "Y", at least prima facie. And our content-level usage seems to obey the maxim of informativeness. Why, then, doesn't a speaker just say, "John won't want a spaghetti dinner," rather than producing the "given" epistemic conditional, "Well, if (as you say) John had lasagne for lunch, he won't want spaghetti for dinner"? Presumably, the answer is that it is often useful to display the train of reasoning leading to the conclusion expressed. The speaker's epistemic world is not available for direct examination by the addressee, and hence the speaker can't refer to it so casually as to the common external world.
Besides, the display of a reasoning sequence marks a speech act as expressing an epistemic-domain event. Thus, "John won't want a spaghetti dinner" simply refers to a real-world situation; but a preceding epistemic conditional (like other markers such as "I guess", "I conclude", "I suppose", "probably", or even "so" and "then") marks the fact that an internal act of concluding is being represented, hence we should really understand the apodosis as "(I conclude that) John won't want a spaghetti dinner."  

A similar argument can be brought forward to explain speech-act "given" conditionals. Like the epistemic world, the speech-act world is an intangible one; although it is shared by speaker and addressee, it is also in the process of constant, bargained revision. It cannot be referred to as casually as the external tangible world, because it is in fact built up by the references made to it. Presenting a speech act conditionally ("If you went to the party, how's Harry?") may help to show how the speech act fits into the structure of the jointly-constructed conversational world. "How's Harry?" is relevant conditionally on the addressee's having been at the party, and even if his/her party attendance is already a shared belief of the speaker and hearer,

---

8 Seemingly "fake" conditionals such as "she's forty if she's a day" could presumably also be analyzed as "given" conditionals. The proposition "she's forty" is treated as being so obviously true that it is conditional only on the ridiculously over-obvious proposition that "she's (at least) a day (old)."
a display of conditional relevance succeeds in giving the
question a context. Furthermore, the domain of speech acts
is the interactional domain, where politeness takes on a
paramount importance. Explaining or justifying a speech act
is often crucial to avoiding rudeness. Thus, even if the
speaker actually means to unambiguously perform a given
speech act, and therefore expresses its performance as con-
tingent only on a "given" protasis, tacking on a condition
still makes the speech act politer by presenting justifica-
tion. The conditional form itself probably also has weight
here; whether or not the protasis is actually hypothetical,
conditionals feel less certain.

It can thus be useful for speakers to present "given"
conditionals in the epistemic and speech-act domains,
because an epistemic or speech-act conditional serves some
purposes which are irrelevant to content-domain condition-
als. A content-domain conditional simply states that X is a
sufficient condition for Y in the real world. Such informa-
tion is irrelevant if Y is known to be true; hence, if X is
already a background presupposition of speaker and hearer,
then the speaker would do better to simply say "Y" rather
than "If X, then Y." But for epistemic and speech-act con-
ditionals, the conditional structure may be relevant even
when the content of the protasis is already accepted by both
interlocutors. In these cases, the protasis does indeed
serve the purposes of a sentence topic, in that it presents
background for the apodosis or picks out the context in
which the apodosis is to be viewed.

5.3.3 Topicality and the universal conditional category

The presentation of topics, or of given information, is a function served by a large number of different linguistic structures. In the preceding section I have tried to explain why givenness should be a normal functional concomitant of semantically hypothetical conditional structures, under certain circumstances. It is thus possible to derive an understanding of "given" conditionals' topicality from a functional analysis of conditionals which presumes their basic semantic content to be that of sufficient conditionality. I cannot see how, conversely, a sufficient-conditional reading of if would follow from its being basically (semantically) a topic marker. So it seems reasonable to suggest that the topicality of if-clauses is essentially a pragmatic phenomenon, although it is a normal pragmatic extension of the sufficient-condition definition of if.

It remains unclear to me how much of my analysis is applicable to conditionals as a universal category. English conditional protases do not seem best analyzed as clausal topics pure and simple. In trying to decide whether conditionals are prototypically topics in universal grammar, there are still a large number of unanswered questions. For example, many non-conditional subordinate clauses tend in
different ways either to present "presupposed" or "given" content, or to present material serving as background to the content of the main clause; this is particularly true of subordinate clauses which precede the main clause. In order to prove that conditionals are especially topical, it would be necessary to show that there is no similar correlation between topic markers and other classes of subordinating conjunctions (e.g. causals). It would also be useful to examine correlations between word order (protasis-apodosis is "normal" universally, but many languages also allow apodosis-protasis; in English and French neither order seems especially marked) and topicality of the protasis (or identity of protasis marker and topic marker). And, of course, languages such as Hua might be reexamined to see whether the analysis I have given can be extended beyond English.

I thus leave open the question of universal identity between prototypical conditionals and clausal topics. Haiman's explanation for the correlation between the two categories is reasonable, but is also perfectly coherent with (1) a more traditional sufficient-condition semantics of conditional sentences, and (2) similar functional correlations between topicality and other (non-conditional) kinds of subordinate clauses. Furthermore, in English at least, the most topical conditionals ("given" conditionals) can be shown to be special functional extensions of conditionality to the needs of the epistemic and speech-act domains.
5.4 The 'even-if' reading of conditionals

5.4.1 Relating 'if' to 'even if'

Perhaps the biggest problems for a sufficient-conditionality analysis of *if* are the "if-and-only-if" and "even-if" readings which can be attributed to simple *if*-protases. I have discussed above (section 5.1.1) the way in which an "if-and-only-if" interpretation often follows conversationally from the expression of sufficient conditionality. But how can sufficient conditionality explain the concessive readings of *if*? It would be particularly useful to explain this reading, because if concessive *if* remains unexplained, then *even if* (necessarily concessive) must be analyzed as a different conjunction, unrelated to *if*. Such an analysis would surely be counterintuitive enough to worry most linguists.

Van der Auwera (1983) notes that interrogative conditionals in particular tend to favor an *even-if* reading, so that examples such as (30) are readily capable of bearing either a "normal" or a concessive reading. (Note that (30) is not a conditionally performed question, but a questioned conditional --- a question about the conditional "If John comes, you will go."

(30) If John comes, will you go?
(30) can be interpreted either as meaning "Is John's coming a sufficient condition for your going?", or as meaning "Is John's coming a sufficient condition to prevent your going --- even if John comes, will you go?" Van der Auwera suggests that the reason why questions readily allow an even-if reading is that they inherently bring up both the affirmation and the denial of the questioned proposition. Hence, in (30), the protasis can be taken as a condition either for the truth of the apodosis or for its falsity. Pragmatic considerations will determine which reading prevails in a given situation --- if the speaker knows that the addressee hates John, then the normal reading is likely to be in effect, whereas if the addressee is known to be eager to see John, the concessive reading will probably seem reasonable. Compare the following two examples:

(31) Will you go hiking tomorrow if it rains?

(32) Will you go hiking tomorrow if the weather is sunny?

Given our knowledge about likely causal relationships in the real world, we tend strongly toward a concessive interpretation of (31) and a normal interpretation of (32).

Van der Auwera assumes that questioned conditionals are alone in their openness to a concessive interpretation. Haiman (1983) notes, however, that simple assertions can evoke the same two possible interpretations. Thus, (33) (example from Haiman 1983) tends to have a concessive
interpretation, while the positive (34) tends to have a normal conditional reading:

(33) I wouldn't marry you if you were the last man on earth.

(34) I would marry you if you were the last man on earth.

But (35), where the pragmatic expectations are reversed from (33), has a "normal" reading as its preferred interpretation, while (36) tends to receive a concessive reading:

(35) I wouldn't marry you if you were a monster from Mars.

(36) I would marry you if you were a monster from Mars.

Haiman states that in English, such concessive if-clauses tend to preferentially follow their apodoses; he cites examples such as (33) and (37):

(37) I'll get him if it's the last thing I do.

He further notes that concessive if-clauses seem freed from this ordering restraint if they are given a particular intonation pattern: a "contemptuous squeal" including strong stress and high pitch on the final portion of the concessive clause, followed by an abrupt pitch drop in the apodosis. The "squeal" intonation avoids backgrounding of the initial clause --- high volume and contemptuous tone make it simultaneously emphasized and dubitative. This same intonation pattern will also allow coordinate and-conjuncts to be interpreted concessively --- i.e., to be given an "and yet"
reading, rather than an "and so" reading. Thus, of the examples below (from Haiman), (38) and (39) are a normal coordinate and a normal conditional, while (40) and (41) are concessive and hence require "squeal" intonation:

(38) You major in math or physics, and CDC will want to hire you.

(39) If you major in math or physics, CDC will want to hire you.

(40) You major in math or THEOLOGY, and CDC will want to hire you.

(41) If you major in math or THEOLOGY, CDC will want to hire you.

Haiman suggests that the reason for the ordering restriction is that the sequence of conjuncts tends to reflect temporal and causal sequence in the real world (see above, Chapter 4, on conjunction). The preferred apodosis-protasis order for concessive conditionals presumably follows from the fact that protasis-apodosis order would tend to reinforce a sufficient-condition reading. Thus, to prevent a sufficient-condition reading in (40), or an and-so reading in (41), a "squeal" intonation is necessary.

Given Haiman's observations, Van der Auwera's explanation seems insufficient; in examples like (33) and (41), the even-if interpretation does not stem from an interrogative
form which evokes both affirmation and denial of the apodosis content. It may be the case that interrogatives are particularly susceptible to an even-if reading, for the reasons Van der Auwera proposes; but whatever it is that allows even-if interpretations of Haiman's examples (33) and (41), the same explanation will account for the even-if reading in (31) or the possibility of such a reading in (30).

It seems, then, that while if-conditionals are not basically concessive, their semantics has inherent potential for a pragmatically-conditioned concessive reading. Haiman would say that protases, as clausal topics, are background to the apodosis and tend to precede it; hence they tend to be taken as causal precursors to the apodosis, given the effects of word-order iconicity. But the iconic "and-so" interpretation of and-conjuncts is not a necessary one, and evidently the "normal" conditional reading is not necessary either --- it can be replaced by a concessive reading in the right context, just as and can be interpreted as "and yet" in the right context. Haiman's interpretation is tempting, but I still feel reluctant to adopt it. As stated above, it is hard to see what makes conditionals more topical than other related varieties of subordinate clauses; and it is easy to see how a sufficient-condition semantics of if could explain conditionality's links with causality on the one

---

9 "Clausal topic" means "a clause which is the topic of an utterance", and not "the topic of a clause".
hand, and with topicality on the other. How can such an
interpretation explain concessive if? As we shall see
below, the meaning of concessive if turns out to be better
motivated by a sufficient-condition analysis of if than by a
topicality analysis.

Concessive if-clauses such as (42) are at least close
to synonymous with their even-if counterparts:

(42) I'll climb that mountain if it kills me.

(43) I'll climb that mountain even if it kills me.

Now, these examples are certainly concessive in meaning, in
that they show one clause in a "despite" relationship with
the other: the idea that climbing the mountain will kill me
would certainly not be the most natural conjunct for "I'll
climb that mountain." But (42)-(43) (and all other examples
of even if and concessive if) are more than simply conces-
sive: they express not only opposition between the two
clauses, but the further idea that the protasis represents a
relatively extreme possibility from among the possible con-
ditions which can be expected to occur in opposition to the
truth or the fulfillment of the apodosis. There is an
inherent feeling of scale involved (cf. Fauconnier 1975 on
scalar phenomena).10

10 Fauconnier analyzes the inherent scalar phenomena
involved in various English logical operators and lex-
emes.
How such a scalar reading of if could be derived from the idea of if as a topic-marker, I do not know. But it is relatively simply derivable from a sufficient-condition analysis of conditional semantics. If conditionals mean "X is a sufficient condition for Y", then clearly any better situation than X — any situation more favorable to Y than X is — will also be sufficient for Y. Suppose I say that certain extremely unfavorable circumstances will nonetheless be sufficiently favorable to ensure Y (or insufficiently unfavorable to allow ~Y). I have produced a very strong statement that Y will occur whatever happens; since nearly all other circumstances are more favorable to Y than X is, Y will almost surely occur. Such, I claim, is the correct interpretation of even-if sentences and concessive-if sentences.

Only pragmatic context can determine the choice between a normal and a concessive if-reading, since it is a pragmatic question whether the set of circumstances expressed in a given protasis are favorable or unfavorable to a given apodosis. Thus, if we can imagine a speaker who has been waiting all his/her life to find and marry a Martian monster, then (35) could reasonably receive a concessive reading, while (36) could be interpreted as a normal conditional:

(35) I wouldn't marry you if you were a monster from Mars.
(36) I would marry you if you were a monster from Mars.

A "concessive" interpretation of the sufficient-conditional if is, then, natural under certain circumstances. Even simply forces such a reading, so that even if is always concessive. This is because even is an explicitly scalar expression: if we say "Even Mary likes John," then we presuppose a scale wherein Mary ranks high with respect to probable tendency not to like John (or low with respect to tendency to like him). Even if thus appears to be a fairly regular compositional joining of even and if. Haiman's "contemptuous squeal", marking concessive meaning, can now perhaps be reinterpreted as the emphasis and tonal rise which mark the presentation of an assertion which is perceived as extreme in some way. Note that the same tonal pattern occurs with non-conditional sentences such as "Even MARY likes John"; the high-on-scale element Mary receives stress and high pitch, which mark it as the surprising or extreme element in the sentence.

My conclusion, then, is that the "even-if" reading of conditionals is a pragmatically-motivated extension of the basic sufficient-condition semantics of if. Although this concessive reading seems somewhat more restricted in application than the basic if, it extends beyond the content domain of conditionality, as I shall demonstrate in the following section.
5.4.2 Concessive conditionals in different domains

Although concessive conditionals are less common than normal conditionals, they too can be found in the epistemic and speech-act domains, as well as in the content domain. Earlier in this chapter, I mentioned Jespersen's example (cited in Haiman 1978):

(28) If I was a bad carpenter, I was a worse tailor.

I argued that (28) is a concessive conditional in the speech-act domain, and is to be interpreted as "(Even) if (I admit that) I was a bad carpenter, (I still insist that) I was a worse tailor." The concessive quality of (28) apparently results from its being unlikely that a speaker who has already admitted to doing one thing badly should continue to insist that he/she does something else yet worse. Other, less direct, speech-act forces are also possible: for example, "I am a bad carpenter" might indirectly convey "maybe I should give up on carpentry," while "I am a worse tailor" might therefore convey the opposed "maybe I should go back to carpentry despite how bad I am at it." In this case also, the concessive force has effect in the speech-act domain.

Other examples of concessive speech-act conditionals include:
(44) That was a great dinner, if I do say so myself.

(45) If Mary was hopeless at typing, her sister was worse.

(46) (Even) if he IS a stuffed shirt, he's not a fool.

(44)-(46) all have the structure, "I say (insist) that X, even if I admit that Y." (44) is perhaps particularly interesting: its conveyed meaning is something like "I insist on saying that it was a great dinner, even if I recognize that it's rude for me to praise my own cooking."

The speaker must be appealing to some mitigating force in order to allow this boastfulness --- the mitigating force being presumably the easily recognizable truth of the apodosis.

I suspect that (47)-(49) are also concessive speech-act conditionals:

(47) He's friendly enough, (even) if (he's) a bit patronizing.

(48) She responded enthusiastically, if belatedly.

(49) He's a novelist, if a minor one.

The odd thing about (47)-(49) is that the "sentence fragments" in the protases cannot be replaced by full clauses when the conjunction is simple if. Thus, I cannot say (50), although (51) is good:
(50) *He's a novelist, if he's a minor one.

(51) He's a novelist, even if he's (only) a minor one.

A similar contrast can be observed in (52)-(53):

(52) *She responded enthusiastically, if she responded belatedly. (* on a concessive reading)

(53) She responded enthusiastically, even if she (only) responded belatedly.

I am not sure why it should be necessary to spell out even if in (51) and (53), but not in (47)-(49). But all of these sentences appear to have the same speech-act structure as (44)-(46): "I assert/insist that X, even if I admit that Y."

There is no reason, for example, why (49) and (51) should be concessive at the content or epistemic level; someone's being a novelist is not in any apparent conflict with the same person's being a minor novelist, either in the real world or in the speaker's belief system. Rather, it is the speaker's conversational purposes which are at odds: the speaker may be admitting that the subject (as a minor novelist) is not a major literary figure, but insisting that, nonetheless (as a bona fide novelist), the subject is to be taken seriously as a writer.

Epistemic concessive conditionals are much less easy to exemplify than their content-domain and speech-act-domain counterparts. This may be partly due to pragmatic factors.
It seems more normal, in stating a conclusion, to say what that conclusion is conditional upon than what it isn't conditional upon. And, more importantly, epistemic "given" conditionals are extremely common; it is hard to interpret an epistemic conditional with a presupposed protasis as anything but a normal epistemic "given" conditional. But with the right context, a concessive reading becomes possible, at least with the explicitly concessive even if:

(54) (Seeing the light in the apartment): (So) he's home, even if the paper wasn't picked up this morning.

(54) presumably means "I conclude that he's home (from seeing the light), even if I might have thought otherwise from the neglected newspaper on the porch." The crucial factor is that the conclusion has to come from some train of reasoning; since it does not come from the premise expressed in the (even) if clause, it must come from some other train of reasoning, which is opposed to that expressed in the protasis. I have been unable to find similar concessive examples which sound natural with if rather than with even if, although such cases may exist.

Speech-act concessive conditionals show interesting semantic parallels with the speech-act modal uses cited at the end of Chapter 3. Thus, (44)-(46) are quite close in meaning to (55)-(57) (cf. Ransom 1977):
(44) That was a great dinner, _if_ I do say so myself.

(45) _If_ Mary was hopeless at typing, her sister was worse.

(46) _If_ he IS a stuffed shirt, he's not a fool.

(55) _I may_ be the wrong person to say so, _but_ that was a great dinner.

(56) Mary _may_ have been hopeless at typing, _but_ her sister was worse.

(57) _He may_ be a stuffed shirt, _but_ he's not a fool.

We could also rephrase sentences like (47) in a similar fashion:

(47) He's friendly enough, _if_ a bit patronizing.

(58) He _may_ be a bit patronizing, _but_ he's friendly enough.

The _if_-sentences above are most naturally interpreted as suggested earlier: "(I insist that) X, (even) _if_ (I admit that) Y." _The may_ sentences have the reading: "I _allow_ X (into our conversational world), but (I insist) that Y."

Conditionality and modality (long known to be related phenomena) can thus be seen to converge in yet one more way, in the speech-act domain as well as in the other domains of language use. Not surprisingly, since concessive use of _may_ and _can_ appears to be the commonest speech-act use of modality, it is concessive _(_even-)if_ speech-act conditionals
which turn out to find a parallel in the realm of speech-act modality.

5.5 Conclusions

Conditionality has long been known to be related to causality and modality; Haiman (1983) has argued cogently that it is closely linked with coordinate conjunction as well, although conditional clauses are prototypically subordinate. It is thus no surprise to find that, like causality, modality, and coordination, conditionality too has a multifaceted existence in the three basic domains of semantic interpretation. This chapter has laid out some of the uses of conditionals in the content, epistemic, and speech-act domains; it has presented evidence for the separation of conditional speech acts from epistemic conditionals, and also for a conditional speech-act analysis of a wider group of utterances than have previously been so categorized.

I have argued that many of Haiman's (1978) parallels between topicality and conditionality can be explained by examining the functional extensions of a sufficient-conditional if-semantics into the epistemic and speech-act domains. I have further suggested that the even-if reading of conditionals is another natural pragmatic extension of a sufficient-condition interpretation of if. Such an analysis may have the added advantage of offering a reasonable
explanation for synonymy between speech-act may and speech-act concessive if. In any case, most of the regularities pointed out in this chapter would remain unobserved or unexplained if conditionality were not analyzed as applying to more than one domain of linguistic usage.

Returning to the old and vexed question of resemblance between natural-language conditionals and logical if-then (material implication) or other purely truth-conditional analyses of if-then, the preceding examination of conditionality would suggest that the linguists and philosophers who have questioned the identity of the two categories were right to do so. Natural-language conditionals express a relationship and a dependency, not only between the truth values of the two clauses, but between their contents as well. Von Wright's (1975) interpretation of conditionals as rooted in the idea of possible causal intervention captures this content relationship very effectively (cf. also Lewis 1975). From the idea of such a dependency between contents, the appropriate pairings of truth values for a logical if-then structure will necessarily follow, while the converse is not necessarily so. Natural-language conditionals are more constrained than logical if-then.

The analysis of epistemic and speech-act conditionals presents particularly strong evidence for a non-truth-functional, sufficient-conditional analysis of if-then sentences in natural language. First of all, the "apodoses" of
conditional speech acts often have no truth values, since they can be questions, commands, or requests as easily as assertions. Thus felicity, rather than truth value, must enter into our formal analysis of if-then. Secondly, and more importantly, conditional speech acts invariably require an interpretation wherein the protasis expresses a factor which actively influences (causes or enables) the performance of the following speech act. It would be incorrect, as well as insufficient, to simply list possible combinations of truth and felicity conditions, barring the case wherein the protasis is false and the apodosis is felicitous. The protasis' truth constitutes a sufficient condition for the apodosis' felicity because there is a causal link between the two. The same is true for epistemic conditionals: the protasis' truth constitutes a sufficient condition for concluding the truth of the apodosis, because the knowledge of the protasis is taken as causing or enabling the conclusion embodied in the apodosis. An examination of conditionals in areas beyond the content domain thus indicates clearly that (as with other conjunctions) the formal logical if-then derives from the natural-language if-then, but the two cannot be identified with each other.
Chapter 6: Retrospect and prospect

I began this thesis by offering the reader some examples of apparently puzzling, but common, patterns in historical change of meaning. In the course of Chapter 2, certain documented historical trends and synchronic semantic structures were shown to involve a pervasive metaphorical structuring of our internal mental world in terms of our physical world. This structuring is experientially based: our internal self is not objectively "like" our physical self, but our physical and psychological worlds have numerous experiential links drawing them together. Given the concept of structuring one domain in terms of another, the "puzzles" offered at the beginning of Chapter 2 were suddenly unmasked as self-evident. No complex unravelling was necessary to explain the link between (for example) way and anyway, or grasp and understand; given the structuring of our whole mental vocabulary, these semantic relationships fall out naturally from the general framework.

A further positive result of this historical analysis is that it is equally applicable to synchronic polysemy structures. A unified concept of semantic "relatedness", in which one frequent kind of relation is metaphor, can account
for both synchronic lexical meaning structure and diachronic
directions in semantic change.

There are two theoretical points which need emphasis
here. The first is that one cannot automatically expect a
synchronic semantic theory to deal naturally with historical
change; I have argued that objectivist feature-analysis is
inadequate in this respect. The second is that it may be
useful for synchronic semantic analysis itself to examine
synchrony and diachrony side-by-side. Historical evidence
can be a metric for choosing between different synchronic
semantic theories. In this particular case, the choice made
is an interesting one: the rejection of an entire class of
traditional theories in favor of an analysis which admits
metaphor into semantic structure. If polysemy structures
are data for cognitive science, then so are etymologies.

A synchronic semantic framework which involves the
apparatus mentioned above (the idea of domains, and the con-
cept of experientially-based metaphorical structuring of one
domain in terms of another) turns out to explain other facts
of polysemy and usage variation in English. The root-
epistemic-speech act contrast in the semantics of modal
verbs apparently reflects the application of modality to
three different domains represented by sentences: real-world
content, epistemic premises and conclusions, and speech
acts. The latter two domains are structured in terms of the
basic content (real-world) domain.
Conjunction and conditionals show the same potential as modals for interpretation in three distinct domains. The extremely varied uses of conjunctions such as and and or fall out readily from a combination of (1) recognition of their multi-domain applications, and (2) other general principles such as word-order iconicity and an understanding of indirect speech acts.

A large number of questions remain unanswered, and I can only begin to enumerate some of the areas which I regard as targets for future investigation. First, it seems to me important that Fauconnier's ([in press]) work on mental spaces should be brought to bear on problems of polysemy as well as on problems of reference. The "connectors" which Fauconnier uses to link individuals across domains could be used to explain polysemy, in the following way. First, let us look at a standard reference example, "In the picture, the girl with blue eyes has green eyes." Interpretation of this utterance requires the postulated existence of two mental spaces, a "real world" and a "picture world", and a connection between a real (blue-eyed) girl and her (green-eyed) counterpart in the picture. The girl can only be identified with her (non-identical) counterpart in the picture because the picture is evidently structured analogously to the real world in certain ways. Now, let us take the example of a polysemous word, must. Let us postulate two mental spaces, one being the domain of sociophysical modality, and the other the domain of logical possibility, probability, and
necessity. Given that we experientially structure the latter domain (or space) in terms of the former one, it is possible to talk about connections and counterpart relations between entities in the two domains. Logical necessity is the counterpart, in the epistemic space, of force or obligation in the space of sociophysical modality.

Metaphor, polysemy, and coreferentiality across mental spaces are quite different phenomena, but each involves giving a common label to two or more distinct entities. Further, in each case, the common label seems to be bestowed because of a perceived counterpart relation between entities in analogously structured domains. The major difference is that with metaphor (and metaphorically based polysemy) one domain is being structured in terms of the other --- whereas with general inter-space connector relations, the two spaces could have independent structures which just partially coincide (e.g. "the world last year" vs. "the world this year"). Fauconnier's theory of mental spaces seems ideally equipped to investigate regular similarities between metaphor and counterpart coreferentiality, insofar as such similarities exist.

Other investigations into the effects of domain-structure in language include the work of Kay (1983), who argues convincingly that our metalinguistic world is structured by at least two distinct (and conflicting) folk theories of language use; and Ernst (1983), who takes a
large set of domain adverbs (e.g., biologically, linguistically, academically) and proposes that their multiple uses can be accounted for on the assumption that such adverbs evoke presupposed domains of structured meaning. Ernst, like Kay, notes that the same event or entity may fit into a number of different domain-structures, and those events/entities will be differently perceived depending on which domain is the currently relevant one. Rappaport's (1980) work on "detached" and "non-detached" senses of participial forms in Slavic may reflect (at least in part) a distinction between epistemic and content readings; if so, here is another example of differences in grammatical behavior which reflect differences in the domain of a relation between clauses in an utterance.

From the work of all the above researchers, it seems clear that we cannot escape using the general concept of multiple domain-structures in our analysis of linguistic meaning. This dissertation has argued for the necessity of metaphorically structuring domains in terms of each other. And, most crucially, I have presented evidence to suggest that some of the same basic domain-structures can give a consistent and illuminating account of previously puzzling phenomena in the apparently disparate areas of (1) semantic change, (2) polysemy structure, and (3) interpretation of sentence conjunction. Particularly interesting is the idea that the speech-act domain is structured (at least one of its possible structurings) by the content domain; the
concept of speech-act force takes on a new dimension if we understand it to be a metaphorical extension of real-world force.

A narrowly synchronic view of linguistic structure, or an objectivist view of meaning which failed to deal with metaphor, or even a narrowly linguistic view which failed to take into account our understanding of how we use language, would not be able to explain the synchronic and diachronic patterns of meaning which are treated in this work. My hope is that future work in semantics will move towards the examination of meaning in its larger historical and cognitive setting.
Appendix (to section 5.1.3)

Van der Auwera (1983) proposes that only "commentative" conditional speech acts (by which term he refers to the overtly Gricean conditionals) are really conditional speech acts. He would group cases like (11) (repeated from main text) with (a) and (b), as "speech acts about conditionals".

(11) There are biscuits on the sideboard if you want them.

(a) If you inherit, will you invest?

(b) If a kangaroo has no tail, it topples over.

Thus (a) is a question about the conditional relationship between inheritance and investment, while (b) is a statement about the conditional relationship between taillessness and toppling over. Van der Auwera admits the existence of a particular class of indirectly Gricean conditional questions ("Holdcroft questions", after Holdcroft (1971)), which are not questions about conditionals, but real conditional speech acts, as in the speech-act reading of (c):

(c) If you saw John, did you speak to him?

The speech-act conditional reading of (c) is approximately: "If you saw John, then I ask whether you spoke to him." The
protasis is indirectly commentative, since "If you saw John" refers to a condition which would enable the answering of the question. But Van der Auwera maintains that such indirect commentative conditional speech acts can only be questions, not assertions or commands. His object is to preserve for a maximal number of cases the principle that the speech-act force is always the highest operator in a formal structure. However, since his reanalysis does not work for questions, it is hard to see what use there is in maintaining it for other speech acts.

It is also hard to see how Van der Auwera can escape admitting that there are indirectly commentative statements, as well as questions; he does not, unfortunately, discuss Austin's "Ifs and Cans" example ((11), above). (11) cannot be read as an assertion about a conditional relationship between the biscuits' location and the addressee's desires. It is a conditional speech act, and the protasis indirectly refers to the Gricean maxim of relevance; or, if you prefer, it refers to a Searlean condition on an offer, the offer being indirectly expressed by the statement in the apodosis. One can construct examples which are even farther from direct reference to conditions on speech acts, but which nonetheless clearly refer indirectly to such conditions, e.g. (d):

(d) There are biscuits on the sideboard, if you missed lunch.
Missing lunch is a condition which might make one hungry, which in turn might make one want a biscuit, which in turn would make the offer appropriate.

Given cases like (11) and (d), one is forced to view conditional speech acts as extending beyond the directly commentative examples. In section 5.1.3, I argued that a Gricean conditional speech-act analysis will account for a much larger class of sentences than has previously been supposed.

Returning to examples such as (a) and (c), I would claim that both these examples are ambiguous between a question-about-conditional (content) reading and a conditional question reading. Example (a) may mean either "Will your investment occur conditionally on your inheritance?" or "Given that you inherit (as we both know), I ask whether you will invest." (See section 5.3 for a discussion of given conditionals.) Example (b) may mean either "Did your speaking to John occur, conditionally on your seeing him (usually, in the past)?" or "If (or given that) you saw John, I ask you whether you spoke to him." Van der Auwera's analysis will not account for this general ambiguity, while my contrast between conditionals in different domains will easily explain such facts.
Bibliography


Baker, Charlotte. 1975. This is just a first approximation, but... CLS 11:37-47.


---. 1982. Towards a descriptive framework for spatial
deixis. in Speech, Place, and Action: Studies in Deixis
and Related Topics, eds. Robert J. Jarvella & Wolfgang


Fleischman, Suzanne. 1982. The future in thought and
language: Diachronic evidence from Romance. Cambridge:
Cambridge Univ. Press.

Gazdar, Gerald. 1979. Pragmatics: Implicature, presupposi-

---. 1981. Unbounded dependencies and coordinate structure.

---, Geoffrey K. Pullum, & Ivan A. Sag. 1982. Auxiliaries
and related phenomena in a restrictive theory of gram-

Gordon, David & George Lakoff. 1971. Conversational postu-
lates. CLS 7:63-84.

Grice, H. P. 1975. Logic and conversation. in Syntax and

---. 1978. Further notes on logic and conversation. in Syn-


--- & Chad K. McDaniel. 1978. The linguistic significance of the meanings of basic level color terms. Language 54:610-646.


---. 1972a. The pragmatics of modality. CLS 8:229-246.


---. 1973. The logic of politeness; or, Minding your p's and q's. CLS 9:292-305.


---. [In press]. The definition of lie: An examination of the folk theories underlying a semantic prototype. in Folk Models in Language and Thought (Proceedings of the 1982 Princeton Conference on Folk Models), eds. Naomi Quinn & Dorothy Holland.


---. 1982 ms. Force dynamics in language and thought.


