

A preliminary case for conventional implicatures

2.1 A fresh look at an old definition

The history of conventional implicatures is rocky, their current status uncertain. So it seems wise to return to their source and start afresh, with an open-minded reading of the original definition (Grice 1975) and an eye open for novel factual support. Suppose the textbook examples (*therefore, even, but* and its synonyms) disappeared. Where would conventional implicatures be then? This book's primary descriptive claim is that they would still enjoy widespread factual support. I match this with a theoretical proposal: if we move just a few years forward from the genesis of CIs, we find in Karttunen and Peters' (1979) multidimensional semantics the basis for an ideal description logic.

A successful case for CIs is sure to be hard won, since their very existence has been questioned. Bach (1999) mounts a direct assault on the usual factual basis (see also Blakemore 2001: §2.3–2.4); many other working semanticists use the term 'conventional implicature' synonymously with 'presupposition', implicitly denying the need for a descriptive or theoretical distinction. Thus, it is crucial to present a rich body of evidence for CIs. But it is equally important to accompany this evidence with arguments that no other classification suffices. These are the descriptive tasks at hand, and they rightly occupy much of the present work.

The description is informed throughout by a type-driven multidimensional semantic translation language, the basis for my theory of CIs. I venture that part of the reason CIs have received short shrift from semanticists is that few attempts have been made to provide a theoretical implementation. A linguist studying presuppositions, conversational implicatures, or intonational meanings has a wealth of description logics available to use and assess. But 'conventional implicature' is usually just a label. It lacks bite;

only when supported by a logical system can it be said to make predictions. For this reason, Chapter 3 is pivotal. It provides an explicit description logic and relates it to familiar concepts from current semantic theories.

The evidence for CIs is drawn from diverse areas of natural language semantics, roughly divisible into two superclasses: supplemental expressions (appositives, parentheticals) and expressives (e.g. epithets, honorifics). I provide some representative examples in (2.1).

(2.1) **supplements**

- a. 'I spent part of every summer until I was ten with my grandmother, who lived in a working-class suburb of Boston.'¹
(*supplementary relative*)
- b. 'After first agreeing to lend me a modem to test, Motorola changed its mind and said that, amazingly, it had none to spare.'²
(*speaker-oriented adverb*)

(2.2) **expressives**

- a. 'We bought a new electric clothes dryer, and I thought all there was to it was plugging it in and connecting the vent hose. Nowhere did it say that the damn thing didn't come with an electric plug!'³
(*expressive attributive adjective*)
- b. saami ha-l-ma3duub nase l-mawfad
Sami 3-the-idiot.SM forgot.3SM the-appointment
'Sami, this idiot, forgot the appointment.'
(Aoun et al. 2001: 385, (37a))
(*Lebanese Arabic epithet*)
- c. Yamada sensei-ga o-warai-ni nat-ta.
Yamada teacher-NOM HON-laugh-DAT be-PERF
'Professor Yamada laughed.'
(Shibatani 1978: 54, cited in Toribio 1990: 539)
(*Japanese subject honorific*)

Each construction provides a novel setting in which to explore the CI hypothesis and evaluate syntactic and semantic alternatives. Two general notions unify the factual domain: these meanings are *speaker-oriented entailments* and *independent of the at-issue entailments*. I use 'at-issue entailment' as a coverterm for regular asserted content ('what is said', in Grice's terms). 'At-issue entailment' sets up a useful contrast with CIs, which are

¹ Judith Thurman, 'Doing it in the road'. *New Yorker*, June 10, 2002 (p. 86).

² www.hamline.edu/apakabar/basisdata/1997/03/21/0066.html

³ <http://jjdavis.net/blog/arc20010325.html>

secondary entailments that cooperative speakers rarely use to express controversial propositions or carry the main themes of a discourse. Rather, CI expressions are used to guide the discourse in a particular direction or to help the hearer to better understand why the at-issue content is important at that stage. For instance, if I utter (2.3), my primary intention is to arrive at an information state that entails the truth of the proposition that Ed's claim is highly controversial.

- (2.3) Ed's claim, which is based on extensive research, is highly controversial.

With the CI content expressed by the supplementary relative, I provide a clue as to how the information should be received. This example is felicitous in a situation in which, for example, I want to convey to my audience that the controversy should not necessarily scare us away from Ed's proposal—after all, it is extensively researched. Or I might use the example with a group of detractors from Ed's claim. Then the supplementary relative could indicate that we cannot expect to dispel Ed's claim solely on the basis of its controversial nature.

Expressive content is used in essentially the same way. Though we will see that expressives and supplements differ in important respects, their discourse functions are closely related. For instance, (2.4) would take us to an information state in which the speaker must mow the lawn; *damn*'s content would let us know that the speaker is displeased by this obligation.

- (2.4) I have to mow the damn lawn.

Thus, we learn not only that the speaker must mow the lawn, but that we would do well not to reply with an earnest and sincere 'Oh, I envy you'; this use of *damn* suggests that the discourse should head in a direction in which lawn-mowing is viewed negatively.

The effect that *damn* has on this discourse is approximately that of the supplementary relative in *I have to mow the lawn, which I hate doing*. Since the logic presented in Chapter 3 assigns supplements and expressives the same kind of composition scheme, we have all the tools we need to state these pragmatic generalizations precisely.

Notably, no highlighted expression in the class represented by (2.1)–(2.2) makes a nontrivial at-issue contribution. For instance, removing *damn* from (2.2a) has no effect on the at-issue proposition expressed by its final sentence. I believe this is nonaccidental, and so formulate it as a generalization to be captured by the description logic for CIs:

- (2.5) No lexical item contributes both an at-issue and a CI meaning.

This is likely to prove controversial. It excludes *but* from the class of CIs, since that item has the at-issue meaning of *and* and a purported CI dimension contrasting two properties. But Bach (1999) makes a compelling case that *but* has entirely at-issue content; Blakemore (1989, 2000, 2001) reaches essentially the same conclusion, beginning from a theoretical position that is much different from Bach's. I strengthen the case in section 2.4.5 below; Chapter 7 addresses in greater depth the kind of multidimensional meaning that *but* determines.

This introductory chapter begins with a critical overview of the early history of conventional implicatures (section 2.2). I then move to a series of brief introductions to the constructions that motivate CIs in this book. Because they are little studied at present, it is necessary to establish some terminology and justify certain distinctions among expression types. These brief remarks enrich section 2.4, which moves systematically through the kinds of meaning in current theories, supporting a range of descriptive generalizations that justify the independence of CIs from all of them.

The formalization begins in Chapter 3 with the presentation of a lambda calculus with diverse enough types to isolate CIs.

2.2 A brief history

Conventional implicatures were born into neglect. Grice (1975) advanced the term and a definition, but only so that he could set such meanings aside. In 'Logic and Conversation', he is concerned to derive conversational implicatures from the cooperative principle and the maxims of conversation. In an early passage, he acknowledges that CIs fall outside the bounds of this pragmatic theory, in large part because they represent arbitrary features of individual aspects of the grammar. There is thus no hope of calculating their presence or nature based on general principles of cooperative social interaction. The passage's main purpose is to dispose of a class of meanings that he wishes not to discuss.

The passage is nonetheless potentially exciting. As I said, it draws a restrictive boundary around (Grice's (1975)) pragmatic theory, placing CIs squarely outside of it. More importantly, it provides some terminology for talking about a class of expressions that permit speakers to comment upon their assertions, to do a bit of editorializing in the midst of asking questions and imposing demands. Such expressions are bound to be significant, both for what they tell us about how natural language semantic theory should look and for what they can tell us about how speakers use their languages. Thus, it is worth pulling the passage apart, literally and conceptually, in order to

isolate its main insights. The following series of quotations comes from a single paragraph early in Grice 1975.

- (2.6) 'In some cases, the conventional meaning of the words used will determine what is implicated, besides helping to determine what is said.' (p. 44)

The phrase 'the conventional meaning of the words' is the crux of this statement, since it locates CIs in the grammar. The 'conventional' part of 'conventional implicature' stands in for 'not calculable from the conversational maxims and the cooperative principle'. This is initial (and compelling) motivation for a dividing line between the phenomena that pragmatic principles should cover (conversational implicatures) and those that they cannot (CIs, among others). One can and should refine (2.6): many expressions harbor content that does not reduce to at-issue entailments, presuppositions, intonational meanings, or conversational implicatures. The name 'conventional implicature' is a useful coverterm for this more articulated characterization, and Grice's description matches the facts discussed here. Though the descriptive and logical work of this book is easily divorced from Grice's terminology, I maintain that the connection is important. His definition is essential to seeing that the constructions discussed in this book are unified in significant ways. While I believe that the 'implicature' part of 'conventional implicature' is unfortunate, and that Grice failed to locate the proper factual basis for CIs, this book's central themes nonetheless trace back to his work.

In earlier versions of the present work (Potts 2002*b*, 2003*a*, 2003*d*), I used the terms 'lexical' and 'conventional' interchangeably. The usage is defensible, but only to the extent that a particular theoretical perspective is defensible. If we work within the confines of a system in which the modes of composition never contribute additional meaning, then the range of meanings are those that we specify lexically (as constants of a meaning language, say) and those obtainable from those lexical meanings via the composition rules. In such a setting, the distance between 'lexical' and 'conventional' is slight.

But, when one looks around in the literature these days, one finds modes of composition that do add meaning in various ways. The influential textbook Heim and Kratzer 1998 is designed to push as far as possible the hypothesis that functional application and abstraction are *the* tools of composition. For the most part, their departures from this tenet are for the sake of exposition (e.g. the rule of predicate modification). But the rule of intensional functional application (p. 308) lifts the argument meaning from an extensional to an intensional type, thereby enriching its content greatly.

One also finds novel composition rules at the heart of Kratzer 1996 and Chung and Ladusaw 2003. And if we regard type-shifting principles as modes of composition rather than silent lexical items, then a great many meaning-creating operations are conventional but not lexical: it is increasingly common to find type-shifting principles that not only facilitate composition, but also alter denotations in intuitively detectable ways (Partee 1987; Beck and Rullmann 1999). There is even a sense in which the present work, in relying on a handful of new composition principles for the sake of CI meanings, seeks to increase the distance between 'lexical' and 'conventional'.

Grice's passage continues with an example:

- (2.7) 'If I say (smugly), *He is an Englishman; he is, therefore, brave*, I have certainly committed myself, by virtue of the meaning of my words, to its being the case that his being brave is a consequence of (follows from) his being an Englishman.' (p. 44)

This passage again sets up a contrast with conversational implicatures. CIs are entailments, whereas conversational implicatures are not—they are context dependent and always negotiable. If I say, 'Eddie has three bicycles', I conversationally implicate that, for any n greater than 3, it is false that Eddie has n bicycles. But this is not a commitment; I could felicitously continue, 'Hey, let's be honest: Eddie has ten bicycles. He's a bike junky'. CIs permit no such cancellation; following any of the sentences in (2.1)–(2.2) with a denial of the content of the highlighted expression results in an incoherent discourse. In this sense, CIs pattern with at-issue entailments.

But Grice takes steps to distinguish CIs from at-issue entailments as well:

- (2.8) 'But while I have said that he is an Englishman and said that he is brave, I do not want to say that I have *said* (in the favored sense) that it follows from his being an Englishman that he is brave, though I have certainly indicated, and so implicated, that this is so. I do not want to say that my utterance of this sentence would be, *strictly speaking*, false should the consequence in question fail to hold.' (pp. 44–45)

In no uncertain terms, Grice defines CIs as disjoint from at-issue entailments. I take seriously the intuition expressed in (2.8), which is a suitable articulation of the uneasiness one has about the semantic value of an utterance containing a false or inappropriate conventional implicature. Once it is accepted (following Jackendoff (1972), Bellert (1977), and Bach (1999)) that some sentences can express multiple, nonconjoined propositions, Grice's intuition can be made precise and formally implemented.

The passage also relativizes CI content to the speaker of the utterance in question (this is noted also by Chierchia and McConnell-Ginet (1990: §6.4.3), though they read the passage somewhat differently). This too is a significant aspect of the argument for CIs. All genuine examples of CIs involve a contribution that the speaker makes to an utterance. They are speaker-oriented comments on a semantic core (at-issue entailments); we so effortlessly separate the two kinds of meaning that these comments can, and often do, appear in accurate indirect speech reports, as in examples (2.1*b*), (2.2*a*), and many to come.

For better or worse, Grice (1975) drops CIs at this point:

- (2.9) ‘So *some* implicatures are conventional, unlike the one with which I introduced this discussion of implicature.
 ‘I wish to represent a certain subclass of nonconventional implicatures, which I shall call *conversational* implicatures [...]’ (p. 45)

Grice moves to a discussion of conversational implicatures, one that continues to form the backbone of work in pragmatics. He planted the seed for CIs and then moved on. Since then, numerous proposals for CIs have been offered. But few if any have shown much staying power, though for reasons that do not impact on the importance of this class of meanings, but rather only the appropriateness of the evidence brought to bear on the subject.

As I said, I aim to do without textbook examples like *therefore*. So, in (2.10), I extract the abstract properties of CIs from the above series of quotations.

- (2.10) *a.* CIs are part of the conventional meaning of words.
b. CIs are commitments, and thus give rise to entailments.
c. These commitments are made by *the speaker of the utterance* ‘by virtue of the meaning of’ the words he chooses.
d. CIs are logically and compositionally independent of what is ‘*said* (in the favored sense)’, i.e. independent of the at-issue entailments.

I return to this definition often; it is the job of Chapter 3 to show how these clauses translate into a multidimensional description logic, with most of the work done by the presence of independent dimensions of meaning. The remainder of the book can be regarded as an attempt to uncover and explore the entailments of (2.10).

This work takes us beyond Grice’s discussion. But the distance is not great, and I believe that it is completely bridged by facts about the design of present-day semantic theories. Section 2.5 explores the major indirect entailments of (2.10). Chapter 3 is rooted in the ideas of Karttunen and Peters (1979). It is

worth stressing, then, that the definition of ‘conventional implicature’ adopted by them differs radically from (2.10). It has often been noted that Karttunen and Peters actually give a logic for presuppositions, not conventional implicatures as Grice understood them. That they perform this terminological sleight of hand is evident from their descriptive characterization of ‘conventional implicature’:

- (2.11) ‘As a general rule, in cooperative conversation a sentence ought to be uttered only if it does not conventionally implicate anything that is subject to controversy at that point in the conversation. Since the least controversial propositions of all are those in the common ground, which all participants already accept, ideally every conventional implicature ought to belong to the common set of presuppositions [. . .].’ (p. 14)

This is an injunction that CIs be backgrounded, i.e. entailed by the shared knowledge of the discourse participants at the time of utterance. But nothing in the above series of quotations from Grice 1975, on even the most creative of readings, suggests that CIs should be backgrounded. As van der Sandt (1988) writes, ‘Karttunen and Peters do not make it clear why conventional implicatures belong to the common ground. This view certainly cannot be found in Grice and as far as I know has not been argued for elsewhere in the literature’ (p. 74). The backgrounding requirement is one of the central descriptive properties of presuppositions; it is so wrapped up with this notion that Karttunen and Peters (1979) even use ‘presumptions’, an alternative to ‘presuppositions’, in the above passage.

Their confounding of ‘conventional implicature’ and ‘presupposition’ happens at the theoretical level as well. Karttunen and Peters’ (1979) grammar fragment employs a ‘heritage function’ to regulate how CIs interact with higher operators. It becomes clear upon inspection that this is a new name for a presupposition projection function; there are only minor differences between this heritage function and the presupposition heritage function of Karttunen 1973 (Kadmon 2001: 126–7). I discuss this issue again in Chapter 3, section 3.10, under the rubric of the ‘binding problem’. Suffice it to say here that I require no heritage function. Including one in the theory would obscure the important fact that CIs always project to the highest possible point.

Karttunen and Peters intended their redefinition of ‘conventional implicature’ to clarify the theory of non-at-issue content. But it had the opposite effect: we lost sight of Grice’s definition. For many authors, ‘conventional implicature’ and ‘presupposition’ are interchangeable, despite the fact that (2.10) barely resembles the usual definition of ‘presupposition’. In turn,

Karttunen and Peters 1979 is generally regarded as a theory of presuppositions. Cooper (1983), Heim (1983), Beaver (1997, 2001), Krahmer (1998), and Dekker (2002) all adopt this interpretation of the work. The following passage from Gamut 1991, an introductory textbook in logic and linguistics, is typical of the way this issue is negotiated.

- (2.12) ‘Karttunen and Peters [...] proposed translating natural language sentences ϕ as pairs of formulas $\langle \phi^t, \phi^p \rangle$, in which ϕ^t represents ϕ ’s truth conditions and ϕ^p represents its presuppositions (or what they call *conventional implicatures*).’ (p. 188)

Later, the authors are more deferential to Karttunen and Peters’s terminology, but this quotation gets right at the heart of the quiet shift that Karttunen and Peters performed. I emphasize that I do not follow them in the redefinition. It is more fruitful to explore (2.10), which identifies a new class of meanings. The pressing question is whether these meanings are attested in natural language.

2.3 Factual support for CIs

This section introduces the constructions that play a leading role in chapters to come. I review some basics of their syntax and describe their interpretive properties in a general way, in preparation for detailed study later. This is also a chance to show briefly how each contributes a vital element to the overall picture. Roughly speaking, the constructions divide into two groups: supplemental (appositive) expressions, including supplemental clauses and supplemental adverbs, and expressives. From a syntactic perspective, this is a mixed crew. But the constructions are united in contributing discourse-new, speaker-oriented entailments: CIs.

2.3.1 Supplemental expressions

Supplements (appositives, parentheticals) are the finest advertisement for the CI hypothesis known to me. Though Grice seems not to have had them in mind when defining CIs, the clauses of (2.10) pick out the highlighted constructions in (2.13) unambiguously.

- (2.13) a. Ames was, as the press reported, a successful spy.
 (*As-parenthetical*)
 b. Ames, who stole from the FBI, is now behind bars.
 (*supplementary relative*)
 c. Ames, the former spy, is now behind bars.
 (*nominal appositive*)

Many of the important properties of these expressions turn up also in *not even* tags (*Ed didn't show up, not even for the end*), niched conjunctions (*Luke has—and you'll never believe this—eaten fifty eggs*), and a host of other clausal appositives. I largely restrict my attention to the constructions in (2.13), favoring depth of coverage over breadth. It is a mistake to treat all supplements, even all clausal ones, as though they were the same construction. Chapter 4 identifies numerous nontrivial ways in which the constructions in (2.13) differ from one another.

In addition to the clausal supplements in (2.13), I study a host of parenthetical adverbs, including the *speaker-oriented* and *topic-oriented* adverbs exemplified in (2.14).

- (2.14) a. {Cleverly/Wisely}, Beck started his descent.
 (topic-oriented adverbs)
 b. {Unfortunately/Luckily}, Beck survived the descent.
 (speaker-oriented adverbs)

What I call 'topic adverbials' are the 'subject-oriented' adverbs of Jackendoff (1972) and Bellert (1977). I eschew the old term because it wrongly suggests that these items invariably predicate something of the grammatical subject. In truth, the entity-level argument is often merely a salient discourse topic, as in (2.15), in which the agent characterized as thoughtful seems to be the keyboard's designers.

- (2.15) 'Physically, the keyboard is smaller than I expected, and extremely well built—there's no creaking or flexing. The keys look as if they will last well—including their paint. Thoughtfully, there is a clip-on cover for the connector while not in use.'
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Supplements have much to offer the theory of CIs. Unlike some of the other expressions discussed in this dissertation, it is straightforward to determine their propositional contribution, which is given in the expected way by the internal structure of the supplement and its main clause adjunction point. For example, in virtue of being adjacent to (i.e. the sister of) *Ames* in (2.13*b*), the supplementary relative *who stole from the FBI* contributes the proposition that Ames stole from the FBI. Once entered into the context, this proposition behaves like any other: it can be pronominalized with *do so* and similar elements; it can serve to license additive modifiers like *also*; and so forth.

Facts such as these provide straightforward evidence for the claim of Chapter 3 that at-issue and CI expressions can have the same models; *spy* denotes the characteristic function of the set of spies whether it is inside a nominal appositive (as in (2.13*c*)) or in a main clause predication. The

⁴ www.pdatweaks.com/reviews.php?itemid=238.

distinction between at-issue and CI content is often entirely about semantic composition. It is properly located in the meaning language, as a syntactic fact about the logic of the natural language semantics. Thus, at the heart of this book is a nontrivial appeal to a semantic translation language. While the claim sounds controversial (controversially anti-Montagovian), I show in Chapter 3 that no theory of natural language syntax and semantics has managed to do without a meaning language of some kind.

There is an even more syntactic option of course: we could, following work by McCawley (1982, 1987, 1989, 1998) and Huddleston and Pullum (2002) (and many others), assign to supplements, and perhaps all CI contributors, a distinguished syntax. I explore this hypothesis in Chapter 6, using it to develop a version of the *wide-scope coordination hypothesis* for supplements that does not run afoul of the known arguments against it. But this purely syntactic proposal leads to unacceptable redundancies in the syntactic description and yields no new benefits or insights in the semantics. It was arguably doomed from the outset, since it attempts to build a fundamentally semantic concept into the syntactic structures. The syntactic approach does, though, bring to the fore a general feature of the constructions addressed here: they seem always to lead us to multidimensional concepts. As I discuss in Chapter 5, semantic non-CI analyses must also propose multidimensional sentence meanings. It is vital that one keep this shared feature in mind when assessing alternative proposals.

In my study of adverbs in Chapter 4, I distinguish the adverbials exemplified in (2.14) from the *utterance modifiers* in (2.16), discussed briefly by Jackendoff (1972) and more systematically by Bellert (1977) and Bach (1999: §5).

- (2.16) a. Confidentially (speaking), Sal is about to get canned.
 b. (Speaking) Just between friends, Sal is about to get canned.
 c. Frankly (speaking), Ed fled.
 (*utterance modifiers*)

‘Utterance modifier’ sounds like a semantic–pragmatic designation, but it is frequently cashed out in syntactic terms, as a functional projection (Cinque 1999). I make good on the intuition reflected in the labels ‘utterance modifier’, ‘pragmatic adverb’ (Bellert 1977), and ‘second-order speech-act modifier’ (Bach 1999), by analyzing these expressions in terms of what I call *discourse structures* (defined in Chapter 3, section 3.8). These are *layered* in the sense that one can view them as involving a larger (upper) structure that contains a set of smaller (lower) structures. The upper layer provides a semantics for discourses and the objects they contain. The lower layer lets us talk about individual sentences and their meanings. In this setting, we can give a precise semantics for the paraphrase of (2.16c) in (2.17).

(2.17) The speaker frankly utters the sentence *Ed fled*.

The semantics for utterance modifiers is located mainly in the upper layer of the logic and model theory. This makes intuitive sense when one sees that the upper layer is a formerly metagrammatical level now brought into the grammar. We thus have a direct translation of the notion, found in traditional grammars and present-day style books (Williams 1990), that utterance modifiers belong to a kind of metalanguage that we use for talking about discourses (speeches, texts, conversations).

The same basic treatment extends to uses of utterance modifiers with interrogative complements, where the meaning that the adverb contributes is somewhat different than it is in the presence of a declarative (Bach and Harnish 1979).

- (2.18) a. Confidentially, is Al having an affair?
 ≈ I promise to keep the answer to *Is Al having an affair?* a secret.
 b. Honestly, has Ed fled?
 ≈ Provide me with an honest answer to the question *Has Ed fled?*

The adverbs function here to request something of the hearer. The meaning change is evidently engendered by the presence of an interrogative complement rather than a declarative one. The discourse structures I define are sensitive to such distinctions; a concise description of these readings is readily available. Many have noticed that supplements do not contribute their meanings in the usual fashion, and a variety of different, disparate methods for modeling the contribution has been identified (Keenan 1971; Boër and Lycan 1976; Emonds 1976; the above-mentioned work by McCawley). The CI hypothesis, grounded in the multidimensional approach, captures what is right about all of these past proposals, but without their unpalatable consequences. The analysis I offer permits us to interpret surface structures in which supplements are syntactically embedded like regular modifiers. The well-known fact that nothing scopes over their meanings is handled in the meaning language.

2.3.2 *Expressives*

The characterization of CIs as comments upon a semantic core is nowhere more fitting than with expressives. Such expressions are vital to naturally occurring discourses: searching *damn* or *friggin'* on the Internet turns up tens of thousands of relevant hits; honorific marking runs through essentially all discourse in languages like Japanese and Thai; and discourse particles are a notable and defining feature of German, Danish, and many other languages.

This ubiquity should guarantee expressives a place in semantic and pragmatic theories. However, to date, theoretical semanticists have contributed only a handful of works on the topic. As a result (and quite happily) we still get to confront foundational questions in this domain.

Though of limited size, the literature on expressives converges on a few essential concepts. The semantic multidimensionality of sentences containing expressives is brought to the fore and given a preliminary technical interpretation by Kratzer (1999). Expressives' speaker orientation is noted by Cruse (1986: 271 ff.) and Löbner (2002: §2.3). The expressive attributive adjective (EA) in (2.19) corroborates their observations.

- (2.19) 'We bought a new electric clothes dryer [...] Nowhere did it say that the damn thing didn't come with an electric plug!'⁵

The expressive is inside an indirect quotation, and yet its content is independent of whatever meaning is the argument to the higher predicate, and in turn to any other argument. The speaker of (2.19) makes manifest his heightened emotions, and yet we intuit that neither the frustration nor the speaker's emotive contribution is included in the instructions for the clothes dryer (the meaning of *it*). These observations together exemplify clauses (2.10c) and (2.10d) (CIs' speaker orientation and independence from the at-issue content, respectively). In virtue of tracing back to *damn*, the expressive content satisfies the lexicality property (2.10a). Finally, the commitment property (2.10b) is clearly on display: some expressives are so powerful that speakers cannot even use them in jest without committing themselves to their content.

As reviewed in section 2.4, the invariance of this content under the presupposition plug *say*, and the related but distinct fact that it must be teased apart from the proposition expressed by the main clause, both indicate that this content is neither a presupposition nor an at-issue entailment. The fact that we can locate the relevant meaning in a specific lexical item tells against a treatment in terms of conversational implicatures. The content's invariance under negation, tense, modalization, questioning, and conditionalization, as well as its general noncancellability, speak decisively against this classification. In sum, EAs are prime candidates for a CI analysis.

EAs are perhaps best thought of as a special class of attributive adjectives that can never contribute at-issue content. Many adjectives seem to alternate between at-issue and CI readings. Adjectives with objective truth conditions (*red*, *Swedish*) are likely to hide this dimension, but it is evident with, for example, *lovely* in (2.20).

⁵ <http://jjdavis.net/blog/arc20010325.html>

- (2.20) Edna is at her friend Chuck's house. Chuck tells her that he thinks all his red vases are ugly. He approves of only the blue ones. He tells Edna that she can take one of his red vases. Edna thinks the red vases are lovely, selects one, and returns home to tell her housemate, 'Chuck said I could have one of his lovely vases!'

Edna characterizes Chuck's vases as lovely. The adjective is nonrestrictive, and it is not part of what Chuck said to Edna. If it were, then *his lovely vases* would denote the set of Chuck's *blue* vases. But Edna was not licensed to take any of them. We easily recognize that Edna is contributing the adjective; the utterance expresses two propositions: (i) that Chuck said Edna could have one of his vases; and (ii) Edna thinks Chuck's vases are lovely. The second of these is CI content. The special value of these cases is that they display a minimal deviation from the expected isomorphism between the syntax and the semantics: the meaning of *lovely* does not take the meaning of vases as its argument. Rather, the composition scheme involves **lovely** applying to the entity-level term **vases-of(chuck)**, which is not the meaning of a surface syntactic constituent in (2.20).

This mismatch between the syntactic structure and the semantic composition is a controlled form of the variability that EAs display. Though nominal-internal, EAs can take common nouns, full nominals, and full clauses as their arguments. The examples in (2.21) can be interpreted in a way that brings out each of these readings.

- (2.21) a. I have seen most bloody Monty Python sketches!
 (*the speaker disapproves of Monty Python sketches in general*)
 b. I hate your damn dog! (It's not nearly so friendly as my dog.)
 (*the speaker disapproves of the addressee's dog*)
 c. My friggin' bike tire is flat again!
 (*the speaker disapproves of the fact that his bike tire is flat again*)

Syntactic movement of English attributive adjectives is contraindicated by all known syntactic tests. Hence, we must call upon the semantics to ensure that the meaning of *damn* can apply to noun-phrase and clausal meanings (at least) despite its nominal-internal position in the syntax. As a result, we obtain additional arguments that semantic representations play a nontrivial role. As noted above, the at-issue/CI divide is located in the meaning language. A direct mapping from natural-language expressions to model-theoretic objects erases the distinction and hence does not suffice. The lambda terms themselves are an essential stopping-off point. The interpretive properties of these attributive adjectives provide additional evidence that we interpret something more articulated than mere surface strings.

If one thinks in semantic terms, one expects to find common nouns with expressive (CI) meanings, given the semantic similarities between adjectives and common nouns. The expectation is met; theoretical linguists call such nominals *epithets*. Informally speaking, epithets are pronouns with some added punch, in the form of emotive descriptive content. They are often called upon in the syntactic literature as evidence for or against particular views of the syntactic binding theory. But their semantics is relatively unexplored. A notable exception is Asudeh (2004), where epithets are discussed from the perspective of Glue semantics. Chapter 3, section 3.12, is a discussion of the points of contact between Asudeh's theoretical framework and those of the present book. Like EAs, epithets can appear inside indirect quotations without forming part of the semantic content of the reported utterance. I illustrate with the instance of donkey anaphora in (2.22), which I owe to Ash Asudeh (p.c., June 2002). (Here and throughout, I use numerical subscripts to indicate semantic binding relationships.)

- (2.22) Every Democrat advocating [a proposal for reform]₁ says [the stupid thing]₁ is worthwhile.

We can use epithets to illustrate each of the clauses in the definition of CIs in (2.10). It is clear that we should locate the expressive content on the epithet; this satisfies condition (2.10a): epithet content is conventional. The sentence involves the speaker's characterization of Democratic proposals for reform as stupid. The truth of this sentence does not require that every Democrat characterize his proposal as both stupid and worthwhile. Nor need every Democrat recognize that the speaker views these proposals as stupid. Thus, the epithet's contribution is independent of the at-issue proposition (expressible by substituting a pronoun for *the stupid thing* in (2.22)). So the grammar must separate these meanings—they are intuitively independent (clause (2.10a)).

It is imperative that this separation happen only at the level of meanings; epithets are syntactically integrated (often as argument nominals). The CI approach developed in Chapter 5 achieves this result. Its only published competitor to date is Kaplan's (1989: 555, n. 71) brief suggestion that quantifying-in is an appropriate mechanism. Chapter 5, section 5.5 below shows that quantifying-in alone does not yield an accurate description even when supplemented with numerous extra premises.

So epithets are another area of support for CIs. But they offer much more. More than any other construction, they test the limits of the description logic and its treatment of quantification. As noted, *the stupid thing* in (2.22) is a donkey pronoun; on Heim's (1982) classic analysis of donkey sentences, *every*

Democrat advocating a proposal for reform quantifies over Democrat–proposal pairs. At first, this seems naturally represented as in (2.23).

- (2.23) Every Democrat advocating [a proposal for reform]₁ says [the stupid thing]₁ is worthwhile.

at-issue:

$$\forall \langle x, y \rangle \left(\left(\begin{array}{l} \text{democrat } (x) \wedge \\ \text{ref-proposal } (y) \wedge \\ \text{advocate } (y)(x) \end{array} \right) \rightarrow \text{say}(\text{worthwhile}(y))(x) \right)$$

CI: **stupid**(*y*)

But in the description logic of Chapter 3, as in Karttunen and Peters 1979, the occurrence of *y* in the CI dimension is not bound by the diadic universal in the at-issue meaning. One way to phrase this is that the logic inherits the ‘binding problem’ that Karttunen and Peters (1979: 53) recognize in their two-dimensional logic. But calling it a problem is misleading. It is a feature of an internally consistent logic. It could only become a (linguistic) problem if it failed to describe some natural-language facts that it was intended to describe. The reverse seems to be the case; section 3.10 below reviews evidence from supplemental expressions that this limitation can be a virtue. But in extending the analysis to epithets, do we lose those results?

The answer is that we clearly do not. On the contrary, inspection of a broader range of cases—in particular those that do not involve universal quantifiers—reveals that, in (2.22), the relationship between the quantifier *every* and the expressive content of *stupid thing* is not one of binding. Rather, what we seek for the expressive meaning in quantified cases is a generic quantification over the restriction on the at-issue quantifier. For (2.22), our target CI meaning is roughly ‘in general, Democratic proposals for reform are stupid’. If we adopted (2.23) as representative of the translation procedure and in turn adjusted the logic so that $\forall \langle x, y \rangle$ directly linked with the CI dimension, then we would end up with an analysis that badly mishandled the data.

EAs and epithets are similar semantically, so it seems wise to show that the basic techniques developed for them extend to other, more diverse items that seem classifiable as expressives. Chapter 5 therefore closes with CI-based analyses of honorifics in Japanese and the discourse subjunctive in German, henceforth *Konjunktiv I*.

The Japanese honorific system is extremely intricate. I do not attempt complete descriptive coverage. My strategy is to concentrate on two subtypes of honorific marking: verbal honorific marking indicating the speaker’s

relation to the grammatical subject, as in (2.24), and performative honorific marking ('polite speech'), as in (2.25).

- (2.24) Yamada sensei-ga o-warai-ni nat-ta.
 Yamada teacher-NOM HON-laugh-DAT be-PERF
 'Professor Yamada laughed.'
 (Shibatani 1978: 54, cited in Toribio 1990: 539)
 (*subject honorific*)

- (2.25) Ame ga furi-mashi-ta.
 rain SUBJ fall-HON-PAST
 'It rained.'
 (Harada 1976: 502)
 (*performative honorific*)

For subject honorification, we need to establish a connection between a morpheme on a matrix verb and that verb's subject argument. For performative honorification, we face the sort of puzzling unembeddability that is a hallmark of utterance-modifying parenthetical adverbs like *frankly* and *confidentially*, discussed briefly above and in detail in Chapter 4.

The German Konjunktiv I is useful in heading off a presuppositional alternative. Briefly, Konjunktiv I is used on the inflected verb in a clause *C* to indicate that the speaker is not committed to the truth of the proposition expressed by *C*. The examples in (2.26), in which KONJ indicates Konjunktiv I morphology, help clarify this meaning contribution.

- (2.26) a. Sheila behauptet, dass sie krank sei.
 Sheila maintains that she sick be. KONJ
 'Sheila maintains that she is sick.'
- b. #Ich behaupte, dass Sheila krank sei.
 I maintain that Sheila sick be. KONJ
 'I maintained that Sheila is sick.'

The second example is marked because it imposes contradictory demands. The at-issue content is that the speaker maintains that Sheila is sick. The CI proposition induced by the Konjunktiv I morphology is that the speaker is not committed to the proposition that Sheila is sick. Were the Konjunktiv I morpheme a presupposition trigger, one would expect cancellation at the hands of the more rigid at-issue assertion. But this is not what we find, paving the way for a treatment using the CI logic of Chapter 3, which treats at-issue and CI propositions identically with regard to the strength of speaker commitment. In addition to this presuppositional alternative for Konjunktiv I, section 5.7 explores in detail a scope-based alternative. Broadly speaking, this

account is an effort to assimilate expressive content to the at-issue dimension. The basic mechanism for doing this is a stipulation that expressives have an intensional argument that must be filled by the actual world index—the argument that ultimately takes the proposition expressed by the sentence to a truth value. I show that such an approach can describe the basic facts—basically a given, since it is an extremely powerful and general idea. However, its freedom is its downfall. In assimilating EAs to modal and temporal modifiers like *former* and *potential*, it wrongly produces a wide range of ungrammatical readings, ones that the CI logic blocks without extra statements. What is more, the account must adopt a multidimensional perspective on sentence denotations, and it must include some method for marking certain items as expressives. These two moves are defining features of the CI logic $\mathcal{L}_{CI}$ of Chapter 3. Thus, it seems that this might not be an alternative in a substantive sense even if it were brought to a point where it properly described the facts in a rigorous way. Thus, we arrive at a theme of this book: the question is not whether a multidimensional theory is motivated—it seems inevitable—but rather how best to formalize the notion. This is a theoretical insight that I expect to survive even drastic revisions to the description logic I offer.

2.4 Kinds of meaning

The backdrop for this work is a rich ontology of classes of meanings, represented in the diagram in Figure 2.1 (p. 23), which is decorated with concepts that are the focus of the next few subsections. The most inclusive class is that of *meanings* or *implications*. The meanings divide into two subclasses, *entailments* (‘commitments’) and *context-dependent* meanings. The main factor in the split is the notion of *deniability*. The question, ‘Is *p* deniable in the context *C*?’ should be read as a shorthand for the question, ‘Is it possible that *p* is a potential, but not an actual, contribution to *C*?’ The distinction is meaningful because, for any utterance *U*, there is an enormous range of possible contexts with which *U* is compatible. In the case of conversational implicatures, the Gricean maxims guide the hearer to the most informative of these contexts, but he must be willing to regroup if it turns out that the speaker intended some other (range of) contexts compatible with the content of *U*. In such cases, it might seem as though the speaker has ‘denied’ some meaning, but only in virtue of the fact that he has made an unexpected conversational move.

Where these deniable inferences form part of the conversational background of an utterance, we have conversationally-triggered presuppositions

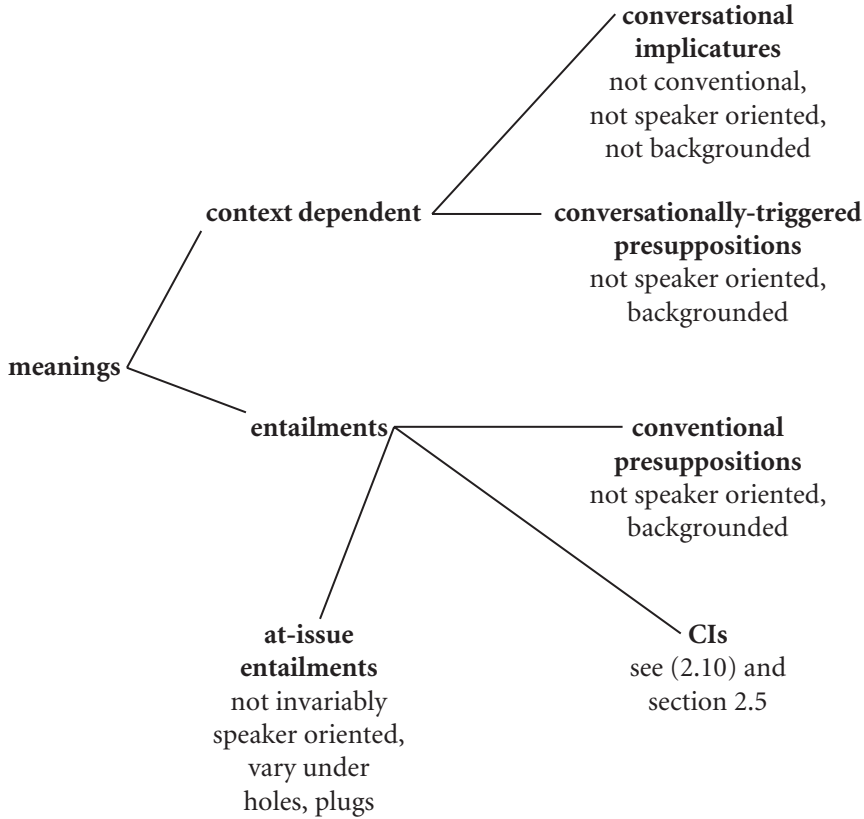


FIGURE 2.1. A Meaning Graph

(Chierchia and McConnell-Ginet 1990; Kadmon 2001). This notion is closely allied with the ‘pragmatic presuppositions’ of Stalnaker (1970), but it allows that some might be lexically triggered. Here again, the content in question is deniable in the above sense. A typical example is the factivity of *before*, which is called a conversational implicature by Karttunen and Peters (1979) and a presupposition by Levinson (1995). Kadmon (2001: 210) offers a compromise, as indicated by (2.27).

- (2.27) Sue cried before she finished her thesis.
 conversationally-triggered presupposition: Sue finished her thesis.

It is easy enough to imagine scenarios in which (2.27) is true and felicitous but Sue’s thesis never gets finished. Perhaps her constant crying prevents her from getting the job done. If that scenario isn’t convincing, then one can substitute *died* for *cried*, as Kadmon suggests. Such factive presuppositions

'require further non-linguistic premises' in order to be present (Kadmon 2001: 205). In this sense, they contrast with conventional presuppositions, which are more or less fully determined by the grammar, and hence persist in nearly all contexts in which their triggers are used.

At-issue entailments usually go by other names. A common term in philosophically oriented work on the subject is 'what is said'. But this is confusing in a purely linguistic context, in which 'what is said' is likely to be equated with the complement to a verb like *say*, and might even be used to refer to the words in an utterance (rather than its semantic content), or even the pronunciation of those words. In this work, I use 'what is said' and similar phrases only in describing utterances.

In linguistics, the most common term is 'assertion' (Stalnaker 1979). But this too is not quite right; few would deny that, in (2.28), the first sentence of a published book review, the writer intends to assert that her grandmother lived in a working-class suburb of Boston. But it is wrong to treat this on par with the proposition that she spent part of every summer until she was ten with her grandmother.

- (2.28) 'I spent part of every summer until I was ten with my grandmother, who lived in a working-class suburb of Boston.'⁶

The terminology employed here helps us to recognize that we have two assertions in (2.28). But the supplementary relative *who lived in a working-class suburb of Boston* plays a secondary role relative to the information conveyed by the main clause. The issue is not where the grandmother lived, but rather the fact that the speaker summered with her as a child. The supplementary relative's content just provides us with some important (nonlogical) consequences of this proposition—in this case, probably sociological ones inferable from the environment she specifies.

Karttunen and Peters (1979) use the term 'extensional' for my 'at-issue entailments'. But 'extensional' is better reserved for the mode of semantics in which the interpreted structure is a first-order model, with no intensional types and propositional expressions interpreted by a set of truth values. 'Extensional' should remain a counterpoint to 'intensional', not 'implicative'.

To be sure, even 'at-issue entailment' has drawbacks. For instance, people sometimes use main clauses to say things that are not at issue in the sense that they are unresolved in the discourse. Horn (1991) seeks to make sense of these cases, and Barker and Taranto (2003) look at the specific case of the adjective *clear* (see also Taranto 2003). If proposals of this sort were

⁶ Judith Thurman, 'Doing it in the road'. *New Yorker*, June 10, 2002 (p. 86).

eventually to reveal the inadequacy of using 'at-issue' in the way that I do, this would not affect the substance of the present proposal. The logic of Chapter 3 does the important work, and it is of course free from this terminological morass.

The graph in Figure 2.1 is partial, at least in a taxonomic sense; one can make further distinctions. For instance, conversational implicatures have particularized and generalized variants. Particularized conversational implicatures are highly context dependent, whereas generalized implicatures are essentially part of speakers' knowledge of how to use language, rather than social normatives more generally. Generalized implicatures include scalar implicature and also the force of, for example, 'Do you have the time?' (which is roughly 'Please tell me the time if you can'). These subclasses are not of much concern here, but it is worth noting that Levinson (2000) proposes to distinguish generalized and particularized conversational implicatures from one another, in service of the more general goal of developing a robust notion of *default interpretation*. I do not explore this hypothesis, mainly because it seems clear that this is an issue that impacts the nature of the 'context-dependent' node in (2.1) and the paths from it.

In the remainder of this section, I review the factual considerations that place CIs on a separate branch. I do not devote much attention to justifying, for example, the distinction between presuppositions and conversational implicatures. Establishing the distinction is a delicate matter, especially since presuppositions seem to live along both paths from the most inclusive node in the graph. But the literature on the usefulness of isolating at least conventional presuppositions from the pragmatics is vast and rich; as Chierchia (2004: 8) says, 'it was thought early on that conventional presuppositions constituted a purely pragmatic phenomenon, not amenable to a grammar driven compositional treatment [. . .]. But eventually it turned out that such a treatment is, in fact, the one that gets us the better understanding of the phenomenon.' A recent and impressively comprehensive review of the literature is Beaver 1997. Beaver (2001) and Krahmer (1998) provide flexible, easy-to-use logical theories for presuppositions. Kadmon (2001: §11) draws many subtle distinctions among different kinds of presupposition and suggests ways that they might be unified pragmatically (p. 212).

The task of isolating CIs would be easier if presuppositions and conversational implicatures were of a piece, or if presuppositions were distributed throughout the other classes, because there would then be fewer competing classifications. I strongly believe that such a conflation is false, and proceed on the assumption that we have at least the distinctions in Figure 2.1, but

skeptics of presuppositions might keep in mind that assuming a multitude of non-CI classes only makes the present job more challenging.

Intonational meanings are not easily included in the structure in Figure 2.1. They function as triggers of non-at-issue meaning, but impose no further restrictions on what kind of meaning this is. I briefly address the distinctness of intonational meanings and CIs below. Showing that these are different is straightforward. But the theory of intonational meanings has much to offer the present study. It is helpful as a kind of campaign point: alternative semantics for focus is a well-accepted multidimensional view of meaning, a kind of precedent for the current study. More concretely, intonational meanings play a central role in explaining the special properties of supplements (Chapter 4).

2.4.1 *CIs versus conversational implicatures*

Despite the occurrence of ‘implicature’ in both names, the easiest distinction to make is between CIs and conversational implicatures. As noted above, Grice (1975) seems to have defined CIs specifically to separate them from conversational implicatures, his domain of inquiry. The definition was a way to forestall objections that the maxims leave the presence of some non-at-issue content mysterious.

The differences (listed in Figure 2.1) have a common source: conversational implicatures exist in virtue of the maxims and the cooperative principle, whereas CIs are idiosyncratic properties of the grammar. Put another way, conversational implicatures are not inherently linguistic, whereas CIs are inherently linguistic. It is worth amplifying this point. On Grice’s (1975) conception, the maxims are independent of language. He writes, ‘one of my avowed aims is to see talking as a special case or variety of purposive, indeed rational, behavior’ (p. 47), and he in turn cites some nonlinguistic examples to illustrate how the maxims work. These comments have a technical translation: the maxims are about relations among *propositions*—model-theoretic entities that languages might pick out, but that are not grounded in language. A classic instance of a generalized conversational implicature draws out the importance of this point:

- (2.29) *a.* ‘Can you pass me the salt?’
b. conversational implicature: pass the salt to me if you can

This utterance is generally interpreted as conversationally implicating that the addressee pass the salt to the speaker, so that a ‘yes’ answer unaccompanied by an act of passing the salt is infelicitous even if true. But the presence of this conversational implicature traces back to no specific feature of the

utterance; all of (2.30*a–d*) can convey (2.29*b*), and other variants are easily found. This is just the well-known ‘nondetachability’ of conversational implicatures: low-level tinkering with the form of the utterance is unlikely to remove such implicatures.

- (2.30) *a.* ‘Are you able to reach the salt?’
b. ‘I could sure use the salt.’
c. ‘My dish could use a salting.’
d. ‘Could you send the salt my way?’

The conversational implicature generalizes along another line: in a broad range of situations, ‘Can you pass me *X*?’ carries the implicature for any choice of *X* (*wrench, book, jodhpurs*). The unifying feature of all these cases is not a linguistic matter. Rather, we arrive at it by way of the maxims; I provide an informal calculation in (2.31).

- (2.31) *a.* Cooperative agents do not request information they already possess. Such requests do not increase the collective knowledge of the discourse participants and so always fail to qualify as informative, relevant, and sufficiently brief.
b. If the addressee is not near the salt, then the speaker already knows that the answer to the literal readings of (2.29)–(2.30) is ‘no’.
c. If the addressee is near the salt, then the speaker already knows that the answer to literal readings of (2.29)–(2.30) is ‘yes’.
d. Hence, (2.29)–(2.30) must not be questions at all.
e. Some reflection on our current context suggests to the speaker that (2.29)–(2.30) must be indirect ways of asking for the salt.

The first premise is a general use of the maxims of quantity, relevance, and brevity. It is not a falsifiable principle, but rather has the status of a contractual obligation (an analogy Grice (1975: 48–9) toys with). The next two premises are facts about the particular discourse. They are essential to the conclusion in (2.31*d*); if we remove either of them, the conversational implicature disappears. For instance, it might be felicitous to ask ‘Can you pass the salt?’ when there is no realistic possibility that the addressee can respond with a passing action. This might occur if the addressee has recently broken both arms or is living in a society in which people of his kind are rarely permitted to touch others’ foodstuff. In such contexts, neither (2.31*b*) nor (2.31*c*) is a reasonable inference. The linguistic stuff (the sentence uttered) remains the same in the two situations just described. But the nonlinguistic stuff (the collective knowledge) changes, and with it the conversational implicatures change. As a result, conclusion (2.31*d*) is not made, and the

descriptive effect is that the usual conversational implicature is cancelled, where ‘cancelled’ is a shorthand way of saying that the discourse failed to support it in the first place.

In contrast, CIs cannot be teased apart from the lexical items that produce them, nor can we understand where they arise by appeal to the nature of the context and the maxims. The result is that they are not contextually variable. I do not here adduce evidence for this claim for each of the expressions under discussion, but it is worth illustrating with an example involving expressive modification, where cancellability might seem to be a real possibility. Suppose that, as in the situation described in (2.20), Edna has been told that she can take any of Chuck’s red vases, which Chuck considers ugly. Edna can use *lovely* to add her own comment on the red vases. But continuing this with a denial of the content of *lovely* is infelicitous.

- (2.32) ‘Chuck said I could have one of his lovely vases. #But they are all so ugly!’

This is coherent only if we shift to a non-CI reading of *lovely*, on which its content is part of what Chuck said to Edna. (This reading is likely to imbue *lovely* with something like irony or sarcasm, given the contrasting value expressed by Edna in the continuation.) In this case, the example is irrelevant to the present discussion because it lacks a CI contributor. It is true that we call upon the maxims to understand which realization *lovely* is likely to have (CI contributor or at-issue modifier). But once the semantic translation is fixed, the maxims are not relevant. The compositional semantics does the work of determining its meaning. The other CI expressions discussed here display the same level of independence from the principles of cooperative conversation. The distinction between conversational and conventional implicatures hinges largely on the property of deniability (cancellability). When it comes time to write a grammar, we should treat CIs as regular logical entailments. We needn’t worry about sentence-external factors removing content that is usually present in different contexts. In fact, to take such information into account would be to needlessly complicate the theory of CIs. In contrast, the theory of conversational implicatures cannot escape these difficult contextual factors. On the contrary, the defining feature of such a theory will have to be a sophisticated account of how the context, the maxims, and the cooperative principle conspire to produce (and then perhaps alter or erase) this always-negotiable content.

At present, it seems fair to say that the formal theory of conversational implicatures is still quite a ways from completion (Beaver 2001: 29–30). This might at first sound surprising. After all, we have a variety of compelling

methods for how to calculate potential conversational implicatures and then distinguish them from actual ones; important works include Gazdar 1979*a*, 1979*b*, Chierchia 2004, and Sauerland 2001. But all these accounts must call upon the Gricean maxims at a metagrammatical level, which is just to say that they do not succeed in bringing the maxims into the grammar itself.

This lacuna is most easily seen via a consideration of the neo-Gricean perspective developed by Chierchia (2004), who seeks to introduce conversational implicatures at the level of specific lexical items. One might think that this move reduces the distance between conversational implicatures and CIs. But in fact it does not. The deniability property still stands between them; the ‘neo-Gricean’ picture does not impact the design of the tree in Figure 2.1. Chierchia’s (2004) starting point is the observation that scalar conversational implicatures can be embedded. I illustrate using the connective *or*, a member of the scale $\langle or, and \rangle$ (the stronger element is on the right).

- (2.33) a. Eddie: ‘Mary will run the meeting or Mary will operate the projector.’
 b. Eddie believes that Mary will run the meeting or Mary will operate the projector.

The maxims of quantity and quality conspire to ensure that speakers always express the most informative (relevant) proposition that they have evidence for. Hence, (2.33*a*) is likely to conversationally implicate the falsity of the proposition that Mary will both run the meeting and operate the projector. Chierchia observes that the same implicature arises in (2.33*b*), though here the scalar coordinator is embedded. A global computation of conversational implicatures might wrongly predict only the weaker scalar implicature expressible as *It is false that Eddie believes that Mary will run the meeting and Mary will operate the projector*. To ensure a more local calculation, Chierchia places the scalar implicature in the lexical meaning of the determiner. In (2.34), I provide a simplified (i.e. non-type-polymorphic) version of his lexical entry for *or*.

- (2.34) a. at-issue: $\lambda p \lambda q. p \vee q$
 (classical disjunction)
 b. conversational implicature: $\lambda p \lambda q. \neg(p \wedge q)$
 (classical negated conjunction)

This looks much like the sort of meaning we have for some nodes in the CI-containing trees of later chapters. I stress, though, that the conversational-implicature dimension must be treated as formally distinct from the CI

dimension studied here. At a technical level, the conversational-implicature dimension must interact with other operators: scalar implicatures under negation (and other downward entailing operators) disappear or are radically altered, for example. The very fact that we can semantically embed the conversational implicature in (2.34) points up a distinction with CIs, which are invariant in these environments, as seen already in the initial examples in (2.1)–(2.2) and discussed more fully in later sections. The result is that they can be computed quite locally to the lexical item that triggers them.

But here is the heart of it: nothing about Chierchia's composition for *Mary will run the meeting or Mary will operate the projector* defeats the scalar implicature expressible as *It is false that Mary will run the meeting and operate the projector*. The root node for the parsetree of this sentence thus has the pair of meanings in (2.35) (ignoring tense), if we adopt the lexical entry in (2.34):

(2.35) a. at-issue:

run(the(meeting))(mary) $\vee$ operate(the(projector))(mary)

b. conversational implicature:

$\neg \left(\begin{array}{c} \mathbf{run(the(meeting))(mary)} \wedge \\ \mathbf{operate(the(projector))(mary)} \end{array} \right)$

But the utterance might be followed in the discourse by 'Hey, she'll do both!' Or it might be preceded by an agreement that if Mary does one, then she does the other. The maxims of quality and quantity would then conspire to ensure that (2.35b) disappeared. Thus, the conversational-implicature dimension is a negotiable part of denotations. Even after building conversational implicatures into the compositional semantics, we still call upon the maxims to determine where they actually arise. Stepping back, we see that even if we adopt the neo-Gricean perspective, all the arguments for the distinction between the two classes of implicature hold true. The neo-Gricean perspective is just a precise, lexical method for determining where *potential* conversational implicatures lie. But their ultimate realization is something we still cannot predict without the basics of Grice's (1975) framework.

2.4.2 CIs versus at-issue entailments

The facts reviewed in section 2.4.1 leave open an analysis of CIs as at-issue entailments. Because both classes fall under the heading 'entailment', attempts to reduce the facts about CIs to at-issue meanings constitute the most pressing alternatives.

Clause (2.10d) says, in no uncertain terms, that CIs are distinct from at-issue meanings (Grice's 'what is said (in the favored sense)'). So, by stipulation, these two classes are disjoint. If this were the only point of contrast between

CIs and at-issue meanings, then the distinction would arguably be a false one, perhaps simply the consequence of defining at-issue content too narrowly, or arbitrarily. This seems a fair articulation of Bach's (1999) position. Bach says that CIs are a myth, but rejects a 'one sentence, one proposition' view, offering evidence that a single sentence can express multiple nonconjoined at-issue propositions. Since Bach's descriptions implicitly appeal to a multidimensional logic (see his p. 351), it is worth seeing if Grice's definition (2.10) entails further differences between CIs and at-issue entailments.

Clause (2.10c) entails just such an additional split. A rigid interpretation of this clause (the one I adopt) means that a CI is never relativized to the beliefs of an entity other than the speaker. But at-issue content certainly is; in *Sue wrongly believes Conner got promoted*, the at-issue proposition that Conner got promoted is asserted to hold only in *Sue's* belief worlds. Thus, this embedded proposition is not speaker oriented, and hence not classifiable as a CI contribution, by (2.10c). We can set this example alongside (2.36) to highlight the differing entailments.

(2.36) Sue wrongly believes that that jerk Conner got promoted.

This example attributes to Sue only the belief that Conner got promoted. It also involves the speaker's characterization of Conner with *that jerk*. True, Sue might also feel negatively toward Conner, thereby imparting the sense that she endorses the characterization. But this is not an entailment of (2.36). We could precede or follow the example with *Sue thinks Conner is a great guy*. However, placing (2.36) in the same context as *I think Conner is a great guy* is likely to lead to infelicity. (I refer to Chapter 5 for a fuller discussion.)

The presupposition holes (negation, questioning, modalization, and conditionalization) provide even sharper judgments, with the same consequences for these meanings. All of the following carry the CI that the speaker disapproves of having to look after Sheila's dog.

- (2.37) a. I am not looking after Sheila's damn dog while she is on holiday.
 b. Am I looking after Sheila's damn dog while she is on holiday?
 c. I might look after Sheila's damn dog while she is on holiday.
 d. If I look after Sheila's damn dog while she is on holiday, then
 I expect to get paid.

These observations provide initial motivation for taking seriously the claim that Grice's (1975) definition (2.10) has linguistic relevance. Establishing this claim in the face of alternatives that call upon scope-shifting mechanisms is a more difficult and involved task, one that occupies part of the argumentation in later chapters.

2.4.3 *CIs versus presuppositions*

Invariance under presupposition holes is consistent with an analysis of CIs as a species of presupposition. But the constructions discussed here share few properties with presuppositions; the classification seems motivated only by an attempt to cram all non-at-issue meaning into the presupposition category. Even writers not concerned directly with CIs have observed that this is inappropriate. This section mounts a multipronged attack on this reduction, using mainly supplements to motivate the claims. The arguments hold also for the other constructions reviewed above, but their slipperier content would complicate the discussion unnecessarily.

Throughout, I concentrate on conventional presuppositions—backgrounded lexical meanings that are not easily altered or removed by contextual factors. This class of presuppositions is the only one that bears a resemblance to CIs. The arguments that CIs are not conversational implicatures are easily adapted into arguments that they are not conversationally-triggered presuppositions.

2.4.3.1 *Independence of truth values* As with conversational implicatures, we can home in on the defining difference between CIs and presuppositions. Here, it is clause (2.10*d*), which specifies that CIs are independent of the at-issue content. In contrast, the fundamental goal of almost all presupposition logics is to create a dependency between the presuppositions and the at-issue entailments. This is the guiding intuition behind the reconstruction of presuppositions in terms of partial logics: if expression *E*'s presuppositions are not true, then *E* should lack a defined value. (Karttunen and Peters (1979) might dissent from this statement. It depends on whether or not they intend their logic to model presuppositions in the usual sense.) The exciting report in (2.38) nicely illustrates how the at-issue and CI dimensions operate independently.

(2.38) Lance Armstrong, an Arkansan, has won the 2003 Tour de France!

I know that Armstrong is a Texan; the CI is false. But I can still recover from (2.38) the information that Lance won the 2003 Tour. I need not accommodate the CI proposition to do this. In a two-dimensional semantics, the situation is easy to describe in terms of truth values. If we stick to sentences containing one at-issue value and one CI value, we have a four-valued system akin to Herzberger's (1973) logic:

(2.39) $\langle 1, 1 \rangle$ $\langle 0, 1 \rangle$
 $\langle 1, 0 \rangle$ $\langle 0, 0 \rangle$

In our world, the extensional value of (2.38) is $\langle 1, 0 \rangle$. In worlds where Armstrong is neither an Arkansan nor the 2003 Tour winner, (2.38) denotes $\langle 0, 0 \rangle$. Neither situation should yield undefinedness for (2.38). We require both these values. The values $\langle 1, 0 \rangle$ and $\langle 0, 0 \rangle$ are the bane of a multidimensional theory of presuppositions. These represent situations in which the presuppositions are false. One must either collapse these values to ‘undefined’ (Beaver 1997: 956; Krahmer 1998: 143), or else admit only those valuations in which presuppositions are true (van der Sandt 1988: 21). One move or the other would be necessary to capture the intuition that *Ali doesn’t realize her coat is on fire* is undefined if the presupposition that her coat is on fire is false.

2.4.3.2 Antibackgrounding The dependency of at-issue meanings on their presuppositions is the most important *theoretical* divide between these meanings. The most important *pratheoretical* divide is this: CI expressions usually offer information that is not part of the common ground when they are uttered. Although it is possible for true presupposition triggers to introduce novel information, this is accompanied by a particular discourse effect, viz. accommodation. In order to understand the utterance, the hearer must adjust his knowledge so that it entails whatever the speaker has presupposed. Outside of specialized discourse conditions, it is not possible to eschew accommodation—the adjustment is thrust upon any listener who wishes to use information provided by the utterance. As Heim (1992: 215, n. 6) says, following Soames (1989: 578–9), ‘there is no *de jure* accommodation’ of a proposition **p** unless the context entails the negation of **p** already (and hence accommodation of **p** would ‘give rise to a communicative impasse’; Soames 1989: 579).

Supplements do not function in this way; their primary discourse function is to introduce new, but deemphasized material. Beaver (2001) makes this observation, and supports it with an example so lovely it is worth repeating:

- (2.40) ‘Sweden may export synthetic wolf urine—sprayed along roads to keep elk away—to Kuwait for use against camels.’⁷

Beaver observes that the proposition that wolf urine is sprayed along the roads to keep elk away is surely not part of the common ground. It is offered as new information—an aside, to be sure, but not something that the reader is expected to know already.

In sum, the appositive does not express backgrounded information. We can strengthen this claim to an *antibackgrounding requirement*: in cases where

⁷ Associated Press, Jan. 19, 1995 (cited in Beaver 2001: 20, (E34)).

the content of a supplement is part of the initial context, the result is infelicity due to redundancy, as in (2.41a).

- (2.41) Lance Armstrong survived cancer.
a. #When reporters interview Lance, a cancer survivor, he often talks about the disease.
b. And most riders know that Lance Armstrong is a cancer survivor.

With (2.41) part of the context, the use of the factive predicate *know* in (2.41b) requires no accommodation of the content of its complement. That is, the unqualified felicity of (2.41b) is contingent upon the presence of (2.41). But the same kind of backgrounding renders the appositive in (2.41a) infelicitous. As with at-issue content, we have an antibackgrounding effect (see the partial formalization of the maxim of quantity in Groenendijk 1999: 116). Neither at-issue content nor CI content should be presupposed.

This suffices to show that supplements do not meet the main pretheoretical requirements for counting as presupposed. The technical definition of ‘presupposition’ is much more flexible, though. Recent theories of presupposition (or, at least, recent uses of the term) somewhat weaken the strength of this argument. Steedman (2000: 654) allows that ‘the listener rapidly and unconsciously adjusts his or her model of the domain of discourse to support the presuppositions of the speaker’. If this can happen, then the difference between at-issue meanings and presuppositions is outside the bounds of detection by the usual sorts of linguistic argument. If accommodation is unconscious and freely available, then it is not distinguished from the sort of adjustments that speakers make to their models (world-views) when they accept new information. It is hard not to regard this as a complete assimilation of presuppositions to at-issue meanings. It does not accord with colloquial uses of the term ‘presupposition’, though.

Nonetheless, since it might be that backgrounding is not a point of contrast between CIs and presuppositions in certain theories, I move now to some other areas of contrast. We still have deniability and presupposition plugs to turn to for support.

2.4.3.3 Cancellation under special operators There is a class of cases in which expected conventional presuppositions do not arise (Beaver 2001: §1; Kadmon 2001: §6). These are presumably the examples Green (2000) has in mind when he writes that ‘according to a wide consensus presuppositions are essentially cancelable’ (p. 461). Cancellation typically arises in situations in which presuppositions conflict with the demands of the context, as in the following variation on an old example:

- (2.42) Ali’s brother isn’t bold: Ali doesn’t have a brother!

If the presupposition that Ali has a brother, triggered by *Ali's brother*, were to project, then this discourse would entail both that Ali has a brother and that she doesn't have a brother. Felicity demands that the presupposition be filtered off. There are many theories that can obtain this result (Gazdar 1979*a*, 1979*b*; Beaver 2001). This is plausibly an instance in which negation appears as a functor targeting a presupposition in its complement (Horn 1989; Geurts 1998; Potts 2004). The presupposition is not canceled so much as plugged—perhaps unexpectedly, since negation is a classic hole.

But as noted in section 2.4.1, CIs are never subject to manipulation in this way. They are scopeless. The above quotation from Green 2000 occurs in the context of his argument that supplements are not presupposed. He follows up with the example in (2.43), which he calls 'simply bizarre' (p. 465).

- (2.43) #Snow is not white. Therefore, if, as is the case, snow is white, then grass is green.
(Green 2000: 465, (26), with the judgment added)

Green's choice of examples might be regarded as unfortunate, because his *As*-parenthetical is a factive predication. We can remove this difficulty but retain the advantages of using the antecedent of a conditional:

- (2.44) The press said nothing about Ames. #But if, as the press reported, Ames is a spy, then the FBI is in deep trouble.

Having stated that the press said nothing about Ames, one cannot felicitously use an *As*-parenthetical to say that the press reported that Ames is a spy, even when the clause containing this *As*-parenthetical is conditionalized.

Supplemental CI contributors are not the only ones that display this behavior. We saw above, in example (2.32), that expressive modifiers have this property as well. These cases are representative: CIs, like at-issue entailments but unlike presuppositions and conversational implicatures, cannot be manipulated by contextual factors or special operators.

2.4.3.4 *Plugs don't plug them* The presupposition plugs (verbs of saying and other performatives) deliver another argument against reducing the constructions discussed here to presuppositions. Although Karttunen (1973: 177) observes that 'all the plugs are leaky', in the sense that they sometimes allow presuppositions to escape them, it is in general the case that a plug stops presupposition inheritance. For instance, in (2.45), the proposition that it is raining is presupposed in virtue of being expressed by the complement to *realize*. But the sentence as a whole lacks this factive presupposition.

- (2.45) Ed said that Sue realized that it was raining. (Later, we found out that Ed's report was wrong. Sue can't have realized it was raining, because it wasn't.)

Karttunen is always careful to qualify this, by noting that Gricean maxims of cooperative conversation often conspire to make it seem as though an at-issue entailment or presupposition has slipped through a plug. But such content is always easily canceled, as one would expect from a conversational implicature (Karttunen 1971; Karttunen 1973: 6; Karttunen and Peters 1979: 20, n. 8). This is the utility of the continuation in (2.45), in which the speaker explicitly backs off from any hint that the complement to *realize* should be interpreted as a main clause assertion.

Here again, we find that CIs behave differently. We get a rather close minimal pair by setting (2.45) alongside the *As*-parenthetical in (2.46).

- (2.46) Ed said that, as Sue reported, it is raining.

It is an entailment of (2.46) that Sue reported that it is raining, despite the appearance of the *As*-parenthetical expressing this inside the finite complement to *say*. One easy way to test the status of this proposition as an entailment is to attempt to deny it:

- (2.47) Ed says that, as Sue predicted, it is raining. #But in fact Sue didn't predict rain.

The *As*-parenthetical's content is entailed even when inside a plug. This puts *As*-parenthetical content on the 'CI' branch of Figure 2.1.

In the formalization of CIs in Chapter 3, the unpluggability of CI content is not an extra fact. Rather, it follows from the basic assumption in (2.48), a slightly formal version of the intuition that CIs are comments upon an at-issue core.

- (2.48) There are no types of the form $\langle \sigma, \tau \rangle$, where σ is a CI type and τ is an at-issue type.

Though a full argument must wait until the formalism is presented, the basic idea is easily put. Suppose, for contradiction, that a CI appears as part of the argument to an at-issue expression α . Then α is an at-issue term of a type that takes CI inputs to at-issue results. But (2.48) says we have no such types. No heritage function or related device is necessary to ensure that, for each operator O , CI content is invariant under O . The type-theoretic space in which we work leaves no room for terms that violate this generalization.

2.4.4 *CIs versus intonational meanings*

Though current theories of intonational meaning do not provide even the basis for an analysis of the above expressions in terms of intonation,

intonational meaning plays a leading role in the analysis of supplements in Chapter 4. Moreover, alternative semantics for focus is a widely accepted multidimensional theory of meaning. It shows that moving beyond the first dimensional is not a suspicious or exotic move.

I do not include intonational meaning on the tree in Figure 2.1, because it functions primarily as a signal for non-at-issue content, rather than as an autonomous class in itself. For example, focus meanings can impart conversational implicatures; *Joan_F passed* conversationally implicates that others passed, or tried to pass, simply because the focus on *Joan* invokes the set of alternative predications $\{x \mid x \text{ passed}\}$ for all contextually salient alternatives x to the individual *Joan*. Hearers expect, by the maxims of quantity and relevance, to find a use for the additional information.

Focus meanings can also generate presuppositions; the focus particle *only* provides an example that contrasts in important ways with CIs. In most analyses (Rooth 1992; Büring and Hartmann 2001), *only* denotes a functor that takes focus meanings and returns at-issue content. For example, the at-issue content of *Only Bob smokes* is paraphrasable as ‘No non-Bob member of the set of focus alternatives to *Bob* smokes’. To arrive at this meaning, **only** applies to the focus meaning of *Bob* to return an at-issue quantifier. In contrast, as conceived of here, at-issue content never applies to CI content. Thus, the CI dimension must be assigned different formal properties from the focus dimension.

So there is a relationship between CIs and intonational meanings. But it is not one of subsumption. Rather, intonation is often what delivers CI content. On the analysis of supplementary relatives advocated in Chapter 4, for example, the primary difference between (2.49*a*) and (2.49*b*) is the presence of a feature *COMMA* in the first but not the second.

- (2.49) *a.* the crook, who has robbed hundreds of surf shops,
 b. the crook who has robbed hundreds of surf shops

The feature *COMMA*, signalled in print by commas, dashes, or parentheses, demands that the phrase it dominates have its own intonational phrase. It also instigates a shift from at-issue meanings to CI meanings. In conjunction with the tree-admissability conditions of the CI logic, this derives the various contrasts between these two kinds of relative. This reasoning extends to a wide range of supplements and their integrated counterparts.

2.4.5 Closing remarks on kinds of meaning

This section sums up the above results, with an eye towards broader issues of how to divide up the kinds of meaning found in expressions.

We see, following the insights of Chierchia and McConnell-Ginet (1990), Kadmon (2001), and Beaver (2001) that one must be cautious when deploying presupposition holes to diagnose presuppositions, even when deniability is not an issue, when ‘the linguistic context provides no relevant information about the speaker’s attitude towards’ the presupposition (Beaver 2001: 18). Some researchers seem to regard holes as providing both necessary and sufficient conditions for presuppositional status (Geurts and van der Sandt 2004); Beaver (1997) writes that holes are often regarded as

- (2.50) ‘an objective basis for the claim that there is a distinct presuppositional component to meaning, and a way of identifying presuppositional constructions, a linguistic test for presupposition on a methodological par with, for instance, standard linguistic constituency tests.’ (Beaver 1997: 945)

But CIs are another class of expressions that project beyond the holes (a fact that Beaver is aware of; see (2.40)). However, they do not display the other main criteria for presuppositions: they need not (and usually cannot) be assumed by the speaker to be part of the common ground; and they invariably project beyond presupposition plugs. Thus, though the holes are useful for showing that a piece of meaning is not an at-issue entailment, further work must be done to determine where that meaning falls on the tree of meanings in Figure 2.1. The holes might provide a necessary condition for presuppositionhood, but they do not provide a sufficient one. It would be a mistake to let this single factual test become definitional.

Another consideration is that one must be cautious about assigning theoretical content to the term ‘implicature’. When one examines the details, it turns out that conversational and conventional implicatures differ from each other in numerous significant ways. They are perhaps the most unlike of all the kinds of meaning, sharing essentially no properties. Conversational implicatures are highly context sensitive (and hence deniable), and inhere in no individual lexical item, emerging instead as properties of relations among propositions. CIs are not context sensitive, not deniable, and manifest themselves *only* in the grammar narrowly construed. Because the term ‘conventional implicature’ appeared first in Grice 1975, many associate CIs with pragmatic theory. But none of their main properties follows from pragmatic principles. They are narrowly grammatical entailments.

But CIs are not at-issue entailments. They project beyond presupposition plugs and have a semantic value that is independent of uncontroversial at-issue entailments.

We find CIs at (and only at) the intersection of the meanings that are entailed, speaker oriented, and multidimensional. If we remove the entailment property, we find *some* (but not all) conversational implicatures. If we remove the multidimensionality property, we end up with at-issue entailments of various kinds. And if we remove speaker orientation, we arrive at the class of expressions that Bach (1999) uses to support a multidimensional semantics that makes no reference to CIs. Meanings of this sort are addressed in Chapter 7, but I should address here the prototypical (purported) example of CIs: the connective *but*. The above considerations are decisive: *but* does not contribute a CI. This is in line with the discussions of Chierchia and McConnell-Ginet (1990: 353) and Bach (1999). The proper diagnosis seems to be Bach's: *but* determines two independent at-issue meanings.

Most telling is Bach's (1999: 348) observation that, when *but* is a connective inside an indirect quotation, the entirety of its content is attributed, not to the speaker but to the subject of the verb of saying, as one would expect from an at-issue entailment. The following is Bach's (1999) example (1_Q) (p. 348):

(2.51) Marv said that Shaq is huge *but* that he is agile.

Bach correctly identifies the contribution of *but* as part of what Marv said. The indirect quotation is felicitous only if Marv used *but* or an equivalent in his actual utterance—that is, only if the utterance entails the claim that being huge usually entails a lack of agility. Thus, the following discourse is infelicitous:

(2.52) Marv believes that being huge is a good indicator of agility. [#]Marv said that Shaq is huge *but* that he is agile.

The first sentence creates a context in which Marv denies the secondary (nonconjunctive) content generated by *but* in the second sentence. If the contribution of *but* were a CI, we would sense no inconsistency. Another relevant consideration traces to a result of Barwise and Cooper (1981). They observe that *but* is the connective of choice when its two arguments are of differing monotonicity, whereas *and* is used when the conjuncts have like monotonicity. Some illustrative facts are given in (2.53). Though the examples involve *but* as a nominal connective, most analysts treat this as fundamentally the same (polymorphic) connective that connects sentences (Partee and Rooth 1983; Winter 2002).

(2.53) a. No student {*but*/**and*} every professor attended the talk.
(a downward monotonic quantifier and an upward monotonic one)

- b. Every student {*but/and} every professor attended the talk.
(two upward monotonic quantifiers)
- c. No student {*but/and} no professor attended the talk.
(two downward monotonic quantifiers)

These facts seem also to militate against treating the differences between *but* and *and* in the CI dimension. Monotonicity properties are not conventionally implicated. They are properties of (classes of) determiner meanings. Hence, the fact that *but* and *and* alternate based on monotonicity is an indication that they too contrast in the CI dimension. A natural statement of Barwise and Cooper's (1981) generalization seems to require this kind of analysis.

This seems strong motivation for building everything about *but*'s meaning into the at-issue dimension. The only viable alternative is the presuppositional treatment suggested by Chierchia and McConnell-Ginet (1990: 353), who write that 'the contrastive nature of *but* appears to be backgrounded in general'. The example they provide is (2.54).

(2.54) If Jim went to the store but bought nothing, we are in trouble.

They write that the 'suggested contrast'—roughly, that going to the store usually entails buying something—'seems to be taken for granted' (p. 353). I endorse this characterization. But it is a long way from here to a presuppositional treatment. The property of 'being taken for granted' is essential to all meanings; if I say, *Cats creep* I take for granted that we share an understanding of the meaning of *cats* and *creep*. This does not mean we are dealing with entirely presuppositional content. What is presupposed is merely the meanings of the words. One cannot infer from this to the claim that the words in question are presupposition triggers. In the case of *but*, such a classification appears not to square with examples like (2.55):

(2.55) If Jim whoozled the meezer but didn't smalunk, we are in trouble.

A speaker would infer that whoozling a meezer usually entails smalunking, despite the fact that this contrast cannot be taken for granted—the meanings of the words are unknown!

This leaves us with the task of developing a theory of multidimensional at-issue content. Chapter 7 explores the possibility of doing this using *product types*, a feature of many lambda calculi (e.g. van Benthem 1991). On this view, the translation of *but* is roughly as in (2.56).

(2.56) *but* $\rightsquigarrow$
 $\lambda X \lambda Y \lambda x. \left\langle \begin{array}{c} X(x) \wedge Y(x), \\ \mathbf{G}_Y[Y(y) \rightarrow \neg X(y)] \end{array} \right\rangle : \langle \langle \tau, t \rangle, \langle \langle \tau, t \rangle, \langle \tau, \langle t \times t \rangle \rangle \rangle \rangle$

Product types are formed with the type constructor $\langle \cdot \times \cdot \rangle$. Product-typed terms are given as pairs of terms inside angled brackets.

The first term in the product type result in (2.56) is a generalized conjunction meaning. The second is a generic quantification that we can gloss as ‘For the most part, having the property denoted by Y precludes having the property denoted by X ’. This is surely not the only meaning that *but* can contribute; Blakemore (1989, 2001) and Bach (1999: 346) show that the meaning is highly variable. But (2.56) is arguably the default interpretation. In situations in which the meanings of the arguments are vacuous or unknown, as in (2.55), this is the interpretation speakers arrive at.

In turn, we allow functors like **say** and **not** to have product-type arguments. I first provide an extensional meaning for *say*.

$$(2.57) \quad \text{say} \rightsquigarrow \\ \lambda \langle p, q \rangle \lambda x. \left\langle \frac{\text{say}(p)(x),}{\text{say}(q)(x)} \right\rangle : \langle \langle t \times t \rangle, \langle e, \langle t \times t \rangle \rangle \rangle$$

This takes a product type consisting of two truth values as its first argument, an entity as its second. Both truth values are evaluated relative to the belief worlds of the value of the entity argument. The meaning is easily generalized. Negation evidently functions differently, as the negative force is felt only on the first coordinate. This narrower form of application of the negation relation is easily captured:

$$(2.58) \quad \text{not} \rightsquigarrow \\ \lambda \langle p, q \rangle. \langle \neg p, q \rangle : \langle \langle t \times t \rangle, \langle t \times t \rangle \rangle$$

Though *not* translates as a term taking propositional product types into same, the negation itself applies only to the first member. This accounts for the fact that *It's just false that Shaq is huge but agile* does not negate the contrastive proposition that being huge generally precludes being agile.

The connective *but* is not the only functor that vindicates Bach's (1999) claim that the ‘one sentence, one proposition’ motto is incorrect but that does not fully match Grice's (1975) definition of CIs. Chapter 7 is concerned with this class of meanings. Part of the discussion's value is that it shows that a sentence expressing multiple propositions does not necessarily contain CI content. The definition in (2.10) is more articulated than that.

2.5 Indirect entailments of the CI definition

The brief review above already makes it clear that this work identifies and appeals to properties and distinctions that are not immediate from the definition of CIs in (2.10). However, a strong case can be made that the most

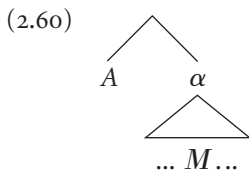
valuable of these extensions are consequences of the definition once it is situated in a theory of semantics. The goal of the next few subsections is to substantiate this claim, especially as it pertains to the following propositions:

- (2.59) a. CIs are scopeless (always have widest scope).
 b. CIs result in multidimensional content.
 c. CIs are subject to an antibackgrounding requirement.
 d. CIs comment upon an at-issue core.

2.5.1 *Scopelessness (or widest scope)*

The constructions I offer as evidence for CIs never appear in the scope of other operators. This imparts the sense that they always have widest scope. But, as with the indexicals of Kaplan (1989), it seems more accurate to think of them as scopeless.

Grice (1975) did not talk explicitly in terms of scope, so it might seem a stretch to say that scopelessness is a part of his proposal. But reasonable assumptions about composition entail that they are. To see this, assume that we have a morpheme *M* whose content is the proposition that the speaker is unhappy. Assume further that its syntactic distribution is free. In particular, it can appear inside the complement to any attitude predicate, so that we end up with configurations like this (for some attitude predicate *A*):



Now suppose that the content of *M* is part of the denotation of α —that is, that the interpretation of α entails that the speaker is unhappy. Then this content will be part of the argument to *A*, and thus the at-issue calculation will be contingent upon whether the speaker is unhappy. This contradicts the independence property, which forbids such dependencies for CI content. Thus, *M* does not contribute a CI.

2.5.2 *Multidimensionality*

Grice's texts never make explicit mention of multidimensional semantic content. But, as the term 'multidimensional' is used in the present work, this is not a new property, but rather a formal implementation of the independence property that arguably forms the backbone of the definition in (2.10).

2.5.3 *Antibackgrounding*

I noted above that Grice (1975) makes no mention of a backgrounding requirement on CIs (the observation dates to van der Sandt 1988). I promoted this silence to the status of a claim: CIs cannot be backgrounded in normal circumstances, and we expect the instances in which they are backgrounded to be as infrequent and specialized as those in which at-issue content can be backgrounded.

Am I justified in reading Grice's silence as a claim? Strictly speaking, the answer is no. But everything about the definition says that CIs contribute new information. In this sense, they are like at-issue content. It thus seems natural to assume that they pattern together on the issue of whether the content can be vacuous relative to a particular information state.

The connection is most easily seen from the perspective of a system of dynamic interpretation, in which sentence meanings apply to contexts to return new contexts. A sentence *S* is uninformative relative to a context *C* just in case updating *C* with the meaning of *S* yields *C* again. It is common to find that such updates are marked, or blocked outright. For instance, Groenendijk (1999) calls upon this condition to partially reconstruct the maxim of quantity. If we have such a condition in place, then CIs, which form part of sentence denotations in the same way that at-issue meanings do, will be subject to these informativeness conditions. That is, the theory will assign them the antibackgrounding property, not because of the definition of CIs directly, but rather because of their place in the semantic theory.

2.5.4 *Comment upon an at-issue core*

As we will see, it is quite generally appropriate to think of CIs as comments upon an asserted core. This is not a part of Grice's (1975) definition, nor do I intend to sneak it into my interpretation of that definition. Rather, I think that the characteristic 'at-issue, but on the side' semantics derives from an apparently unavoidable fact about the composition.

When a CI item is used, it invariably contributes a new proposition, one that is separable from the main clause. However, there is usually a one-way dependency, in the sense that the CI functor is saturated by something from the at-issue realm. The output is in no way intertwined with the at-issue calculation, or even with the calculation of other CI content in the sentence, but the typical function–argument structure ensures that the CI and at-issue composition schemes share an element, namely, the argument of the CI functor.

However, this is not a definitional property of CIs. We will see, especially in Chapter 5, that it is sometimes the case that CI propositions arrive fully

saturated. For instance, certain expressive adjectives in English seem to indicate the emotional state of the speaker in general, rather than expressing an attitude about some entity mentioned in the sentence. The **isolated CIs** rule, defined in Chapter 3, is designed to account for such cases. When they arise, the ‘side-comment’ nature of CIs is pragmatic: in a sense, the speaker is commenting on the circumstances of utterance, rather than expressing an aside about the at-issue content.

So we see that while the view of CIs as side commentary is intuitively useful, it should not be built directly into the definition. To the extent that it holds true, it is a consequence of the rules of the grammar. But not all of them honor the intuition directly.

2.6 Chapter summary

This chapter was mostly stage setting. Section 2.2 reviewed the problematic introduction of the term ‘conventional implicature’ into the semantics and pragmatics literature (Grice 1975), concentrating on those aspects of the proposal that invoke speaker orientation and independence from the at-issue semantics. Section 2.3 offered a brief introduction to the constructions that form the factual backbone of this work. Section 2.4 built the foundation for a theoretical argument that these constructions require an appeal to CIs, i.e. that they are not reducible to any of the other classes of meaning.

I assume a rich ontology of meanings—conversational implicatures, at-issue entailments, conversationally triggered presuppositions, conventional presuppositions, and CIs, all cross-cut by intonation as a means for invoking non-at-issue content. The diversity makes more challenging the task of showing that CIs are a distinct class.

Speaker orientation and multidimensionality are the guiding notions. The first is familiar; all main clauses are speaker oriented in a manner made precise by the model theory of Chapter 3. But multidimensionality might seem new. However, this is not really so. I noted above that alternative semantics for focus is multidimensional. When one begins to think about linguistic theory in dimensional terms, one quickly finds that the theory long ago moved beyond the idea that sentence denotations are one-tuples. Büring (1999) takes the two-dimensional framework of Rooth (1985, 1992) and adds a third dimension, the topic dimension. Dekker (2002) works with two presuppositional dimensions, showing that many of the problems with Karttunen and Peters’s (1979) approach to presuppositions can be overcome in a dynamic setting. It is apparent that none of these dimensions reduces to

any of the others. Linguists might end up with theories boasting more dimensions than even those of the most radical of modern physicists.

The next chapter introduces a logic that suffices as a metalanguage for a natural language semantic theory that takes seriously the CI dimension and recognizes its crucial role in the semantics of a broad range of lexical items and constructions.