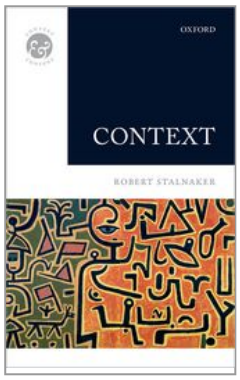

Context
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Three Notions of Context

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Abstract and Keywords

This chapter discusses the intuitive idea of context, and two contrasting theoretical representations of context: first, a notion of context as a representation of the concrete situation at a point in time at which a discourse is taking place, modeled by a centered possible world (a representation that contains all of the information that might be relevant to the interpretation of any context-dependent expressions); second, the notion of context as common ground: a body of information that is presumed to be shared (at a particular time) by the participants in a discourse. The chapter considers the relation between the two notions of context, and some tensions between them.

Keywords: centered possible world, context, context-dependence, common ground, discourse

There was, in the philosophy of language in the 1970s, a lot of ink spilled in debating just what pragmatics was, and where the line was to be drawn between semantics and pragmatics. As is usual with such border disputes, it was often unclear what the question was, but there seemed to be some substantive issues in the vicinity, perhaps a tangle of issues about the nature of linguistic competence, its role in communicative practices, and the relation between language and thought mixed in with methodological questions about the most fruitful direction for linguistic research to take. In the thirty years since then, the terrain has changed a lot, in many ways. Sophisticated theories of indexical semantics have provided formal models of a certain kind of context sensitivity. Context and context change, presupposition and Gricean implicature have been incorporated into a range of different formal semantic/pragmatic theories that model whole discourses and the way they evolve. The general account of

discourse took a dynamic turn, and this complicated the questions about the relation between semantics and pragmatics. Should the way contexts evolve in a conversation be incorporated into semantics? Detailed theories about the way the semantic properties of expressions interact with what the users of those expressions bring to the situations in which they are used have proliferated, but despite all of the progress, the border disputes are as heated, and the underlying foundational questions are as unclear, as they were when theorizing about context was just beginning. In a way, this is not surprising, since as theories are developed and applied to a widening range of linguistic phenomena, the basis for drawing lines keeps changing, and as theories are developed in increasing detail, it is easy for fundamental questions about the relation between languages and what they are used to do to get lost in the details.

(p.14) Part of the problem is that there are several different notions of context involved in current pragmatic theorizing, notions that have their origins in the early attempts to think systematically about pragmatics. My main aim in this first chapter is to get clearer about the relations between two different theoretical notions of context that have played a role in pragmatic theory, and to bring out some tensions between them.

My title says *three* notions of context, but the first is the informal target notion, the intuitive idea of a context: the thing one gets quoted out of, or that one provides some of when one sets the stage for a report, a discussion or a deliberation (“let me give you some context”). It is worth taking a quick look at the intuitive notion or notions of context before looking at the formal objects that theory uses to explain some of the phenomena that we describe in terms of these intuitive notions.

It is natural to think of a speech context as the concrete situation in which a conversation takes place, a situation with a more or less definite group of participants with certain beliefs, including beliefs about what the others know and believe, and certain interests and purposes, both common interests and purposes, and interests and purposes that are recognized to diverge. Contexts, in the ordinary sense, evolve in the course of a conversational exchange, but retain their identity. We are, in a sense, in the same context when I ask you a question as when you give the answer, even though a different person is speaking, and even though beliefs about each other and about the subject matter of the conversation are changing as we speak.

It seems reasonable to take a context, in the ordinary sense, as a situation that is intelligible independently of any institutional linguistic practice. A context is not defined by the constitutive rules of some language game; it is enough that a group of people is in some common setting, with some recognition of each other’s presence. The constitutive rules of an institutional linguistic practice may appeal to facts about the setting in which speech takes place, and the

beliefs of the members of the group in terms of which the context is defined may include beliefs about the rules of a linguistic practice. But the notion of a context does not seem to involve essentially any rules or conventions. It is not just linguistic actions, but actions of any kind that take place in a context.

Features of a context might be relevant in at least two different ways to the understanding of what is going on in a conversation: first, the context **(p.15)** is a resource that the participants might use to achieve their communicative purposes: they can make what they say or mean depend on features of the context, so long as the relevant information is available to the addressee. Second, the context, since it includes the beliefs, plans and purposes of the participants, is what speech acts act upon; it is their point to change certain features of the context. To account for the first of these two roles, a theoretical notion of context should identify the features of the setting in which speech takes place that semantic rules exploit. To account for the second of the roles, a theoretical notion should help to sharpen our understanding of the intended effects of speech acts. A notion of context playing these two roles will be involved both in an account of what language is used to do, and in an account of the mechanisms it uses to do it.

1.1 Intensional semantics and formal pragmatics, first version

To get at the two more theoretical notions of context that I will consider, I am going to trace some of the history, starting with the prehistory, of formal pragmatics. Richard Montague might be regarded as the founding father of the field, or at least of one very influential strand of it. Linguistic semantics, as it is practiced today, began with Montague grammar, the application of formal semantics (model theory) to natural language.[1] But Montague was also the first to apply these tools to what he called pragmatics. The kind of semantic theory that Montague applied was *intensional* semantics. Let me say a bit about the intensional generalization of extensional semantics before looking at the further generalization that Montague called “pragmatics”.

Formal semantics, in general, is supposed to be compositional: the semantic value of any complex expression must be a function of the semantic values of its immediate constituents. In extensional semantics, the values are extensions, and in the case of sentences, truth-values. Since modal operators are not truth functional, we need a finer grained notion of semantic value to do compositional semantics for a modal language. Possible worlds semantics provides a way to define a finer grained **(p.16)** semantic value that smoothly generalizes any extensional semantics. An *intension*, generally, is a function from possible worlds to extensions. Since the extension of a one-place predicate is a subset of the domain of discourse, the intension of such a predicate will be a function taking a possible world to a subset of the domain of that world. And since the extension of a sentence is a truth-value, the intension will be a function from possible worlds to truth-values. With this notion of a semantic value, all of the extensional

rules and operators automatically generalize to intensional rules and operators, and one also has the resources to interpret a new range of intensional operators —not just the traditional modal operators, but also, for example, adverbs and adjectives, that operate on predicates in a nonextensional way.[2]

Intensional semantics not only made it possible to apply compositional semantics to a richer range of expressions by providing a finer grained notion of *semantic value*. It also brought a fringe benefit: the theory yielded an autonomous notion of *informational content* which made it possible to represent one thing that language aims to do (to express a thought with a certain content) independently of the means that the language uses to do it. The *intension* of a sentence, in modal semantics, is a function from possible worlds to truth-values, and so is a representation of *truth conditions*. The information conveyed in a statement is represented by the possibilities that the statement excludes. This fringe benefit is relevant to pragmatics in a broad sense—to the use of language to convey information—since it provides a formal representation of an item of information.

So the intensional generalization had two benefits, giving us two motivations for the move from extensional to intensional semantics. One of the motivations is language-internal (getting the compositional semantics to work); the other is external to the mechanisms of any particular language: it concerns the clarification of what a language is used to do.

(p.17) This was such an elegant theory that Montague generalized it further, and it is here where we have the first incarnation of one of the two abstract, formal notions of context: the notion of an *index*.[3] Modal semantics said that a truth-value is dependent on (sensitive to) a possible world. Context-sensitive expressions are dependent on (sensitive to) other things as well: a person (the speaker), a time of utterance, a place of utterance, etc. So Montague generalized the notion of an intension to a function from an *index* to a truth-value (or more generally, from an index to an extension) where an index is a sequence of items, a sequence that should include whatever the extension of any expression might be dependent on. For example, to interpret a language containing tenses and personal pronouns, the index will contain (in addition to a possible world) a time (the time of utterance) and a sequence of individuals, defined by their roles (speaker and addressee).

There are two problems with this generalization, and the problems provided two reasons to modify the theory. The two reasons seemed to point in the same direction—to the same kind of required modification. The first problem is that the fringe benefit is lost. A function from indices to truth-values is not a candidate for an item of information that might be an object of belief, the content of a thought, or of a statement. The second, quite different problem is a language-internal problem. We need (it was argued) a theory that is more complex than the simple index theory to get the compositional semantics right.

First, let me sketch the modification, and then the two problems, and the way the modification addressed them.

1.2 Character and content: formal pragmatics, second version

The idea of the modification was to divide Montague's index into two parts. The Montague index consisted of a possible world, plus some other parameters on which the truth-value of the sentence might depend. On the modified theory that David Kaplan proposed,[4] the move from sentence meaning to truth-value was made in two stages: the meaning **(p.18)** (*character*, to use the technical term that Kaplan adopted) of a sentence is a function from a *context* to a *content*. A *context*, for Kaplan, was something like Montague's index: a sequence of items on which the content of the sentence might depend. The *content* is also a function, one that takes *possible circumstances* (a possible world, or perhaps a possible world plus a time) to a truth-value. So in the Kaplan theory, the move from sentence meaning to truth-value was made in two steps: first from meaning to content, and then from content to truth-value.

The first of the two reasons to complicate the story in this way is a language-external reason concerning the function of semantics rather than its details: We need to make the distinction between meaning and content in order to recover the fringe benefit of intensional semantics—to have a representation of the information that a speech act intends to communicate. The Montagovian index represents all of the facts on which the truth-value of a sentence might depend, but the problem is that the facts are playing two very different roles in determining a truth-value. I will illustrate this with an old example that I used to motivate the two-step procedure in my original paper on pragmatics about 40 years ago:[5] I say to O'Leary, "You are a fool." The truth-value of this utterance depends on two things: (1) who the addressee is, and (2) whether that person is a fool. Daniels might think that what I said was false in either of two ways: (1) he knows O'Leary is a fool, but mistakenly thinks that I was talking to him (Daniels), and he believes he (himself) is not a fool; (2) he knows I was talking to O'Leary, but disagrees with me about whether O'Leary is a fool. It is important to distinguish these two ways that an utterance might be false. Only in the second case do we have a genuine disagreement. The first case is a case of miscommunication. Kaplan made this point by putting weight on the notion of "what is said": he argued that we must distinguish the meaning of a sentence from what the sentence is used to say.[6]

The second, more technical motivation for dividing the index into two parts was to get the compositional semantics right. The technical problem and its solution were developed by Hans Kamp and Frank Vlach, who were at UCLA at the time Montague and Kaplan were developing their theories.[7] Consider the sentence: "Once, everyone now alive hadn't **(p.19)** yet been born." The quantifier must be inside the scope of the temporal operator, since the quantified sentence is said to be true, not now, but at some past time. The restriction "now alive" must be

inside the scope of the quantifier, since it restricts the quantifier. But the “now” takes what it modifies *outside* of the scope of the temporal modifier, since the restriction is to people who are alive at the time of the context of utterance, and not those who are alive at the “shifted” past time. In the simple compositional theory, these constraints are inconsistent, but if we separate the world and time of the context of utterance (which remain fixed) from the world and time of the index (which may shift in the scope of a modal or temporal operator), we can give general compositional rules that get it right. The rule for “now” will say that it picks out the time of the context of utterance, even when it occurs within the scope of a temporal operator. There will be an analogous rule for the modifier “actually”, which takes you back to the actual world of the context of utterance, even if it occurs within the scope of a modal operator. So one can interpret a sentence like, “If Florence had twice as much money as she actually has, she would quit her job.” By separating the context of utterance from the possible circumstances, one can use the context as a resource to appeal to, even from within the scope of an operator that takes one to a different world or time. A time and world parameter will be represented twice: as part of the context, but also in the “shiftable” part of the circumstances.

1.3 The context/index (CI) framework: formal pragmatics, third version

David Lewis gave an elegant formulation of a modified version of the Kaplanian theory.[8] He agreed that the compositional semantics motivates dividing the Montagovian index into two parts, one that is determined by the concrete situation in which the utterance takes place and that is held fixed through the process of compositional interpretation, and the other that can shift or change within the scope of some operator. Lewis called the unshiftable component “the context”, and the collection of shiftable components “the index”. But he went on to argue that there is no reason to think of the process taking place in two stages; it is just a **(p.20)** dependence on two different parameters. Think of the meaning, or character, of a sentence as a function taking a context-index pair to a truth-value. A function from an A to a function from a B to a C is just a notational variant of a function from a pair of an A and a B to a C. In Lewis’s equivalent picture, the intermediate semantic value (the function from index to truth-value) drops out, but Lewis argued that the separating out of this intermediate semantic value (“what is said”) was unmotivated.

Lewis’s CI framework addresses only the first motivation for the two-step procedure: his argument was that the intermediate semantic value played no role in the compositional semantics, but he ignored the second consideration, which is what I want to emphasize.[9] Let us step back and look, not at the internal workings of the compositional semantics for the language, but at what one is using the language, in context, to do.

1.4 The background pragmatic story

Start with a very general question about what a grammar is supposed to tell us. An utterance event takes place; certain sounds are produced. The sounds constitute the utterance, in a particular situation, of a sentence of a language with a certain semantics. The job of the semantics is to define a function that delivers a certain output, where the input is the sentence that was uttered, plus whatever features of the situation may be relevant to determining the output.

On the Lewis picture, the output is a *truth-value*, and Lewis's background story of what is going on when one engages in the activity of assertive speech is something like this: It is presumed that speakers aim to say things that are true, and so the addressee uses her knowledge of the semantics plus other facts on which the truth-value of the utterance depends to figure out what the world must be like in order for that utterance to be true, and then infers that the world is that way. Here is Lewis's summary of the background story:

> **(p.21)** I know, and you need to know, whether A or B or…; so I say a sentence that I take to be true-in-English, in its context, and that depends for its truth on whether A or B or…; and thereby, if all goes well, you find out what you needed to know.[10]

The speaker and addressee, on Lewis's story, are both conforming to *conventions* of truth and trust (in some specific language).[11] The convention (if the conversation is in English) is that the speaker will utter only sentences that are truth-in-English (in context), and that the addressee will trust the speaker to be aiming to do so.

But this story misses the important distinction between the different roles that information plays in determining a truth-value—the difference illustrated above with the contrast between the two reasons that Daniels might have had for believing that my statement about O'Leary was false. To get at this difference, the output should be, not a truth-value, but a *proposition*—a piece of information, represented by a function from possible worlds to truth-values. I would rather put the background story this way:

> I know, and you need to know, whether A or B or…; so I produce a sentence that I take to *say* in its context, whether A or B or…; and thereby, if all goes well, you find out what you needed to know.

Lewis's argument against the significance of the two stages is that the notion of "what is said" can't bear the weight that Kaplan put on it. Kaplan motivated the distinction between character and content with examples where we individuate "what is said" differently from the way we individuate sentence meanings. (You say, "I am hungry". I say *the same thing* by saying of you, "he is hungry". But when I say, "I am hungry", I say something different from what you said, even though my sentence has the same meaning (character) as yours. But Lewis

responds: “I put it to you that not one of these examples carries conviction. In every case, the proper naïve response is that in some sense what is said is the same…whereas in another – equally legitimate – sense, what is said is not the same.”[12] Lewis is perhaps right, but the important issue is not the role in natural language of the locution “what is said,” but a theoretical **(p.22)** account of the function of speech. Behind intuitions about the use of the expression “what is said” is the distinction between two contrasting roles of factual information in determining a truth-value, a distinction that plays an important role in the explanation of the dynamics of speech. The moral of Lewis’s argument should be that the two motivations for complicating the Montague story come apart. We need to separate the language-internal compositional considerations from the language-external pragmatic considerations. The problem that Lewis brings out is that even in the more complicated story that separates context from index in order to get the compositional semantic to work, we need to include in the index (and not just in the context) features that are not appropriate for defining a notion of informational content. So we don’t recapture after all the fringe benefit that came with the original move to intensional semantics, since there are contextual features that can be shifted in the compositional process, and so that need to be included in the index, but that are not features that belong in the ultimate output of the compositional process—the piece of information that the speaker is aiming to communicate. Both times and places, for example, are elements determined by context that can be shifted in the compositional process, and so must be included in the index. This implies that the abstract object that the compositional semantics delivers (a function from index to truth-value) is not the same as the abstract object that represents the information that a speech act aims to convey.

The proper response to the problem that Lewis raises is not (as Lewis suggests) to give up the idea that the road from sentence meaning to truth-value takes place in two stages, but rather to give up the idea that the two very different problems that motivate the more complex semantics have a common solution.[13] What we want from our semantic theory is a mechanism that takes as its input a sentence with a certain meaning together with a context and delivers, as its output, a proposition—the content that is asserted or expressed with some other force. A theory of the mechanism for getting from input to output should include whatever **(p.23)** is needed to give a smooth account of the compositional process. If indices with multiple coordinates are required to accomplish this, then they should be part of the semantic machinery, but whatever the necessary machinery turns out to be, the end result should be, not a function from indices to truth-values, but a proposition. One can extract a proposition (a function from possible worlds to truth-values) from the output of the compositional process postulated by Lewis’s context/index framework, but as Lewis notes, one can do so in different ways; a full account of the semantic framework should say what the propositional output is.

The main reason it is important that the output of our semantic theory be a proposition, and not just a truth-value, is (as I have argued) that our semantics is supposed to be a part of a more general theory of communication. Our general background story says that language is a device for conveying information. Speakers exploit information (both information about the semantic properties of the conventional device that is used to facilitate communication, and information about the situation, or context, in which that device is used) in order to communicate, and we need to distinguish the role of information in determining what is communicated from the information (or misinformation) that is the content that the speaker intends to communicate. The lesson of Lewis's arguments, I have suggested, should be that the semantic value that a sentence must have to get the compositional semantics right when sentences are constituents of more complex sentences may come apart from the final output that is the information the speaker is expressing. To use terminology that Michael Dummett introduced for the two different roles that a semantic value may play, we need to distinguish the *ingredient sense* of an expression—the semantic value that is needed for compositionality—from the *assertoric content* of a complete sentence, used to perform a speech act.[14] But the problem is not just with the *output* of the semantic mechanism: our background story, with its distinction between the two different roles of informational content in determining a truth-value also points to a problem with the *input* to the compositional process—the **(p.24)** context. What a context must be to get the compositional semantics right is not the same as what is needed for the explanation of the role of contextual information in determining what a speaker intends to communicate, and this gives us reason to consider our second theoretical notion of context.

1.5 Context as common ground

A K-context (as I will call the Kaplan/Lewis notion of context) can be identified with a centered possible world—a possible world plus a designated time and a subject (the speaker). A centered possible world, since it includes all that is the case, will obviously include any information that is relevant to determining what is said in an utterance, but the notion of a K-context does not isolate the relevant information. If communication is to be successful, the contextual information on which the content of a speech act depends must be information that is *available* to the addressee. When I said to O'Leary, "You are a fool", the content of my speech act depended on the fact that O'Leary was my addressee, a fact that (like all facts) is determined by the K-context in which I am speaking. But if O'Leary does not realize that I am talking to him, then communication will not be successful.

The truth of my statement depends on a different fact—that O'Leary is a fool—but successful communication does not require *that* fact to be available (in fact the utterance will have a point only if the information communicated is not available, prior to the speech act). So the account of context we need for our

background story must distinguish a body of information that is available, or presumed to be available, as a resource for communication. The development of this point is part of what led to the second notion of context, context as a body of available information: the common ground. This notion of context, like any notion of a body of information, can be modeled by a set of possible worlds, labeled “the context set”—the set of possible worlds that is compatible with the presumed common knowledge of the participants. The information that a context set models includes all the information that is a resource for the interpretation of context-dependent expressions, but it is also a representation of the live options that participants take themselves to be distinguishing between in the discourse. The same notion of context plays the role of providing the information relative to which context- **(p.25)** dependent expressions are interpreted and the role of representing the possibilities that speech acts aim to discriminate between, and it is this fact that allows for a perspicuous representation of the dynamic interaction of context and content.

The notion of common ground is a propositional attitude concept. Since the body of information that we are calling “common ground” is what is presumed to be *common* knowledge among the participants in a conversation, it is a concept with an iterative structure: a proposition is common ground between you and me if we both accept it (for the purposes of the conversation), we both accept that we both accept it, we both accept that we both accept that we both accept it, and so on. While this concept is modeled on common knowledge, it is not a factive concept. False propositions may be *presumed* to be common knowledge, and false propositions may be part of the common ground either because of error, or by pretense. Common ground, like common knowledge, is definable in terms of the propositional attitudes of the members of some group, but is not itself an individual propositional attitude. We can, however, define the individual propositional attitude of *speaker presupposition* in terms of common ground: An agent A presupposes that ϕ if and only if A accepts (for purposes of the conversation) that it is common ground that ϕ.

Our context—what is common ground between us—is constantly changing as we speak, and the iterative structure of common ground helps to explain exactly how it changes. I will say more about the iterative structure of common ground, and about its role in the dynamics, in later chapters.

1.6 Connections and tensions between the two notions

These two notions of context (K-context and common ground, or CG-context) exist side by side: From the Kaplan-Lewis theory, we have a *centered possible world*, which determines a sequence of elements (agent, time of utterance, world of utterance, suitably related so that the agent exists at the time of utterance in the world). From the common ground theory we have a *context set* of possible worlds, representing the background information available to the participants, **(p.26)** and the possibilities among which their speech acts aim to distinguish.

These notions are complementary, rather than alternative theories of the same thing, and both have been developed and applied by linguistic semanticists. But while they are not in conflict, the relations between them are unclear and there are some tensions that arise when one is not careful to distinguish these two notions of context. Here are two different ways to think about the relation between the two notions: First, one might think of common ground (or speaker presupposition) as something determined by a K-context, and so in a sense a part of it. A K-context is a concrete situation that includes a whole possible world along with a designated agent and time, and it will be a fact about the individual in the world at the time that he or she is presupposing certain propositions, and that certain propositions are common ground in the conversation that the individual is participating in at the time. But second, one might think of the common ground as something like a set of K-contexts, rather than a set of possible worlds. A propositional attitude such as belief or acceptance for the purposes of the conversation can be represented by a set of *centered* possible worlds, since the subject of the attitude will locate herself in the world as she takes it to be. An iterated attitude concept, such as common knowledge or common ground might be represented by a set of possible worlds with multiple centers, one for each of the members of the relevant group. (We will develop this idea in detail in Chapter 5.) These two ways of relating K-contexts and CG-contexts are not incompatible, but we need to be clear about just which notion of context, and what relation between them, we are considering. Claims about context, context-dependence, and truth in a context are sometimes made without making clear what notion of context one intends, and equivocation between them may occur. To conclude this chapter I will point to three places where tensions between the two notions of context emerge, each raising questions that require further discussion: first, I will look at the Kaplanian notion of a *monster*, and at Kaplan's thesis that there are no monsters. Second, I will consider a problem raised by one of the operators that motivate the context-index semantics: the actuality operator. Third, I will look briefly at problems with the role of essentially indexical or self-locating information, problems that will get more detailed discussion in Chapter 5.

(p.27) First, here is what Kaplan said about "monsters begat by elegance":

> My liberality with respect to operators on content, i.e. intensional operators (any feature of the circumstances of evaluation that can be well defined and isolated) does not extend to operators which attempt to operate on character.…Indexicals always take primary scope. If this is true —and it is—then no operator can control the character of indexicals within its scope, because they will simply leap out of its scope to the front of the operator. I am not saying we could not construct a language with such operators, just that English is not one. *And such operators could not be added to it.*[15]

Kaplan is somewhat equivocal about the modal status of his prohibition of monsters. His claim is explicitly about English (is the claim supposed to apply to natural languages more generally?), and he allows that there could be languages with monsters. But it is said to be a *necessary* feature of English that it have no monsters. If there could be languages with them, what prevents English from changing to become one of them? I think there is a sense in which monsters are impossible, but it has nothing to do with English, or natural language: it is an essential feature of the semantic framework. On the other hand, there may be ways of understanding the notion of a monster according to which monsters are not only possible, but actual.

In the Lewis context-index theory, the semantic value of a sentence is a function taking a context-index pair to a truth-value. Any compositional rule for a sentence operator will give the value of the complex sentence for an arbitrary pair ⟨*c*,*i*⟩ as a function of the value of the inner sentence relative to a related pair ⟨*c*,*i**⟩, where *i** varies from *i* in some specified way. (For example, *Once* ϕ is true relative to ⟨*c*,*i*⟩ iff ϕ is true relative to ⟨*c*,*i**⟩, for some *i** that differs from *i* in its time parameter; the time parameter of *i** must be before the time parameter of *i*.) But in all such rules, the c parameter remains the same. One may ask why there couldn't be, for example, an operator "C" with a rule like this: Cϕ is true relative to ⟨*c*,*i*⟩ if and only if ϕ is true relative to ⟨*c**,*i*⟩ for some context *c**, which shifts the context component. The answer is that this restriction is no substantive constraint at all, since the general abstract theory puts no limit on what can go in the index. The idea is that the index should include all of the "shiftable" elements. If one wanted to use a Lewisian **(p.28)** context-index semantics to account for a language that shifted something that looked a lot like the abstract object that we use to represent context, then all we need to do is to put an object of this kind into the index.

The question, "Could there be monsters?" is like the question, "Could one quantify over things other than those in the domain of the quantifier?" In one sense, yes (assuming that the quantifier is a restricted one, so that there are things that are not in its domain). In such a case, one can always expand the domain to include things that were not in the original domain. But in another sense no, since if one changes the semantics in this way, it is no longer true that what one is quantifying over is not in the domain of one's quantifier. With quantifiers, the point is a trivial one, but I think the prohibition of monsters should be understood in an analogous way. There may be features of context that are not (also) elements of the index, and if there are, one cannot (in the Kaplan/Lewis semantics) have operators that "shift" those features. But one can always change the semantics by adding to the index features corresponding to them.

I think this is the right answer to the question, why are monsters forbidden, within the context of Lewis's particular semantic framework, but one has to be careful with the metaphor of *shifting*. K-contexts do not, by definition, shift in a

compositional sense, but of course contexts (both the common ground, and the K-context) are changing (and so in a sense "shifting") all the time. Furthermore, as we will discuss in later chapters, our general account will allow for the creation of subordinate contexts (for example by conditional suppositions) that shift the CG-context temporarily. The issue about monsters may become more complicated when shifting contexts interact with the compositional rules, for example when the compositional rules for conditional constructions interact with the context shifts that are involved when one makes a supposition. Complications will also arise when we modify the Lewis semantics so that the output of the process is a proposition (the assertoric content) rather than just a truth-value. As noted above, there are different ways of extracting a propositional output, and as we will see, something like monsters might emerge in this process.[16] Some of **(p.29)** these complications are illustrated by puzzles about the sentence modifier, "actually".

A related place where a tension between the two conceptions of context arises is in the semantics and pragmatics of the modifier "actually", which is one of the words that, along with "now", motivated Kaplan's move to two-dimensional semantics. Examples such as, "I thought that your yacht was larger than it actually is"[17] seem to show that "actually" is an operator that allows one to talk about what is true in the actual world, even when it occurs within the scope of a modal operator or a propositional attitude verb. In the Kaplan-Lewis framework the rule for such a modifier will be something like this: "actually ϕ" is true, relative to an index $\langle c,i\rangle$ if and only if ϕ is true relative to index $\langle c,i^*\rangle$, where i^* is like i, except with its world component replaced by the world of the context, c. It is because of operators of this kind that (to get the compositional semantics right) the K-context must include a complete possible world. But the information about what specific possible world we are in cannot be part of the information represented by the context set—the information that is presumed to be available, in common, to the participants in the conversation. (If it were, context sets would all be unit sets, and communication would be unnecessary.) When a statement is made in possible world x, the world of the context (in the Kaplan/Lewis sense) is world x, whatever the speaker may believe, and whatever may be the presumed common knowledge that defines the context in the other sense. The context set that defines the common ground for the speaker in a given K-context will not even include the world of the context, if the participants happen to be presupposing something that is in fact false. How are we to interpret "actually" in such a case? Let's consider an example: Our speaker, Alice, makes the following statement:

(1) Florence would quit her job if she had twice as much money in the bank as she actually has.

The facts (in the actual world, α, where the statement was made) are these: Florence has $150G in the bank, but it is mistakenly presupposed **(p.30)** by Alice (and common ground in the conversation in which she makes the statement) that Florence has $200G in the bank. Now let world β be a world that is compatible with the common ground, and with Alice's beliefs. So in world β, Florence has $200G in the bank. Let's suppose that it is also true in world β that she *would* quit her job if she had $400G, but would *not* quit her job if she had less than that. The question is, what is the truth-value of Alice's claim *relative to possible world β*? (We are not asking about the *actual* truth of the statement (made in world α)—just whether it is true in world β, which is the way Alice believes the world to be.) Now it is intuitively clear that given Alice's beliefs, her statement (1) is a sincere one, which implies that it is true in the worlds compatible with her beliefs, and so true in world β. But in order to get this result from our semantic rules, given the facts as we have described them, we must treat world β, and not world α, as the actual world when we evaluate the sentence at world β. That is, when we are evaluating the statement (made in world α) at world β, the "actually" in statement (1) shifts the index, not back (from the counterfactual world) to α (the actual world in which Alice is speaking), but rather to world β.

The "contexts" that are relevant to interpreting what Alice said are the K-contexts that are compatible with the common ground, and not the actual K-context in which the statement is made.

A further aspect of the problem of interpreting "actually" is brought out in an argument given by Timothy Williamson that concerns the interaction of the rigidifying operator with indicative conditionals. Williamson contrasts

> (2i) if Jim is two meters tall, Jim is actually two meters tall

with

> (2s) if Jim had been two meters tall, Jim would have actually been two meters tall

claiming that while (2s) is false if John is not in fact two meters tall, (2i) is trivially true. He then argues that "the danger for a possible worlds account of *indicative* conditionals such as Stalnaker's is that it delivers the same result for them [as it does for the subjunctive case] falsely predicting that (2i) is false if John is not two meters tall."[18]

(p.31) I think there is a real puzzle in the vicinity of Williamson's argument, but there are some distracting problems with the argument that need to be cleared up before we get to it. First, Williamson is explicit that he is talking

about a rigidifying operator with a stipulated semantics, and not making claims about natural language:

> Our concern here is not primarily to investigate subtleties of the use of 'actually' operators in natural languages. Rather, we will take for granted an operator in a formal language with the evidently intelligible rigidifying reading in order to investigate formally some ways in which it constrains the space of available semantic options for other constructions in the language, such as indicative and subjunctive conditionals.[19]

But the problem he raises (for the possible-worlds analysis of indicative conditionals) is that there is a conflict between the intuitive judgment about the content of a natural language sentence and the results of a theoretical semantic analysis. Unless one assumes that the English "actually" is a rigidifying operator with a semantics like the one in the formal language that Williamson is using, the intuitive judgment about the natural language sentence is not relevant. Williamson's argument asks us to fix by stipulation the semantics for one of the expressions in a certain sentence (the "actually"), and then to use our intuitions about natural language to pass judgment on the right semantics for another of the expressions (the indicative "if"). He is right that if we stipulate *both* the simple rigidifying semantics for "@" (the actuality operator) and the possible worlds analysis for the conditional "→", the result will be that a sentence of the form (ϕ → @ϕ) will not be trivially true, but will be true if and only if ϕ is true. Since it seems reasonable to judge that a natural language sentence of the form "if ϕ, then actually ϕ" is trivially true, the conclusion should be only that one or the other of our stipulations must not be right for the interpretation of the natural language sentence. Once this is acknowledged, I think it will be clear that the main problem is with the interpretation of "actually", though there will also be problems with the "if".

A related problem with Williamson's argument is that his intuitive judgment about the contrasting (2s) is wrong. It seems to me clear (assuming we are talking about the natural language sentence) that (2s) is just as **(p.32)** trivial as (2i). To get the contrast Williamson wants, (2s) should be replaced with the following:

> (3s) If John had been two meters tall, then John *is* actually two meters tall.

To get the rigidifying interpretation of the modifier "actually", one must use the indicative in the clause containing it. (3s) is distinctly odd, since it seems to be presupposing that John is not in fact two meters tall, while asserting that he is, but it is not, in any case, trivially true. But the fact that the original (2s) *is* trivially true is an indication that Williamson's solution to the problem of the triviality of (2i) will not generalize. Williamson shows that the only way to ensure the triviality of (2i) is to interpret the indicative conditional as a material

conditional, but one cannot make a similar move to explain the triviality of (2s). No one thinks that (so-called) *subjunctive* conditionals can be interpreted as material conditionals. The material conditional analysis is not a plausible explanation of the natural language sentence, (2i), in any case, for familiar reasons—all of the usual paradoxes of the material conditional. For example, while (2i) comes out trivially true on this analysis, (4i) also comes out (nontrivially) true, on the assumption that John is not in fact at most two meters tall:

> (4i) If John is at most two meters tall, then he is actually four meters tall.

One might think that (4i) should come out trivially false, rather than factually true.

David Lewis, who was one of the first to spell out the rigidifying interpretation of "actually", observed that the word does not always have this interpretation:

> "actual" and its cognates are like "present": sometimes rigidified, sometimes not. What if I'd had an elder sister? Then there would have been someone who doesn't actually exist. (Rigidified.) Then she would have been actual, though in fact she is not. (Unrigidified.) Then someone would have been actual who actually isn't actual. (Both together.)[20]

The subjunctive/indicative contrast plays an essential role in determining when the "actually" gets a rigidifying interpretation. For example, compare **(p.33)** Lewis's case of an unrigidified use, "then she would have been actual, though in fact she is not" with this variation: "then she would have been actual, though in fact she would not have been." The variation, unlike the original, is a contradiction.

The uses of "actually" in Williamson's (2i) seems to be a non-rigidifying use, and so the triviality of the natural language (2i) does not pose an immediate problem for the possible-worlds analysis of indicative conditionals. But there are examples where the use of "actually" in the consequent of an indicative is clearly rigifidying, and these examples point to a problem with the standard semantics. Consider this variation on our earlier example of Florence and her bank account:

> (5) If Florence has $200G in the bank, then if she had twice as much money as she actually has, she would have $400G.

For this example, assume that it is *not* presupposed that she has $200G in the bank. (If it were, the indicative supposition would be unnecessary, and so inappropriate.) So assume it is an open question how much money Florence in fact has, and that the actual α of our original example (in which Florence has only $150G in the bank) is for this example compatible with the context. Is (5) true in α? It seems intuitively that (5) is true in virtue of the arithmetic fact that

400 is twice 200, so it should be true in α. But when we do the compositional semantics in the straightforward way, using the possible-worlds semantics for the indicative conditional, and the Lewis rule for “actually”, we get the result that (5) is false in α. Our problem is that we have a subjunctive conditional nested in an indicative conditional, so there will be two “shifts” in the computational process: the indicative antecedent shifts the world from α to the “nearest” world in which that antecedent is true, and then the antecedent of the inner counterfactual shifts *that* world to the “nearest” world to *it* in which the antecedent of the inner counterfactual is true. But the counterfactual antecedent has an “actually” in it, which takes the relevant clause back to the world of the context (the K-context), which is α. So the rule says that she would have only $300G if she had twice as much money in the bank as she actually has. To get the right result, the “actually” in the inner counterfactual antecedent must take us back, not all the way to the world α where the complete statement is being evaluated, but only part way, to the intermediate world in which the antecedent of the indicative conditional is true. If this is right (and to **(p.34)** echo Kaplan, *mutatis mutandis*, it is) then it appears that something monstrous, in Kaplan’s sense, is going on. We will say more about this problem in later chapters, when we look at conditionals and subordinate contexts, and in the appendix.

I will conclude this chapter with a brief remark about a third example of a tension in the relationship between the two notions of context, a problem that will be discussed in more detail in Chapter 5. The issue concerns self-locating, or essentially indexical information. The original idea, implicit in the motivation for the character-content distinction, was that indexicality is a part of the means used to communicate, and is not involved in the content of the information that one is communicating. When I say, “I was born in New Jersey,” the content of what I say is the same as the content of your utterance of “Stalnaker was born in New Jersey.” You might in fact just be passing along the information that my statement gave you. But the phenomenon of essentially indexical belief complicates the story. My beliefs about who I am, and what time it is, seem to have the indexical element in the content of what is believed, and not just in the means used to express it and this threatens to blur the line that I have emphasized between the two roles of information in the determination of the truth-value of an utterance.

David Kaplan’s response to the problem was to suggest that while the *content* of a propositional attitude was an ordinary objective proposition, the *cognitive significance* of the thought was a *character*, which in the Lewis formulation of the semantic framework is a function from a context-index pair to a truth-value.[21] But this move undercuts the motivation for giving a distinctive pragmatic role to propositional content, and it also implies that if we are able, in our attitude ascription, to make claims about the cognitive significance of the subject’s thoughts, we will need to violate the Kaplanian ban on monsters, since the referent of a that-clause will depend on the character, and not just the

content, of the clause. I think this is the wrong response, and I will develop an alternative to it in Chapter 5. In the next chapter, we will look more closely at the notion of context as common ground.

Notes:

([1]) See the papers collected in Montague 1974, and particularly, Montague 1973.

([2]) See Stalnaker and Thomason 1973, for a formal semantic analysis of adverbs. Adverbs such as “slowly” are (as analyzed there) operators taking predicates to predicates. They are non-extensional operators, since the extension of a complex predicate is not a function of the extension of the part. For example, even in a domain where the walkers are all and only the talkers, it might be that the set of those who walk slowly is different from the set of those who talk slowly.

([3]) See Montague 1968 and 1970.

([4]) Kaplan 1989. This monograph dates from the 1970s and was widely circulated for many years before it was published.

([5]) Stalnaker 1970.

([6]) Kaplan 1989, 500.

([7]) Kamp 1971 and Vlach 1973.

([8]) Lewis 1980.

([9]) In the paper in which I first argued for the two-step procedure (Stalnaker 1970), I was motivated entirely by the pragmatic, language-external considerations. The compositional issues were not, at that time, on my radar screen at all.

([10]) Lewis 1980, 37.

([11]) Lewis’s account of conventions of truth and trust was developed in Lewis 1969. See also Lewis 1975a.

([12]) Lewis 1980, 41.

([13]) Jeffrey King, in King 2003, offers a different response to the problem Lewis raises. He argues that we can retain the unified approach to the two problems if we limit the index simply to a possible world, and he argues that we can do this if we explain tenses and locative expressions in terms of covert object language quantifiers. I think there are several reasons why this attempt won’t work. See the Appendix, section 3, for further discussion of this issue.

([14]) Dummett 1991, 47–50. See also Ninan 2010, which develops the point that the semantic values for sentences that are needed for compositional semantics are different from the values needed for the role of sentences in speech acts. See also Stanley 1997 for an earlier discussion of the role of Dummett's distinction.

([15]) Kaplan 1989, 510.

([16]) See the Appendix, section 2, for more discussion of this issue.

([17]) This famous example was Russell's. See Russell 1905. The original example does not contain the word "actually", illustrating that the work done by this operator is sometimes implicit, or accomplished by grammatical rather than lexical means.

([18]) Williamson 2009, 136. The numbering of the example is changed to fit with the numbering of examples in this chapter.

([19]) Williamson 2009, 137.

([20]) Lewis 1986, 94.

([21]) In Kaplan 1989, 530, the following two principles are stated:

E. Principle 1 Objects of thought (Thoughts)= Contents

E. Principle 2 Cognitive significance of a Thought= Character