

Pragmatist Pragmatics: The functional context of utterances

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1.

Formal pragmatics plays an important, though secondary, role in modern analytical philosophy of language: its aim is to explain how context can affect the meaning of certain special kinds of utterances. During recent years, the adequacy of formal tools has come under attack, often leading to one or another form of relativism or antirealism.¹ Our aim will be to extend the critique to formal pragmatics while showing that sceptical conclusions can be avoided by developing a different approach to the issues. In particular, we will show that formal pragmatics cannot provide a complete account of how context affects the meaning of utterances, both on its own terms and when faced with evidence of important aspects of natural languages. The focal issue is the relevant kind of context in which pragmatics should examine utterances. Our contention will be that the relevant context of an utterance is determined by the function of that utterance, this function being dependent upon the primary function of language – to convey information. We will argue that the functions of utterances and of language are too broad to be caught by the tools of formal pragmatics of the sort advocated by Montague (1968, 1974), which are an extension the methods of traditional model-theoretic semantics.² The particular formal approach we will use as the main example is David Kaplan's position (1979, 1989),³ an extension of Montague's program.

In many respects our argument is based on similar considerations to those that motivated Jon Barwise and John Perry in their development of *situation semantics* (Barwise and Perry 1983), though our goal is less radical than their call for a complete replacement of formal semantic theory. We wish to adopt the advantages of Barwise and Perry's placement of meaning in the world, without giving up the advantages of formal semantics. Formal semantics tries to account for the relationships between expressions of language and the world (including possibilities), the standard being how well it accounts for entailments (Barwise and

¹ Rorty (1975) is an example of the former. Putnam's internal realism (1980) is an example of the latter. While the position we will be arguing for is pragmatist, it shares little with Rorty's position except for the name. Instead, it should be viewed as falling in the broadly Peircean tradition.

² Note that there are two senses of 'formal' that need to be distinguished: formal in the sense of syntax, and formal in the sense of model theory, which has both formal and informal versions. The informal version is used in modern semantic theory outside of mathematics, logic and formal languages. Even in much of mathematics the informal version is used (e.g., by the Bourbaki).

³ Kaplan (1979) distinguishes between *character* and *content*, with content being the semantic values, and character being the pragmatic values. Both can be constructed as ranging over sets of possible worlds, giving a two-dimensional modal logic (Seegerberg 1973). More generally, they can be construed as sets of models, which might include the parts of the actual world.

Perry 1983: 27-28). In other words, entailments are the only evidence that needs to be considered in evaluating semantic claims. Model-theoretic semantics, typically couched in 1st order logic, is well suited to deal with this limited goal. Barwise and Perry, however, argue that formal semantics is inadequate for natural languages, despite its successes in explaining entailments among sentences. The problem stems from the fact that model-theoretic semantics cannot take into account a number of fundamental facts about the semantics of human languages.⁴ The evidence that Barwise and Perry consider not only suggests that model-theoretic semantics needs to be augmented, but that the very goal of formal semantics, to account for entailments among sentences, should be regarded sceptically. If their replacement of formal semantics were adopted as the solution, then this would no doubt be true. However, Barwise and Perry's complete replacement of traditional propositional semantics with situation semantics is a very radical move that we think is neither necessary nor advisable. So, if we want to place meaning in the world, like Barwise and Perry, but retain the advantages of traditional semantics, we will need a more complex picture than either they or Kaplan propose.

Our objection to most present approaches to meaning is that, given the evidence from human languages, actual states of affairs enter into the interpretation of linguistic expressions in ways that must be dealt with right at the start, rather than being pawned off to be taken care of by pragmatics at some later time. This means that if meaning were by definition a matter of semantics, then something like Barwise and Perry's approach would probably be required: their further distinction between meaning of word forms and the interpretation of specific utterances goes beyond Kaplan's identification of the values of the character with specific contents. However, if semantics is only about the relation of propositions to the world – which is traditionally called *content* – then meaning involves more than semantics. On any account, meaning must have (at least) two parts: the meaning of an utterance in terms of the rules or conventions for its use in picking out content, and the content itself. We believe that a sufficient account of meaning should also have a third part that deals with the role of the specific circumstances in the world. Both the Kaplan account and the Barwise and Perry accounts try to push all three roles into two parts.

Issues that originate in pragmatics must be integrated into any adequate theory of meaning right from the beginning. This is not to say that semantics and pragmatics are the same in some sense, despite Barwise and Perry's move to situation semantics. If we retain formal semantics (in order to connect language and meaning to logic and theoretical knowledge), semantics must be a target that we can "hit" only through pragmatics. So, formal semantics is more or less vacuous ('more or less' depending inversely on the formality of the language in use) without pragmatics. Even decisions about the formality of a particular extract of language are a pragmatic issue. So semantics cannot stand on its own, unless we adopt something like what Barwise and Perry call 'semantics', which includes what have been taken since Peirce to be pragmatic elements (see the discussion of Peirce and linguistic meaning in Barwise and Perry 1983: 16-19). Whichever choice is made about how to use the word 'semantics', nonformal elements must enter into the determination of meaning. The problems that force this, however, primarily fall under the domain of what is usually called 'pragmatics.'

Our explanation of both the failure of formal pragmatics and the widespread belief that formal pragmatics is sufficient is based on our view of the function of language, which we will expand on in part 3 of this paper. Our contention is that standard accounts of meaning take too narrow a view of the function of language, and that a broad enough view must include aspects of the world which by their nature are neither formal nor abstract. Our point

⁴ We will discuss these in more detail in section 3 below.

could also be made through consideration of mental function, but since it is still under debate whether or not mental function is formal⁵ the argument would be less conclusive.

In the next section we look at the problems that the interpretive context raises for pragmatics. By looking at concrete examples of indexicality and illocutionary force, we argue that the context needed to understand these phenomena cannot be limited to linguistic and social considerations. The relevant context often must also include physical aspects of the circumstances of the utterance, and this creates a serious problem for any formal approach. We argue that a formal presentation of the context is blind to the problem of what the relevant context is even though it needs an answer to this question. Turning to the role of cooperation that motivates Gricean rules of implicature we are able to show that considerations of the context are relevant to all utterances and that, actually, in all these cases the non-social context enters in as essential to understand why cooperation is the assumed norm.

In the third section we show that much of our argument turns on the function of language, which we argue is much more multifaceted than that presupposed by model-theoretic approaches. On traditional views the primary function of language is representation. We will argue that traditional pragmatics cannot even account fully for this function. On our view the primary function of language is to convey information about distinctions in the world. Other functions, including representation, are either grounded in or are parasitic on this function. Our position allows the traditional function to be retained as *a* function of language, but it also helps to explain other functions of language that do not fit so easily into the traditional account.

Finally, in the last section of the paper we quickly outline an approach which shares the strengths of the formal approaches, such as Kaplan's, and of situation semantics. Our approach clearly distinguishes between semantics and pragmatics which allows us to retain the model-theoretic tools of formal semantics while supplementing them with a pragmatics that is close to the approach put forward by Barwise and Perry. The two disparate approaches are joined by a consideration of the information contained within utterances and their contexts.

2.

The role of pragmatics is to understand how context affects the meaning of certain utterances. Our argument in this section shows that formal pragmatics can't provide a complete account of the context that is relevant to the meanings of utterances – in effect pragmatics can not do what it sets out to do. We start by looking at examples of indexicality and illocutionary force, and argue that there are utterances whose meaning is affected by their physical, non-social context. This presents a challenge to pragmatics that is only partially dealt with by looking at propositions as informational distinctions. The problem is that a necessary reliance upon metaphysical presuppositions opens the possibility of interlocutors working with divergent or significantly false metaphysics. Exactly the same problems affect the attempt to show that the relevant context is constituted only by the interlocutors' beliefs. The problem of coordinating the interlocutors' presuppositions, in particular, relies upon the physical context for a solution. Even if this problem were solved, however, the question of what is the actual relevant context has to be solved for every utterance one wishes to

⁵ On the formal side are those who follow the work of Fodor and Pylyshyn (Fodor 1975, Fodor and Pylyshyn 1998) on cognition as fundamentally syntactic and representational. This is contrasted with more recent views of authors like Andy Clark (1997, Clark and Chalmers 1989), David Kirsh (Kirsh and Maglio 1994) and Ed Hutchins (1995) that emphasize the practical side of cognition, including interaction with the world. For an example of an explicit application of these ideas to pragmatics, see Carston (2002).

understand. This problem lies clearly beyond the scope of the formalism and points to the fundamental issue of underdetermination – the formal considerations underdetermine the relevant context and, thereby, underdetermine the meaning of any utterance. Conventionalist attempts to avoid this conclusion beg the question, since what is in question is the possibility of arriving at a convention. The significance of the physical context becomes even clearer once the significance of cooperation for implicature is taken into account. The reason is that a non-social context is necessary for the cooperation to appear. In effect, the physical context underlies pragmatics generally and formal pragmatics is incapable of handling it. Faced with this challenge it is only able to maintain its formalist standards by retreating into irrelevance. This is particularly galling as it turns out that the need to consider the context is not limited to a few specific kinds of utterances but exists when dealing with all utterances.

Consider the following statement – ‘Julia is here, now’. Ignoring the other aspects of the indexicality of this statement, we can focus upon the question of what is the size of the area that is specified by ‘here’. For many utterances in which this word appears the answer to this question will to large degree depend upon the social context in which the statement is uttered. For example, when uttered by the host of a private dinner party, ‘here’ probably means something like ‘either in the house or has just parked outside’ – either way, a very limited area. However, the extent of ‘here’ changes when the same statement is uttered in response to a question about a jet-setting executive who is often in New York, Tokyo or some other global business centre. In that context, ‘here’ can mean a much larger area: most likely, the particular city in which the utterance is made. At this point it may seem that the relevant context for an utterance is always going to be social. This is not the case, however: as can be seen once we consider another possible context for the utterance of this statement. Imagine that our jet-setting Julia is currently in another part of the globe and is about to participate in a satellite video-conference. The convenor of such a meeting might, with some relief, say “Julia is here, now” having just managed to get a functioning link to wherever Julia is at the moment. In this case, ‘here’ means nothing more than ‘able to communicate freely with all of us’: where that ability is dependent upon the technology which underlies video-conferencing. This can not be understood as falling within the social context of the utterance: unless one were to broaden that notion to the point of making it into something altogether different - the difference being that the relevant fact is not a social one but a technological, physical one.⁶ It might seem that the use of ‘here’ in this example is a very special one, and does not correspond to normal usage. This raises the tricky question of whether or not there is any received usage. We think not. Part of how we understand meaning is by understanding context. There may be a more common set of contexts for specific words that we might take as the nominal usage of the word, but there are no hard and fast rules that govern the limits of this usage. Although past usage probably does help us to understand usages in more unusual contexts, we submit that there are no rules governing such extensions anymore than there are well-defined rules governing anything that might be called normal usage. Such rules apply only to formal languages, and natural languages do not share this property.

Another example which shows that the relevant context of an utterance might not necessarily be just social is provided by considering the illocutionary force of saying “Lovely weather we’re having.” The most sentient thing for determining the illocutionary force of an utterance of this statement will be the actual weather at the time and place where the utterance is made. If the weather is fine then the utterance will most likely be an expression of pleasure at this fact. However, if the weather is anything but fine, then the utterance must be

⁶ ‘Here’ might not even refer to any limited area. If a dying atheist utters “I’m still here” they are not referring to any particular place at all; rather, they mean that they simply still exist - the location is irrelevant. In that case, the opposite of ‘here’ isn’t ‘somewhere else’ but ‘nowhere’.

understood to be a sarcastic way of pointing out that, less than pleasurable, fact. Just as in the case of indexicality, we can see that the relevant context of the utterance is non-social. Indeed, it is non-social in an even stronger sense in that it is not dependent upon any technology but, merely, is constituted by the actual states of meteorological affairs – quite independent of human society: at least until global warming.

We have seen that the context relevant to the meaning of various utterances is non-social. Why should this, however, present a challenge for formal pragmatics? Formal pragmatics relies upon logical relations between propositions to model the context and its effect upon the meaning of the utterance. This approach is *prima facie* plausible when the context to be modelled consists of propositional attitudes and the relations that make the context relevant are logical. Not surprisingly, therefore, pragmatics has generally been pursued as if the only context that can be relevant to an utterance is, at most, its social context and expressible in terms of the beliefs of the interlocutors about each others' beliefs (Lewis 1969, 1975). The question of whether pragmatics has the tools to adequately model a non-social context has to be faced, however, as we have provided examples where that broader context appears to be relevant.

It might seem that the answer to this problem could be provided by a tradition that tries to account for context in terms of propositions, rather than propositional attitudes (basically Montague style pragmatics e.g., Kaplan 1979, Stalnaker 1973, 1976, 1978, 1991). This approach claims to be able to deal with the non-social elements of the context just as competently as it is able to deal with the social elements. And it does, to a point. A problem with this approach is that it appears to rely upon the metaphysical presuppositions that have been adopted and which underlie the propositions that are used to model the context. In most actual situations common sense metaphysics turns out to be adequate, but this does not rid us of two difficulties. The first is that different interlocutors may be working with different metaphysics which would lead to them systematically misunderstanding each other.⁷ The metaphysics used for analysis might well misrepresent either or both, and could misrepresent the misunderstanding, or miss it altogether. The second is that the metaphysics used for analysis may be false in some relevant way. In essence, the choice of metaphysics is a significant choice. However, it can't be handled by the formalism because the formalism presupposes a particular metaphysics. This means that the problem non-social context presents to formal pragmatics has not actually been dealt with by formal pragmatics. Instead, it has been pushed up into the metaphysics where it is – all the more – beyond the scope of the formal tools that are available.

A pragmatician could attempt to 'tame' the non-social nature of context by arguing that what is really relevant are not the actual, available resources but, rather, the beliefs that the interlocutors involved with the utterance have about the available resources. Thus, if we think back to the Julia example, it could be argued that it is not really relevant whether video-conferencing is possible, as all that counts is whether the speaker and listeners believe such technology exists. After all, even if such technology did not exist but the speaker thought it did, then the speaker's utterance would have the same meaning, would it not? Even though this approach might appear to avoid questions about the non-social context it does not in any way avoid the problems that we were led to by the need to consider the non-social context. If we accept a scenario where the speaker's beliefs are incorrect in the way just specified (and Julia is in a different city) then the falsehood of the beliefs would be immediately apparent as Julia would not be in the position to greet and carry on a conversation with the other interlocutors. The problem with resorting only to beliefs to explain meaning is that it ignores

⁷ This problem has, of course, been looked at by both Stalnaker and Lewis and we will consider their answers later in this section.

the effects of the world. Indeed, assuming that the people in question are all in different places on the globe, the speaker of the utterance would really only be speaking to himself.

Assuming, therefore, that what we wish to consider is not merely a single decontextualised utterance but, rather, the whole exchange in its relevant context (and, since we are supposed to be dealing with pragmatics, that much ought to be taken for granted), it seems unavoidable that we must deal with the non-social reality in which the conversation takes place. Of course, it would be possible to continuously defer this conclusion by pointing out that further false beliefs might insulate the conversation from its fragility in the face of facts.⁸ Thus, one can add in beliefs about a phantom conversation with a phantom Julia and the other phantom interlocutors, thus allowing the speaker to continue a 'conversation'. The cost of doing something like that, however, is very great. Assuming that it will still be possible to make sense of the reference of the utterances of such a speaker, the reference will have to be something in the speaker's beliefs and not in the world, with the result that we end up with exactly the kind of internalist picture that Putnam (1979, 1980, 1981) argues for (based on a model-theoretic philosophy of language). What is more, this internalism of reference will also just as readily infect situations where originally one would have wanted to speak merely about the social context, since false beliefs about that context are just as possible. Indeed, we would argue that these difficulties with limiting ourselves to a belief context point to a more general problem, which is that the attempt to avoid the possibility of some context being relevant to an utterance is going to result in that context being 'disappeared', so that reference to elements of that context will come to seem impossible. For example, we could take our own beliefs to be all that matters to the interpretation of our utterances, and use a similar argument to the one concerning social beliefs in order to argue for solipsism concerning meaning. Once we get on this route, it is unclear where there is a principled place to stop.⁹

The problems we have considered with the belief context are the same as with the approach that relies upon a false metaphysics. Indeed, the problem of interlocutors having different beliefs that lead to systematic misunderstanding, i.e. the other problem with the propositional approach, also re-appears here. The basic consideration is that it must be possible for the interlocutors to coordinate their beliefs in such a way as to make communication possible. The process of coordinating these beliefs, however, must rely upon the physical means of communication and, therefore, consideration of the context will unavoidably need to include consideration of the physical context. In the Julia example, coordination of beliefs will be impossible if video conferencing does not exist as the supposed interlocutors will not be actually in contact with each other.

Two philosophers whose positions opt for a context of beliefs and, therefore, fall into this pitfall are Stalnaker (1973, 1976, 1978, 1991) and Lewis (1969, 1979). Stalnaker argues that communication requires a non-defective context, so we must coordinate our beliefs, or at least the set of possibilities that we each consider relevant, to ensure that we are making similar enough presuppositions and that we interpret the variables in the same way. We agree that this move seems right in principle, but it is not clear how to make it and not reduce the model-theoretic part (the possible situations or worlds) to triviality, since nonformal elements determine what the possible situations are, pushing the pragmatic problem back a level.

⁸ In fact Putnam takes the position that the brain in a vat case defers decisions until all the evidence is in, at which point there is no grounds for calling the belief that I am a brain in a vat false. We, however, think that there is something fishy with his approach right at the beginning.

⁹ The problems start with Putnam's (1980) assumption that "We interpret our language or nothing does", though Collier (1990) has argued that even then there are pragmatically based objections to Putnam's (1979, 1980) claim that we could not be brains in vats. Given this together with initial problems with the premise arising from pragmatics, we reject the premise, and the argument.

Lewis, on the other hand, thinks the variables are determined by beliefs about others' beliefs through conventions that either already exist, or are decided during a conversation or discourse. However, he does not explain what is involved in deciding what conventions are needed. Presumably he thinks that this is an empirical matter, and there has been some empirical work on just this issue (for a review see Garrod and Pickering 2004). This work indicates that people will tend to converge on usages, and even styles and pitches of speech that are coordinated with each other. However, since we must coordinate beliefs about the world, observation of the world will play an essential role in coordinating beliefs (see the hunters example in section 3 below). So, trying to limit the context to that of beliefs fails as facts about the world play an essential, irreducible role in allowing a conversation to take place.¹⁰ In effect, formal pragmatics cannot get away from the problem caused by the need to consider the physical context of utterances. Even if it did, however, it would still have to face another problem caused by the need to identify the relevant context.

Whatever the context that is relevant to an utterance, it is necessary to identify it. The failure to identify the relevant context will lead to significant facts not being taken into account or, less dramatically, time being wasted upon insignificant facts. The question of what is the relevant context for a particular utterance and, therefore, which elements of its context pragmatics should take into account in working out the meaning of that utterance has to be faced. However, the answer to this question can not be found in the formalism since all that the formalism can, at best, do is take the propositions that have been provided and use them to work out the meaning. The input into the formalism lies outside its scope. Instead, as could be seen in the discussion of the context of beliefs, the decision relies upon a practical understanding of the situation as well as upon our broader metaphysical commitments. Presented with a formalisation of the context of an utterance, we have to ask ourselves whether this formalisation is adequate and, while the clarity of the formalisation will render this task easier, the essential task cannot be handled with the formalisation.

The basic problem is a familiar one – formal considerations underdetermine the correct response. If we were to assume that the formal considerations are the only significant considerations we would be forced to accept some measure of anti-realism or scepticism. Then, we might argue, as it has been all too often done in these kinds of circumstances, that the issue is resolved by a convention that is arbitrary. Such arbitrary conventions allow us to retain the seeming consistency of the formal pragmatics while thoroughly undermining their significance. However, whatever the effect of such conventions upon the possibility of really understanding the meanings of utterances, they do not allow one to construct an acceptable position. The problem with conventions, after all, is that they have to be settled upon and we have just seen that without taking into consideration the physical, non-social context of utterances it is impossible to understand how the coordination of presuppositions, i.e. conventions, is possible. The problem may be understood somewhat better by considering Gricean implicature.

The presumption of cooperation is basic to our understanding of implicature. The reason why the speaker and the listener follow the Gricean rules of implicature is that they wish to effectively communicate with each other. So, for example, when asked their name, it is normally assumed that the person replying will answer truthfully since it is assumed that they will be willing to reveal their name. Thus far, the context that appears to be relevant to implicature seems to be acutely social. After all, cooperation is the very stuff of society. We

¹⁰ Stalnaker has moved to accommodate this in his more recent work (1998), in which he takes the propositions in presuppositions to not require belief, but merely to be available in some sense. In other words, he now requires that they be in the resource situation. He has been amenable to this idea for some time (private communication, 1993, with Collier).

need to delve deeper, however, and ask why it is that cooperation is the presumed norm rather than, for example, competition. After all, even though we are familiar with cases where people speak truthfully we are also all too familiar with examples of people seeking to mislead – indeed, the established news media reports appear to contain more of the latter.

Of course, the problem with competition is that it does not give a basis for communication. Were competition the norm, the informational value of any message would tend to zero as it would be assumed that any utterance is meant to mislead. The speaker would utter a statement meant to mislead the listener and the listener knowing that he was being misled would discount the message appropriately. Communication is necessarily a cooperative activity (just as cooperation requires the possibility of communication). As usual, competition can only exist in the context of cooperation being the presumed norm. Knowing this does not, in itself, get us any further in our quest for understanding the relevant context for implicature, however. To do that we must ask not just why communication presumes cooperation but, rather, why cooperation takes place. Why is it that people do cooperate and seek to effectively communicate with each other?

Generally, cooperation occurs when two people are involved in a non-zero sum game, i.e. when it is possible for both of them to gain simultaneously (Binmore 1998: 276-277). This possibility typically arises when there is a third element in the situation. This may be a third person against whom they are cooperating or it can be a non-sentient environment in which cooperation yields benefits to those cooperating. The possibility of cooperation against another party, however, would not be enough to make cooperation the presumption that is necessary for effective communication. In that situation, cooperating and competing would be on the same level since every case of cooperation would also involve competition. For cooperation to become the norm it is necessary to consider the existence of an environment in which people need to cooperate to gain benefits. In other words, underlying the Gricean rules of implicature is the presumption that we are cooperating in the context of an environment. The relevant context for understanding implicature is this non-social environment that makes cooperation the norm. Otherwise language would be *just* a game.

Given our discussion of implicature, indexicality and illocutionary force it ought to be clear that an understanding of the physical context of utterances is necessary for an adequate pragmatics. Quite simply, the physical context underlies pragmatics, both in terms of being relevant to understanding individual utterances and in terms of seeing how conventions can be settled upon and why cooperation is the norm. The assumption of cooperation, however, is relevant to every single utterance, making pragmatics and the non-social context relevant to every single utterance rather than the few kinds traditionally considered. In effect, the meaning is in the world.

Still, the formalist has a final option open to them. This is to bite the bullet and to say that the kinds of issues we have raised regarding the relevant context fall outside the proper scope of (formal) pragmatics – that pragmatics doesn't solve these problems and doesn't need to solve them, either. Pragmatics, according to this view, is only about the logical relations between certain propositions, and everything else is just psychology and irrelevant to pragmatics properly understood. While this approach lays bare the antipsychologism which underlies analytical philosophy of language it also undermines the sense in pursuing pragmatics. A retreat to the formalisms may lead to a coherent position in that the relationships between the various elements may turn out to be consistent with each other. However, the kind of problems that we are raising will reappear the moment any attempt *is* made to apply the formalism to natural language. In effect, whatever value there will be in examining the formal relations it will have to be independent of them being used to explain the phenomena of natural language. Formal pragmatics will be defensible, but not as a part of a philosophy of *language*. The effect will be that to pursue philosophy of *language* a different

pragmatics will have to be put forward, anyway. A pragmatics that may make use of formal tools but within a broader - we might be tempted to say - context.

3.

In the last section we saw that formal pragmatics can't do what it sets out to do, i.e. explain how context affects our understanding of utterances, because it fails to fully deal with the question of the relevant context of utterances. At the same time, we came to see that this context can't be limited to the social context. In this section we will pursue our line of argument by looking at the "six semantic universals of human languages" that were identified by Barwise and Perry (pp 28ff). Where their argument is aimed at formal semantics, we maintain that formal pragmatics is just as bad at dealing with these characteristics. The first step will be to clarify the question of where the line between semantics and pragmatics ought to be drawn. This will require being more specific about what we mean by formal pragmatics. Doing that will, in turn allow us to show that the inability of formal pragmatics to deal with natural utterances yields two lines of argument that lead to the functional pragmatics that we will discuss later. These are 1) the link between function and the relevancy of context and 2) the need to satisfy the universals of natural language. While the second is an empirical constraint on any satisfactory pragmatics, the first is methodological. Language is not just an abstract structure, to be admired in its elegance; it is used for various purposes, and these purposes are always in some practical context.

Barwise and Perry never mention pragmatics directly, however they do distinguish between *meaning* and *interpretation*. It is useful to compare this to Kaplan's (1979) approach. On Kaplan's approach we can retain traditional formal semantics for the content. The real problem is in identifying the full content of a particular utterance of 'Julia is here now', given all of the pragmatic factors. Formalist (typically model-theoretic) approaches to both semantics and pragmatics *depend on the assumption that the primary function of language is representation*. The presupposition is contained in the very use of model theory itself, in which the only consideration for truth is satisfaction. This can be seen in how Kaplan distinguishes between character and content. The character is the standard use of the terms in the statement, whereas the statement's content is the proposition it expresses in its context of utterance. The character is a function from terms and contexts to contents, and the content is a function from contents (propositions) to truth-values. In both cases what matters are just the logical entailments: as in all formal approaches. In the Julia case, for example, we have a constant and two variables, one for 'here' and the other for 'now'. The possible range of the 'here' variable would be places, and the possible range of 'now' variables would be times. This approach should not be unfamiliar to anyone working in theoretical linguistics, in which "Montague grammars" have wide currency. The problem we pointed out in section 2 is that 'here' need not refer to a place at all, so we must expand the range of the 'here' variable. It might be argued that our example makes unconventional use of the word 'here'. This may be correct, but as we will discuss later, we do not think that this can be a satisfactory response. For now we continue with the explication of Kaplan's view.

Kaplan pointed out that on his account there are at least two distinct types of logical necessity: analyticity and metaphysical necessity. The two forms can come in all possible combinations. He gives the following example of an analytic but metaphysically contingent sentence: 'I am here now'. This sentence is a variant on our Julia example, except that all referring terms are indexical. Because of the characters of the terms involved, the sentence is true whenever it is uttered (barring the possibility that unconventional meanings have been assigned). Yet the sentence is clearly not necessarily true, since I can conceive of circumstances under which I might not have been here now, for example, if I had been called

to a meeting. The analyticity of 'I am here now' together with its metaphysical contingency depends on the fact that its components are indexicals: their interpretation depends on the context of utterance. On Kaplan's approach, the semantic part is in the content, whereas the pragmatic part is in the character. However, Kaplan's account of character is also model-theoretic, and the only consideration is satisfaction. 'I am here now' is analytic since it is always satisfied when it is uttered, according to the account. In this general way, the possibilities of filling in the character function determine the entailments among characters. When something is true by meaning alone, on Kaplan's account, it is true under all possible values of the character. This is similar, but different to the notion of content (a proposition) being necessary if it is true on every interpretation. In particular, as we have seen, the content of 'I am here now' is rarely if ever true on every interpretation.¹¹

As we have seen in the Julia example, however, there is much more to say about what an utterance of the sentence 'Julia is here now' means than merely that the sentence's character is satisfied: there are many ways in which it can be satisfied and, as we argued above, extralinguistic factors are involved in the evaluation of its content. The same arguments apply, *mutatis mutandis*, if Julia says 'I am here now.'¹² This suggests, as we have argued, that formal pragmatics, though perhaps part of the story, cannot be the whole story in determining the meaning of an utterance. It might be argued that we could give the character of 'Julia is here now' such a broad range of possible values that all possible values are taken into consideration, and that the character can still be used to give the meaning of any particular utterance. The problem with this move is that it isn't at all clear that there is any suitably delimitable set of parameters for the character. Again, the indeterminacy of formal approaches runs up against the wall of reality.

Whereas on Kaplan's approach meaning is associated with character, a function from linguistic forms and contexts to contents, meaning for Barwise and Perry is a relation between utterances (a kind of situation) and described situations, constrained systematically, such that the first carries information about the second. Interpretation, for them, applies to further determination of situations by a particular utterance, the determination often including circumstances in the actual world. Kaplan, however, retains traditional semantics in his content function, which is the closest thing to interpretation as used by Barwise and Perry. So, Barwise and Perry use situation semantics to deal with both aspects of meaning, just as Kaplan uses some version of models. The main difference is that models are abstract by nature, whereas situations are real. Abstract situations, which are useful for understanding abstract concepts and general meanings, are grounded in relations, individuals and locations, which are in turn grounded in real situations. So meaning, for Barwise and Perry, ultimately resides in the world. We agree with this move, but we want to retain the advantages of traditional semantics.

Barwise and Perry (1983) make what Kaplan's character is intended to deal with a problem of semantics, but since Peirce this has been more often considered a problem in the realm of pragmatics. There may be shortcomings with Kaplan's account of content, but we will take it for granted for now that formal semantics is possible. There is a reason for doing this. The problem of formalizability, as we have been characterizing it, depends on the function of language. Function is inextricably tied to action. The etymology of 'pragmatic' stems from '*praxis*', which refers to action. This is at least a *prima facie* reason for trying to

¹¹ It would be necessarily true only for a necessary being that can make such statements.

¹² In particular, when Julia says 'I am here now' in the technological context described in section 2, she means that she is ready to communicate. *That* statement might not be true, since she might falsely believe she is connected when she is not. In that case, what she means is simply not true, no matter what she believes. It is useful to compare this with Putnam's claims about the necessary falsity of 'I am a brain in a vat' (Collier 1990).

place aspects that vary according to the function of particular utterances into pragmatics rather than semantics.¹³ Model theoretic semantics has been proven to be a good tool for studying entailments, if we assume that we have picked out the correct propositions. Furthermore, replacing formal semantics is a very radical move that should have benefits that cannot be obtained otherwise. So, we will assume that the problems that Barwise and Perry raise can be dealt with by modifying pragmatics, not semantics.

With this assumption we turn to examining the implications for pragmatics of Barwise and Perry's evidence that formal approaches to language aren't adequate (Barwise and Perry 1983: Chapter 2). Their classification of the evidence cuts across, to some extent, the standard parts of pragmatics: indexicality, illocutionary force, and implicature. This cross-classification presents some theoretical problems for pragmatics that are beyond the scope of this paper. The best we can hope for here is a general argument to the effect that a justifiable informal pragmatics can account for Barwise and Perry's evidence.

The six problems that Barwise and Perry claim cannot be solved by formal means are:

1. External significance of language: language is used to convey information about the world, and any aspect of language that can achieve this is a functional aspect of language.
2. Productivity of language: *Principle of Compossibility*.
3. Efficiency of language, indexicality – exploitation of the discourse situation, speaker connections and reference, exploitation of resource situations.
4. Perspectival relativity of language: available resources depend on perspective.
5. Ambiguity of language: an expression can have more than one meaning.
6. Mental significance of language: utterances carry information both about the world and about the mental states of their speaker.

Of these, 1 and 3 are most directly significant to our project, and also suggest most directly that the primary function of language is not to represent, as in the traditional view, but to convey information. Ambiguity and productivity depend partly on efficiency, and partly on perspectival relativity, which in turn depends on efficiency. Indexicality is a primary case of efficiency, and it and other context dependent aspects of language extend the notion in ways that cannot be formally delimited. In particular, illocutionary force can alter the literal or denotative information of an utterance so that it can mean almost anything, as we saw in considering the utterance 'Lovely weather we're having'. Even the simplest statements will have more force than their denotation through what is commonly called connotation. At the very least, any utterance tells us things about the speaker's mental state that are not contained in the denotation (point 6; for examples see Barwise and Perry 1983: 36-38, and 41-53).

Other functions of language depend on its primary function of conveying information. For example, we can convey information to change beliefs, and influence people's actions. Furthermore, we can violate conventions or known assumptions deliberately and be deceitful by conveying *misinformation*. Or, we can do the same thing unconsciously and simply be misleading. Basically, those are the things we can do with language. Speech acts, for example, involve conveying the information that some specific state has been achieved by the declaration itself.¹⁴ Coordination is achieved by modifying the information each member of a

¹³ Of course semantics has a function as well, but we can take it to be the mapping of the target of pragmatic considerations, and it will not vary according to any context but our presuppositions about ontology. This *may* be a reason for thinking that semantics is also not formal, but it is not obvious. A place where the issue arises naturally is in so-called semantic incommensurability of revolutionary theories with their predecessors. One of us, Collier (1984a, 1984b), has argued that the problem is not really a semantic problem, but a problem in pragmatics.

¹⁴ Speech acts are typically declarations that make something so. They can be written as well as spoken. Often they are effective only in the appropriate context. For example, in some jurisdictions a Muslim

group has so that they can play their roles, assuming they are willing. Deceit is achieved by conveying information that is false or misleading. (Strictly, information cannot be false, but information can be conveyed that is likely to lead to false beliefs.)

The representational function of language is especially important, not the least because it is taken to be the only function of language on the traditional view. On the traditional view the information given by the denotation (Kaplan's content) is all that matters. This is certainly important, since it is determined by the central linguistic components of grammar, lexicon and other conventional or innate aspects of language. Once we recognize that information can be conveyed by the interpretative context, which depends on all manner of resource situations, what is represented by a particular utterance goes well beyond the denotation. To restrict the content of an utterance, as Kaplan does, to the denotation ignores all this other information. Fine literature, poetry in particular, has far more content than its denotation would suggest; in many cases the denotation is secondary.¹⁵ This is also true of language in other practices, like diplomacy.

Information can be transmitted even if it is not received, so in a given context A may mean something that B at the moment does not understand. Therefore, utterance meaning does not necessarily depend on information reception. Disambiguation does not necessarily require further language, or even further communication. To give a simple example, suppose that A and B are hunting a large animal in bush country. Without ostending anything, A says, "It's over there". B, though he might know what species of animal A is talking about, might not know what 'there' means, and, because of that, may have no definite referent for 'it'. A might nod towards some birds flying up from the bush, and B would then know that it is under the birds. Or B might come to notice the birds without any help from A, and then know the referent of 'it'. This is not an atypical exploitation of a resource situation to disambiguate and achieve communication. The meaning is there; it has to be found. In poetry in particular, but in language in general, there can be information that is not intended even by the speaker (information about the speaker's mental state is often of this sort), so the interpretation of an utterance exists even if nobody understands it fully. Meaning is not psychological.

4.

With their situation semantics, Barwise and Perry place meaning in the world. This runs up against a well-known objection to Austin's situation semantics raised by Mates (Barwise and Perry 1983: 287). The problem, according to Mates, is that situation semantics cannot support even the simplest forms of reasoning, like *modus ponens*. On Tarski's satisfaction account of truth we can give a model-theoretic account of logical relations. On Austin's account, however, the interpretation of each statement is tied to the conditions of its utterance, so the logical relations are also historically relative. How can we get a general logical relation, given the historical particularity of the interpretations? Barwise and Perry argue that by filling out Austin's account with their account of situations and abstract situations, we can recover the correct logical relations in the abstract situations corresponding

can divorce his wife by declaring it so three times. Obviously there has to be a certain standard of ritual involved in these declarations, or else divorce might occur by accident. The standard, however, does not follow any specific rules; it just has to be high enough to make it clear that the man means it. This can be achieved in many ways, too many to list. It seems that whatever their other interest, speech acts do not introduce any new issues of interest to us, but they do serve as an example of why the range of contexts that give a particular meaning to a sentence (such as 'I divorce you') cannot be filled in according to some formal template.

¹⁵ Try concentrating on just the denotation of the first stanza of "Kubla Khan" and it turns into a description of an engineering project.

to the concrete situations of utterance. Basically, this comes down to the idea that the consequence or conclusion of an argument must contain the information contained in the premises. Intuitively this is correct, but why is it so? This last section will give an account of the content of situations that implies that it is so. It will also allow us to recover what is right in the account of content given by Kaplan and the later Stalnaker (1998). Due to considerations of space, we give only a sketch of the argument.

Given that the function of language is to convey information, and that information consists fundamentally in distinctions, any utterance that in a given context (including its non-social circumstances) makes some distinctions conveys information. This is independent of whether or not the speaker or any listener is aware of these distinctions, as we showed in the last section. Our problem at this point is to show how information can be conveyed, and how the result can be understood in terms of traditional semantics. The first problem has been largely solved by Barwise and Perry (1983) and in subsequent work by Barwise and Seligman (1997). We will quickly describe the main features of the solution. After that we will give a sketch of our solution to the issue of content, which draws heavily on this solution, but goes somewhat beyond it.

Barwise and Perry (1983: Chapters 3 and 4) characterize situations as concrete and actual, which they call real situations. They distinguish two types of real situations, states of affairs and events. Based on real situations, they define individuals, relations and space-time locations, and from these they define abstract situations. Abstract situations are situation types, and can be actual (if exactly the type of a real situation), factual (if the type classifies a real situation), and non-factual (if the type classifies no real situation). Classifications are grounded in constraints (Barwise and Perry 1983: Chapter 5, Barwise and Seligman 1997: Chapter 2) that relate abstract types to tokens.

Given two situations a and b , the second can mean something about the first if there is information conveyed from the first to the second (Perry and Barwise 1983: 141-143). This will occur just in case there is an informorphism as defined by Barwise and Seligman (1997: 28-34) between a classification of a and a classification of b . This basically requires that there is a causal connection between a and b that retains the structure of the classification of a within the classification of b .¹⁶ If this is so, then there is information in b , reflected in the distinctions that its related classification supports, about a . To take a simple case, due to Peirce, smoke observed gives information about a fire someplace near the smoke. This information is guaranteed by the constraints of physics, and is independent of any observer. The meaning of an utterance U in a situation u about a situation e , where U describes e , is constrained by certain constraints peculiar to utterances, and various other constraints on u and e that support suitable classifications that allow informorphisms between the classifications. As we have argued above, there are no a priori restrictions possible on what sorts of constraints might be involved. This is a large part of the reason there cannot be a fully formal pragmatics. What is important is that u contains information about e , and that U contains distinctions that are part of a relevant informorphism for u to contain information about e . In this very specific sense, meaning is in the world.

Given this approach to meaning, the context of the utterance U will typically contain distinctions other than those in U itself, and these constitute resources that can be used to carry further information of the sort we typically call pragmatic. For example, u contains information about the speaker, the speaker's circumstances, perhaps the audience and the

¹⁶ The exact nature of the connection is less than clear in Barwise and Seligman (1997), but the details are being worked out by a group called the Aardvarks (forthcoming). Barwise and Seligman only require regularity as a connection, but it is clear from other things that they say that this is at once too weak, and perhaps too strong.

audience's circumstances, and much else, too varied to be specified. Inasmuch as these distinctions in u depend on distinctions in U for an adequate classification permitting an infomorphism to be communicated, these are part of what might be in any interpretation of U . The largest (most informationally inclusive) such interpretation we could identify as the total content of U , whereas the linguistic or literal meaning of U (the denotation) would be restricted to just those interpretations that depend only on the general linguistic part of U in situation u . Traditional formal semantics is restricted at most to this part, even if it concedes that real facts must be among the models it quantifies over.

On Barwise and Perry's account we can include all of the relevant information in u not in U as a resource situation to be exploited. The necessity of there being infomorphisms for information to be conveyed ensures that any information conveyed will fit a certain classification, and will support a *local logic* (Barwise and Seligman 1997: 37-42). This permits a certain amount of reasoning, but does not give us traditional logic. However, Barwise and Seligman argue that the resulting logic explains actual reasoning better than traditional logic. Still, it would be nice to be able to recover traditional logic.¹⁷

In order to do this, we turn to some ideas from C.S. Peirce, who was concerned both with the need for pragmatics (he invented the study) and also for the need to support traditional logic (he invented much of it). In particular, we need to distinguish between the linguistic form of an utterance (Peirce's "imputed" quality, or ground), what it refers to (Peirce's object), and the interpretative context (Peirce's interpretant). Without all three elements we can have no real symbolic communication. Kaplan as well as Barwise and Perry use two-part systems that are combined together (character and content, meaning and interpretation) by combining constraints. Given a more Peircean treatment the utterance, its reference and its context must work together to compose meaning. What this means is that any two together do not give us a meaning. Kaplan's approach, as we have seen, leads to at best an infinite regress or a breakdown. The Barwise and Perry approach allows us to support certain types of reasoning, but not classical logic. Both approaches are degenerate dyadic approaches to what is essentially a triadic relation.

The aspect of this triadic relation most directly relevant to representation is the reference (Peirce's object). The closest thing we can get using Barwise and Perry's approach is what we have called the total content of U . Note that this depends on both the form of the utterance and its interpretive context. The form of the utterance itself, inasmuch as it conveys information, depends on a classification that may, and usually does, depend on the interpretive context (at the very least it depends on which language is being spoken). So we cannot simply add the form together with the interpretive context to get the reference. Using our earlier metaphor, the reference as a target implies that it also constrains the aim, so it also constrains both the literal and pragmatic elements of interpretation. We cannot stress too strongly that the three elements cannot be analyzed independently and added together by pairs.

Nonetheless, we can consider the reference as an aspect of the interpretation of an utterance. It is precisely the information that we have characterized as the total content. That the information is *about* something (e) is guaranteed by the conditions for its being meaningful. Furthermore, it will come with a classification. In principle, any reasoning that preserves this classification under the classical rules of logic will be valid. To put it somewhat more abstractly, but perhaps more vividly, there will always be a 1-1 mapping of the classification onto a string of binary numbers. These can be thought of as a row in a truth table of conjunctions in normal form. The classical logic of this row will just be the truth-functional consequences of this row. Therefore, both the row and the (equivalent) original

¹⁷ Even though we actually see logic and reasoning as two quite different kinds of things.

mapped information can be thought of as a proposition. Specific interpretations, such as the speaker's interpretation and the listener's interpretation will be some part of this objective information. By the same arguments they can also be thought of as propositions in much the same way. This gives a sketch of how we recover propositions of Kaplan's type from Barwise and Perry's situation approach.

The function of semantics, on our account, can be left to reflect the logical entailments of what we mean, and nothing else. Pragmatics deals with filling out linguistic conventions (such as they are) and the use of the resource situations in order to give a definite interpretation or content to a particular utterance. We really can't consider the semantics of language prior to its pragmatics, although conventional usage will place a limit on the range of possible interpretations (even this is partly achieved through the ways in which the conventions can be broken in ways that can still be followed). It is especially important that the fixing of an interpretation cannot be separated into independent linguistic, social, pragmatic and/or semantic parts. Each of these is an abstraction from a convoluted real process.

Conclusions

In this paper we have tried to find something of a middle road.

On the one hand, we have tried to avoid the formalism of model-theoretic pragmatics, such as Kaplan's, which limits itself to the consideration of entailment relations. As we have showed, this approach is incapable of dealing adequately with the role that the physical context plays in determining the meaning of not just some but all utterances.

On the other hand, we did not want to completely accept the situation semantics proposed by Barwise and Perry. Our main reason for this was their inability to account for logical relations.

To achieve our aim we were forced to develop a more complex account than either Kaplan's or Barwise and Perry's. Where they proposed dyadic approaches we have put forward a Peircean account based upon the triad of the linguistic form of an utterance (Peirce's ground), what it refers to (Peirce's object), and the interpretative context (Peirce's interpretant). On this account the formal aspects of pragmatics (and indeed semantics and all other formal aspects of language) are an abstraction from language as it is embedded in the world. Meaning is determined by context and usage, with no clear separation between the two. Only once the meaning of an utterance and its context are established is it possible to do the abstraction required to determine the formal structure. On our account, as interesting as formal structures are, they are only an aspect of communication, and are only fully determined within a complete account of all three elements. They are important, however, in explaining how entailment occurs, and they have the potential to help explain the logical aspects of language using well-known methods of logic. In particular, unlike in Barwise and Perry's approach, which does not correspond to traditional logic, the formal part of our account does correspond to classical semantics. The main point we want to make, however, is that this formal aspect of language is not the best starting point for understanding communication through utterances.

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