Propositions, What Are They Good For?

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Abstract

Our propositional-attitude concepts are indispensable to us; our very survival depends on the ways we use those concepts to exploit others as sources of information about the extra-cranial world and to predict and explain our own and other people's behavior. If, as many suppose, to have a propositional attitude is to stand in a propositional-attitude relation to a *proposition*, then we should find that propositions play an essential role in enabling propositional-attitude concepts to perform the jobs they perform for us, and if we found that things of some other kind—say, linguistic entities of some stripe or other—could do what propositions do better than, or even as well as, propositions, then we should doubt whether propositional attitudes really are relations to propositions. In this article I inventory the jobs that our propositional-attitude concepts do for us and explain how propositions enable them to do those jobs and why things of no other kind could enable them to do those jobs nearly as well as propositions do. I also show that, among propositions, fine-grained material-object-dependent propositions are much better enablers than propositions of any other kind. If my arguments are correct, then Davidsonians and others should give up trying to hold that propositional attitudes are relations to linguistic entities, and Stalnakerians and others should give up trying to hold that the propositions we believe and assert can be represented as sets of possible worlds.

Although there is a vast literature on whether propositional attitudes are relations to propositions, a crucial question that ought to lie at the heart of this debate is not often enough seriously addressed. This is the question of the contribution propositions make to the ways in which we benefit from having our propositional-attitude concepts, if those concepts are concepts of relations to propositions. Unless propositions can be shown to confer a benefit that no non-propositions could provide, we should probably doubt whether propositional attitudes really are relations to propositions. I believe that propositional attitudes are relations to propositions and that the role played by them in our conceptual economy cannot be played by things of any other kind, and in this article I try to say why. This article, in other words, offers my answer to the question posed by my title.[1]

A. Sharpening the Question

Let's start by asking what important jobs our propositional-attitude concepts do for us. There is a lot we can say in answer to this question, whether or not propositional attitudes are relations to propositions. Once we are reminded of *what* important jobs those concepts perform, we can ask *how* they are able to perform them, and here we can ask what role propositions play in answer to that question, if propositional attitudes are relations to propositions. There are at least three important roles our propositional-attitude concepts play in our conceptual economy.

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[1] This paper is a reconceptualization and clearer and improved version of the answer given in my (2003), chapter 8.

The information-acquisition role. We exploit the beliefs of others to gain information about the extra-cranial world. If I know that you are in London and that you now believe that it's raining in London, then I will believe that it's raining in London. I will take the fact that you believe that it's raining in London to be extremely good evidence that it is raining in London. If I know that you believe that your department just hired Professor So-and-So, then I will take that to be good evidence that your department did hire her. It would be difficult to overemphasize the importance of our ability to exploit the beliefs of others to gain information about the world, since it underlies our use of language to convey information. A friend in London utters the sentence 'It's raining' and you straightway know that it's raining in London. There are unresolved questions about whether knowledge by testimony is inferential, but whether or not it is, it seems clear that you cannot be justified in believing something you were told unless you're also justified in believing that the speaker believes it, too. Of course, it is no mystery how you can be justified in believing that it's raining in London on the basis of knowing that your friend believes that it's raining in London, since we know enough about how normal people acquire such beliefs to enable us to know that they typically wouldn't have them if they weren't true.

The predictive role. Just as we can sometimes infer that such-and-such from the fact that so-and-so believes that such-and-such, so, too, we can sometimes infer that so-and-so believes that such-and-such from the fact that such-and-such. Knowing what a person believes often enables us to draw new conclusions about what she wants, and, besides, just as certain kinds of extra-cranial facts provide evidence of what a person believes, so others provide evidence of what a person wants. One reason this epistemic access to the beliefs and desires of others is important is that we are very often able to exploit it to predict what they will do. Thanks to the ways in which non-mental facts of certain kinds provide good evidence of what others believe and desire, we have wide-ranging access to what others believe and desire, and we're often positioned to make reliable predictions about what people will do based on our beliefs about what they believe and desire.

The explanatory role. We exploit the beliefs and desires of others to explain both intentional and non-intentional facts: Herbert came to Manhattan because he wanted to find his wife and believed that she was hiding in Manhattan; Jane is stretched out on the floor like that because she is looking for her child and thinks he may be hiding under the bed. The claim that our propositional-attitude concepts play an explanatory role might seem more contentious than the claim that they play either an information-acquisition or a predictive role. This is because no one doubts that our propositional-attitude concepts can be wielded to use others as a source of information or to predict their behavior, but various philosophers have produced various arguments to show that propositional-attitude facts are incapable of playing a genuinely explanatory role. I don't think any of these arguments are sound, and in (2003) I try to say why. But we can skirt these issues, because I don't think anyone can reasonably doubt that our common-sense propositional-attitude because-statements—e. g. 'Leroy divorced his wife because he wanted to be a rabbi and believed that rabbis had to be single'—play *some* important role in our lives, whether or not it's to provide correct propositional-attitude explanations, and we can ask what that role is and what propositions contribute to it. In some sense, a common-sense propositional-attitude because-statement may be correct or incorrect, and knowledge of correct such statements are valuable at least because they help to enable us both to affect the behavior of others and to predict what they will do. In this regard, two features of them are crucial. First, they have *counterfactual value*: if someone did something because she had such-and-such propositional attitudes, then, all other things being equal, *she would not have done what she did if she hadn't had those propositional attitudes*. Second, they have *predictive value*: we have *epistemic access* to the propositional attitudes of others, and *we can often predict what they will do on the basis of knowing what they believe and want*. Roughly speaking, the more we know about why someone did what she did in propositional-attitude terms, the better we are able to predict what she will do on other occasions. Since the predictive value is already in play, the explanatory role of our propositional-attitude concepts introduces just their counterfactual value to be accounted for, although accounting for this isn't something I can attempt in this article (I do try to account for it in [2003]).

If our propositional-attitude concepts play the roles just cited, then it's legitimate to ask what explains the ability of those concepts to play those roles. But that isn't quite the question I set for

myself. That question is about the role propositions play in enabling propositional-attitude concepts to play those roles, and this question needs itself to be narrowed before we can profitably try to deal with it.

In (2003) I argue that believing is a triadic relation expressed by the open sentence

x believes *p* at *t*

where the values of '*x*' are believers, the values of '*p*' are things I call *pleonastic propositions*, and the values of '*t*' are times. Henceforth I shall for expository convenience suppress the time slot and speak as though believing were a dyadic relation between believers and propositions. Likewise, *mutatis mutandis*, for other propositional attitudes, although my focus from here on will be mostly on belief. I also argue in the book that in belief reports of the form

A believes that *S*

the that-clause tokens refer to contextually-determined pleonastic propositions.

The generic sense of 'proposition' with which I am operating is that of abstract, mind- and language-independent entities that have truth conditions, and have their truth conditions both essentially and absolutely. At the beginning of (2003), I give the following quick gloss, which is also intended to lend some prima facie plausibility to the claim that believing is a relation to propositions of some stripe or other. Suppose that Ramona believes that eating carrots improves eyesight. What is it that Ramona believes? Well, obviously, *that eating carrots improves eyesight*. But what manner of thing is this thing, *that eating carrots improves eyesight*, which is the thing Ramona believes? Evidently, we can say a number of things about it right off the bat:

- *That eating carrots improves eyesight* is *abstract*: it has no spatial location, nor anything else that can make it a physical object.
- It's *mind- and language-independent* in two senses. First, its existence is independent of the existence of thinkers or speakers. *That eating carrots improves eyesight* wasn't brought into existence by anything anyone said or thought. Second, *that eating carrots improves eyesight* can be expressed by a sentence of just about any natural language but itself belongs to no language.
- It has a *truth condition*: *that eating carrots improves eyesight* is true iff eating carrots improves eyesight.
- It has its truth condition *essentially*: it's a *necessary truth* that *that eating carrots improves eyesight* is true iff eating carrots improves eyesight. The contrast here is with sentences. The *sentence* 'Eating carrots improves eyesight' is also true iff eating carrots improves eyesight, but that is a *contingent* truth that would have been otherwise had English speakers used 'carrots' the way they now use 'bicycles'.
- It has its truth condition *absolutely*, i. e. without relativization to anything. The contrast is again with sentences. The sentence 'Eating carrots improves eyesight' has its truth condition only *in English* or *among us*. There might be another language or population of speakers in which it means that camels snore; but *that eating carrots improves eyesight* has its truth condition everywhere and everywhen.

And from all this we may conclude, by an obvious generalization, that things believed are what philosophers nowadays call *propositions*: abstract, mind- and language-independent entities that have truth conditions, and have their truth conditions both essentially and absolutely.

Agreement that believing is a relation to propositions in the generic sense just spelled out leaves plenty of room for disagreement about the further nature of those propositions. Are they structured or unstructured? If they are structured, are their building blocks the objects and properties our beliefs are about, *à la* Russell, or are they, *à la* Frege, "modes of presentation" of those objects and properties? If they are unstructured, might they also be fine-grained, so that we may have distinct unstructured propositions with the same possible-worlds truth conditions, or must they be Stalnakerian course-grained sets of possible worlds? The word 'pleonastic' in my doctrine of pleonastic propositions alludes both to a general theory about the ontological and epistemological status of a large class of entities that includes properties, numbers, fictional entities, events, and states and to a more particular theory about the individuation of the propositions to which that-clauses refer.

All that matters for present purposes are two things. First, the propositions to which that-clauses refer may be as fine-grained as contextually-relevant considerations demand. For example, it may be that the proposition that is the referent of the that-clause in an utterance of 'Ralph believes that George Eliot was a man' is both true in an arbitrary possible world just in case the person who was actually George Eliot was a man in that world and such that to believe it one must think of George Eliot as a famous nineteenth century novelist. Second, many of these propositions—for example, those expressed by sentences containing proper names or demonstratives—are *object-dependent* propositions, where an object-dependent proposition is one that wouldn't exist if a certain object didn't exist and which is partly individuated in terms of that object. The objects on which object-dependent propositions are dependent typically include the referents of proper names, pronouns, and demonstratives, as well as the properties we ascribe in our use of predicates.

In the rest of this article I shall assume as a working hypothesis that believing is a dyadic relation to fine-grained propositions, virtually all of which are property-dependent propositions and many of which are material-object-dependent propositions. The questions to be addressed are these: Given that we exploit propositional-attitude facts in the three ways listed above, what features of fine-grained object-dependent propositions help to make those facts exploitable in those ways? Could less fine-grained or object-independent propositions play those roles as well as fine-grained object-dependent propositions? Could things other than propositions—say, sentential entities of some kind, such as public language sentence tokens or formulae in a language of thought—play those roles as well as propositions? As will soon be apparent, it is this last question that will be my primary concern.

B. The Role of Propositions in Information Acquisition

To whatever extent our beliefs are reliable indicators of their truth, their being reliable to that extent is due to the fact that the brain states that subserve our beliefs are causally or otherwise correlated with external states of affairs. The fact that I believe that my middle name is 'Richard' is such good evidence that my middle name is 'Richard' because the brain state that subserves my belief was caused by the fact that that is my middle name, and because I would not be in that state unless the state were so caused. The reliability of beliefs, we might say, is based on the head-world reliability correlations that obtain between external states of affairs and internal neural states. We are able to exploit the beliefs of others as reliable indicators of external states of affairs because of the ways those beliefs rest on underlying head-world reliability correlations. We want to know how belief facts, and in particular the propositions ensconced in them, enable us to exploit others as a source of information about the extra-cranial world.

Here is what I hope is a heuristically useful way to think about the question before us. Suppose that super-smart Martians knew a lot about how we worked in so far as how we worked could be described in non-intentional terms, but that they were currently unable to describe us in terms of our propositional-attitude concepts. The Martians cottoned onto the fact that what brain state a given person was in was often good evidence that a certain extra-cranial state of affairs obtained, but, like us, their perceptual faculties couldn't penetrate our skulls, and so they had no direct access to our brain states. Besides, and also like us, having such direct access would do them no good as regards the exploitation of our head-world reliability correlations: even if they could see through our skulls, they wouldn't be able to identify the relevant brain states; even if they could identify the relevant brain states, they wouldn't be able to read off those of their functional and causal properties that accounted for their evidential properties; and even if they could identify the relevant brain states and their relevant functional and causal properties, to get any useful exploitation they would need a *system* that helped them to know what to infer about the world from facts about what brain states, with what functional properties, a given person was in. What would the Martians need in order

systematically to exploit our head-world reliability correlations as sources of information about the extra-cranial world?

The Martians would know that they don't need access to our brain states but only to the functional states those brain states realize, for if so-and-so's being in a certain brain state is evidence that a certain state of affairs obtains, then so-and-so's being in any functionally equivalent state would be equally good evidence that the state of affairs obtained. Consequently, the first thing the Martians would need is a way of ascribing functional states. They couldn't hope to ascribe those states by assigning to each one a proper name in the way meteorologists name hurricanes. For one thing, at any given time there are indefinitely many potentially relevant functional states, and, for another thing, naming each state wouldn't reflect important relations between them, such as the way the state we call believing [*p* and *q*] entails the states we call believing *p* and believing *q*, or the functional commonality between the belief that Fido is a dog and the belief that many dogs are pets. Clearly, the Martians need a finite-based recursive *system* for ascribing potentially relevant functional states. Now, the functional states most relevant to exploiting head-world reliability correlations as a source of information about the extra-cranial world are those we call belief states, but let's assume that the Martians are also interested in predicting and explaining human behavior. Then they will also want a systematic way to ascribe those functional states we call desires. What they need, at least to a rough first approximation, is a finite-based recursive system of indices for functional roles— properties of neural state types that detail, at least, counterfactual and transitional relations that tokens of a state bear to sensory inputs, other neural states, and behavioral outputs—and two relations R_b and R_d between humans and those indices such that if a person bears R_b to the index for functional role Φ, then that person is in one functional state, and if she bears R_d to that index, then she is in another functional state. When a person bears R_b to the index for Φ, then a state having Φ is tokened in one sort of way, resulting in her being in a certain functional state, and when she bears R_d to the index for Φ, then a state having Φ is tokened in another sort of way, resulting in her being in a certain other functional state. In order for the system of indices to be generative in the way that it must be, the neural states that realize these functional roles, the Φs, must have parts or features which themselves have functional roles, and it must be the case that these basic functional roles determine each indexed functional role, each Φ. Think of the way the functional role of a mentalese sentence type is a function of the functional roles of its basic components. Consequently, the Martians will realize that the indices they need must themselves either have parts or features that can function as indices of the functional roles that partially determine the functional role indexed by the whole index or else (think of Stalnaker's unstructured propositions, functions from possible worlds onto truth-values) must be otherwise relevantly related to such indices.

If the members of one set are used as indices of the members of another set, that is by virtue of the employment of some function from the first set onto the second. Which indexing function the Martians use will depend partly on their chosen system of indices and on the way relations among the indices mirror relations among the indexed functional roles. The literature on functionalist accounts of propositional attitudes is filled with accounts of how this might go. It's a difficult question, but we are familiar with the sort of black-box programming challenge it presents, and we know the question has an answer. For present purposes we may simply suppose that the Martians have a recursive system for indexing the functional roles they want indexed. Would they thereby *ipso facto* have enough to begin systematically exploiting the now accessible functional states of humans as evidence of what extra-cranial states of affairs obtain?

No. To be sure, they might know enough about the causes of certain sorts of sensory inputs involved in a particular functional role to know that when a state having that functional role is tokened in the R_b way, then a certain sort of distal state of affairs obtains. But if the Martians' exploitation is to be as good as it might be—if it's to be as good as ours—then the system of indices for functional roles will also have to be a system of indices for states of affairs. The Martians will need a *double-indexing* system: a system of things each one of which will index both a functional role and a state of affairs, thereby correlating the functional role with the state of affairs. The reason for this is that when they attempt to exploit the informativeness of the functional states we're supposing they are now positioned to ascribe, they will find that the evidential status of the functional state a person is in by virtue of bearing R_b to an index i is due in part to a certain sort of causal or other

relation that obtains between a certain property or object and a functional role indexed by some part or feature of i. Think of the way beliefs about dogs are systematically evidence that states of affairs involving dogs obtain. The upshot is that in order systematically to exploit head-world reliability correlations as a source of information about the extra-cranial world, the indices of functional roles in the range of R_b must double as indices of states of affairs, and the indices of functional roles that are parts or features of the indices in the range of R_b (or are otherwise relevantly related to those indices) must double as indices of properties or objects involved in the states of affairs. What relation between the indices and the properties, objects, or states of affairs indexed secures that the indices are indices of the things they index will mostly depend on the nature of those things which are taken to be the indices.

I am assuming that believing is a relation to fine-grained object-dependent propositions,[2] and if that is so, then the Martians could solve their problem of how to exploit our head-world reliability correlations as a source of information by adopting our concept of belief. Facts of the form *x believes p* are epistemically accessible, and it is easy to see how the propositions in the range of the belief relation provide the needed double-index system. It is an essential feature of each proposition that it has a certain truth condition, so each proposition therefore determines a unique state of affairs: that state of affairs whose obtaining is necessary and sufficient for the proposition to be true. By virtue of that determination, each proposition is an index of the state of affairs it determines. Parts or features of these propositions determine the properties or objects that in turn help to determine the proposition's truth condition, and they thereby index those properties or objects. How they do this will depend on what kind of propositions comprise the range of the belief relation; on a Russellian account of propositions, propositions are composed of the objects and properties our beliefs are about, and those objects and properties will simply index themselves. I have my own story to tell about those propositions I call pleonastic propositions, but the accuracy of that story won't be an issue in this talk. It's also easy to see how fine-grained object-dependent propositions can function as indices of functional roles. Such propositions make it easy to encode the states of affairs that are the inputs and outputs of functional systems, and inferential relations among propositions enable them to encode the causal and transitional relations among internal states that are themselves inferential in nature. The philosophical literature of the past forty years contains several detailed discussions of how this sort of encoding can be effected by functional theories that employ propositions.

In effect, three features of fine-grained object-dependent propositions allow them to play their role in information acquisition. First, they afford an indirect way of classifying those brain states that subserve beliefs by indexing their functional roles in ways that explicitly correlate them with external states-of-affairs types (e.g., the proposition that Harry Truman is dead correlates a certain functional role with the state of affairs of Harry Truman's being dead).[3] Secondly, owing both to the way propositions index functional roles and to the nature of the belief relation, the belief properties which embed propositions—the property of believing that such-and-such, or, equivalently, of being a belief that such-and-such—indirectly type the brain states that subserve them in terms of functional states that are crucial to capturing reliability generalizations. For example, to know that a normal person believes that there is a red object before her is to know that she is in a brain state of a type that will be tokened when lighting conditions are good and her eyes are open and facing the red object. Thirdly, the fact that belief properties have the functional implications just mentioned allows us to group them together under very general commonalities to yield further important reliability generalizations. For example, we know that the beliefs normal people have about what their names are and about what they are perceiving in their immediate environment are pretty reliable, that is, pretty likely to be true.

I am assuming that the fine-grained object-dependent propositions to which that-clauses refer provide the systematic double-indexing crucial to the exploitation of head-world reliability correlations. Might less fine-grained or object-independent propositions have served as well, if they

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were the propositions in propositional attitudes? I don't think so. Obviously, some kinds of propositions are better than others for exploiting head-world reliability correlations. Propositions enable us to exploit those correlations in part by indexing functional roles of the neurophysiological states that subserve beliefs, in that believing that such-and-such requires being in a token of a neurophysiological state type that has a certain functional role associated with the proposition that such-and-such. Suppose we have two such neurophysiological states that are functionally alike in some ways relevant to the exploitation of head-world reliability correlations but differ in other ways that are also relevant. Then, all other things being equal, a system of propositional indices that assigns two propositions to these states in a way that captures their relevant functional difference will be better than a system that assigns just one proposition to both states which captures their functional commonality. In this light, readers of my (2003) will appreciate that, all other things being equal, Russellian propositions are better for indexing functional roles than are propositions construed as sets of possible worlds, and Fregean propositions are better than Russellian propositions. But pleonastic propositions, which can be as fine-grained as one likes, given the way they are individuated in terms of what it would take to believe them, are best of all in this regard. That explains why fine-grainedness in propositions makes for better indices of functional roles as regards the role of propositions in exploiting others as a source of information. As regards object-dependentness, the same point applies. For example, if, as is widely assumed, beliefs whose contents are material-object-dependent propositions don't reduce to beliefs whose contents are material-object-independent propositions owing to the fact that the former beliefs entail causal or other relations to the objects on which the believed propositions are dependent, then material-object-dependent propositions index functional roles that can't be indexed by material-object-independent propositions.

C. Sentences and Information Acquisition

But do we need propositions of any kind in order maximally to exploit head-world reliability correlations? Might *sentential entities* of some kind do as well? If we are to use sentential entities as our double-indexing system, then those entities will be ones to which we can have easy access. The obvious thought is that a person would use sentences of her own language as the indices which correlate functional roles with external states of affairs. After all, those sentences are even more fine-grained than propositions, and we know they can have truth conditions. Suppose that one's own public language can function as the needed double-indexing system. Then I could stipulate that:

(1)   For any person x and any sentence S of mine, x believes* S iff x is in a belief state that has the functional role indexed by S.

The reference to being in a belief state is unproblematic, if, as it's reasonable to suppose, we can say what makes a state a belief without recourse to propositions. Then when I ascribe a particular belief* in uttering a belief* report of the form

(2)   *A* believes* *S*

it might be possible to exploit the fact that the functional role indexed by S is correlated with the state of affairs also indexed by S to take the fact reported in my utterance as evidence that the state of affairs obtains.

We couldn't, however, exploit head-world reliability correlations very well if we took believing* to be a relation to one's own public-language sentence *types*. It should be obvious, given irreducible indexicality, that if we are to use our own sentences in place of propositions, then we won't be able maximally to exploit others as a source of information unless we can issue belief* reports like

(3)   Mary believes* 'he loves that woman'.

But for the token of 'he loves that woman' in (5) to be informative about who loves whom, it can't refer to the sentence *type* 'he loves that woman' but must refer to some token of it that indexes some state of affairs involving a particular man and a particular woman.

At the same time, if we take believing* to be a relation to sentence *tokens* of one's public language, we get a different problem—namely, a person's beliefs would far outnumber her beliefs*. This is a bad feature for any account which hopes to rival the ability of propositions to exploit head-world reliability correlations; it would prevent me from making a substantial statement about Lester in saying 'All of Lester's beliefs* about thermodynamics are true' if I've never uttered a sentence about thermodynamics, and the ability to make such generalizations is obviously very important if we're to exploit others as sources of information. If the sententialist's believing* is to do as well as believing, she'd better make sure it's possible for someone to believe* something that I've never expressed.

If there is a way around this last problem which doesn't give up the idea that one's own public language sentences provide the crucial double-indexing system, it is likely to be by taking believing* to be a relation to a formula in the believer*'s inner system of mental representation, where the occurrence of the belief* ascriber's public language sentence token serves to pick out a formula in the believer*'s mentalese that is functionally equivalent in some to-be-specified way with the sentence in the belief* ascriber's mentalese that is the inner correlate in some to-be-specified way of her public language sentence token used in the belief* ascription. I sketch what would be required for this to work in (2003) and express doubt about whether it can be make to work. But there is no point in trying to resolve that issue if there is an independent reason for thinking that one's public-language sentence tokens can't in any way provide the required double-indexing system. I believe there is such an independent reason. So let me put aside the paucity-of-tokens problem and pretend that there is *so far* no problem with the sententialist's taking believing* to be a relation between believers and sentence tokens in the belief* ascriber's public language. The problem now to be raised, as we'll see, turns on irreducible indexicality.

If a person is to use his own sentences to exploit the head-world reliability correlations of others as a source of information about the extra-cranial world, then those sentences will have to function for him as indices of states of affairs. If sentences are to perform this task, then we must be able to specify how sentence tokens are to be correlated with states of affairs in order for the sentence tokens to index states of affairs. And it must be possible to do this without relying on the way propositions index states of affairs, for we won't have shown that sentential entities can function as well as propositions as exploiters of head-world reliability correlations if the way the sentential entities index states of affairs can be explained only by recourse to *propositional* attitudes. Now, to explain how sentential entities can systematically index states of affairs is the same as to explain how truth conditions can be assigned to those sentential entities (in the ontologically untendentious use of 'state of affairs' that I intend, the T-sentence "'Snow is white' is true iff snow is white" correlates 'Snow is white' with the "state of affairs" of snow's being white). The question, therefore, is whether exploitation-appropriate truth conditions can be assigned to one's sentence tokens without recourse to propositions. Further, since we are in fact able to exploit head-world reliability correlations as a source of information pretty well, and since the truth conditions of our statements are those of the beliefs we express in making those statements, I assume that if we can't assign to our sentence tokens the truth conditions they actually have without recourse to propositions, then there is no chance of explaining without recourse to propositions how they could have any suitable exploitation-appropriate truth conditions. So how might a would-be sententialist show, without recourse to propositions, that her sentence tokens can systematically be assigned truth conditions in a way that makes those truth conditions accessible to us, so that the assignment may be used by us in exploiting others as a source of information?

It is not enough for the sententialist to show how any particular actual sentence token can be assigned a truth condition, since there can be no hope of an adequate exploitation of others as a source of information unless we can form opinions about what belief*s would be true in relevant counterfactual circumstances, and this requires an ability to assign truth conditions to *possible* sentence tokens. In other words, the sententialist must be able to supply an adequate completion of

(4)   Necessarily, an utterance by me of the sentence type 'She is a violinist' is true iff …

in a way that takes no direct or indirect recourse to propositions. Given the ban on appealing to propositions, the sententialist can't say what he would otherwise want to say, namely, that an utterance of 'She is a violinist' is true just in case there is some female to whom the speaker *refers* in

uttering 'she', and that female is a violinist. For referring requires referential *intentions*, and intentions are *propositional* attitudes. The sententialist can't appeal to the notion of speaker-reference since that involves the propositional attitude intending; but might he not appeal to *referring**, a relation defined in terms of the *sentential* attitude *intending**? No. Suppose we want an utterance of 'She is a violinist' to be true just in case Sally is a violinist. Then referring* must relate the speaker to Sally. But intending* is a relation to a sentence token—in this case, say, to the uttered token of 'She is a violinist'. So in order for referring* to be explicable in terms of intending*, we would need some reference relation other than referring* to secure Sally as the truth-maker for the utterance. But if we had such a reference relation, we wouldn't need referring* in the first place. No sentential attitude can enable a sententialist to assign truth conditions to his sentence tokens, since one would already need an assignment of truth conditions for the sentence tokens to which the sentential attitudes related one.

There may seem to be three other options for the sententialist.

1. Many philosophers believe that the reference relation is reducible to some non-intentional relation, in the sense of being a relation that is intrinsically specifiable in non-intentional terms, but nothing that strong would be needed to help the sententialist. It would be enough if the sententialist could avail herself of any non-intentional relation R such that a person's bearing R to a thing entailed that the person referred to the thing. Well, it may or may not be reasonable to believe that such relations exist, but it is definitely unreasonable to think that one could make use of them in a truth theory for one's public language. Specifying such relations, should they exist, would entail specifying minimal supervenience bases for intentional facts, and such bases are bound to be extremely complex, and no one is now in a position to say what they are. So, if there are such reference-reducing relations, they aren't available for use.

2. This option appeals to notions related to what Hartry Field in (2001a) has called a "purely disquotational" notion of truth. It might be said that the problem I raised for the sententialist is a problem for the sententialist for whom truth is a use-*dependent* notion, a notion whose application to expressions depends in part on how those expressions are used. But a purely disquotational notion of truth is a use-*in*dependent notion, a notion whose application has nothing to do with how expressions are used. Perhaps, it might be suggested, the problem of indexicality won't arise for the theorist who hopes to have her exploitation of head-world reliability correlations based on a use-independent, purely disquotational notion of truth.

Let's first state the idea for sentence types. We begin with a "purely disquotational" notion of truth, $true_{pdme}$, such that it applies only to sentences of my idiolect and (subject to possible qualifications pertaining to semantic paradox) such that every instance of the schema

(5)   'S' is $true_{pdme}$ iff S

is an analytical truth in which the left-hand side has the same cognitive value as

(6)   'S' exists and S.[4]

This would secure my sentence 'Zebras fly' as an index of the state of affairs of zebras' flying, since it would follow that

(7)   'Zebras fly' is $true_{pdme}$ iff zebras fly

is a necessary truth that is knowable a priori.

But how does the idea get adjusted to accommodate indexicality? How, that is, is the pure disquotationalist to define $truth_{pdme}$ for her own indexical sentences? If we merely had to accommodate a particular utterance of an indexical sentence, the disquotationalist could simply tweak '$true_{pdme}$' as already introduced and get such instances as

(8)   The token of 'I'm thirsty' I just produced is $true_{pdme}$ iff I'm thirsty.
          The token of 'He loves her' I just produced is $true_{pdme}$ iff he loves her.

However, we know that the disquotationalist must also be able to explain what it would be for the possible utterance of an indexical sentence to be true, so we need to know how the definition of '$true_{pdme}$' must be adjusted to provide a completion of

(9)   Necessarily, an utterance by me of the sentence type 'She is a violinist' is $true_{pdme}$ iff …

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[4]   (2001a), p. 136.

I assume the disquotationalist would seek to accommodate indexicality in the following sort of way. First, along with a purely disquotational notion of truth applicable to closed sentences, we can also have a purely disquotational notion of *truth of* applicable to open sentences. Thus, we introduce a notion, true-of$_{pdme}$, such that it applies only to open sentences of my idiolect and (paradox still aside) every instance of the schema

(10)   '$S(x_1, …, x_n)$' is true-of$_{pdme}$ $<a_1, …, a_n>$ iff $S(a_1, …, a_n)$

is an analytical truth in which the left-hand side has the same cognitive value as

(11)   '$S(x_1, …, x_n)$' exists and $S(a_1, …, a_n)$.

For example, to know that 'x is bald' is true-of$_{pdme}$ Harry is, bracketing the existence of 'x is bald', just to know that Harry is bald. Now, letting

(12) $S(i_1, …, i_n)$

be a sentence and $i_1, …, i_n$ the indexical or demonstrative terms in it, we can begin to revise the truth$_{pdme}$ schema for sentences of my idiolect by first stipulating that:

(13)   Necessarily, an utterance by me of the sentence type '$S(i_1, …, i_n)$' is true$_{pdme}$ iff $\exists a_1, …, a_n(\underline{\textbf{R}}(<a_1, …, a_n>, <i_1, …, i_n>)$ & '$S(x_1, …, x_n)$' is true-of$_{pdme}$ $<a_1, …, a_n>$).

The task now is to replace 'R' without overt or covert appeal to any proposition-involving intentional notions, such as my referential intentions.

Field has in effect suggested that 'R' be replaced thus:

(14)   Necessarily, an utterance by me of the sentence type '$S(i_1, …, i_n)$' is true$_{pdme}$ iff $\exists a_1, …, a_n$(I "regard $<a_1, …, a_n>$ as appropriate to associate with $<i_1, …, i_n>$") & '$S(x_1, …, x_n)$' is true-of$_{pdme}$ $<a_1, …, a_n>$).

But what does Field mean by "regarding it to be appropriate to associate a thing with an indexical"? He can't really mean *regarding* by 'regarding', since regarding is a *propositional* attitude. Actually, I don't think that 'regard … as appropriate' is bearing any real weight in (16). The real weight is borne by the idea of one's "associating" a thing with an indexical, and on this Field explains that

> When I say that I 'associate values' with an indexical, … what I do is associate a mental occurrence of one of my own expressions (possibly itself indexical) with it. (2001a, p. 136)

Associating for Field is to be spelled out in terms of internal processing; roughly speaking, and assuming I think in English, I associate a mental occurrence of the name 'Mary' with 'she' in my utterance of 'She is a violinist' if the mentalese sentence 'Mary is a violinist' occupies a certain privileged place in the causal process that led to my utterance of 'She is a violinist'. But how is one to get from 'Mary' to Mary? A notion of reference$_{pdme}$ is needed. This may be available for names. Simplifying more than a little, the disquotationalist could introduce the notion of reference$_{pdme}$ so that every instance of the schema

(15)   If NN exists, then 'NN' refers$_{pdme}$ to NN

is a necessary truth knowable a priori. But suppose the mentalese expression associated with my utterance of 'she' is 'that woman over there'? If we had only to accommodate particular tokens of indexicals, we could say

(16)   The currently operative token of 'that woman over there' refers$_{pdme}$ to that woman over there,

but that won't suffice for getting an appropriate completion of (16). The disquotationalist needs a completion for

(17)   Necessarily, a mentalese token of 'that woman over there' refers$_{pdme}$ to x iff …,

and I don't see how this can be achieved with the resources available to the disquotationalist.

There is another problem for the disquotationalist, which arises even if she can adequately complete (17). Suppose that *you* say 'She is a violinist', thereby expressing your belief that Mary is a violinist. Recall that I am assuming that it may be determinately true that you did express your belief that Mary is a violinist, and that I am assuming this without prejudice to the current disquotationalist proposal. For that proposal isn't about the notions of content we in fact employ; it is the proposal that a certain disquotational sententialism would do as well as regards exploiting others as a source of information if it were employed. Now, according to the disquotationalist, my believing* what you say consists in my associating your utterance of 'She is a violinist' with a mentalese sentence of mine that is tokened in my belief box. But, for the disquotationalist, my associating your utterance with a sentence token of mine can't be based on any employment of interpersonal semantic notions, such as

sameness of reference. What mentalese sentence of mine I associate with your utterance will depend on what correlation policies are built into my internal information processing. Let the inner "correlation manual" be whatever works best. Either it will or it won't result in my token of 'she' that is correlated with your token of 'she' referring to Mary. If that result isn't *guaranteed*, then it seems obvious that the disquotationalist can't exploit others as a source of information as well as we in fact exploit them using fine-grained object-dependent propositions. At the same time, (a) there is nothing in the account that implies that it *can* guarantee the desired sameness-of-reference result, and (b) it's hard to see how it *could* guarantee that result without appeal to what must be *verboten* for the disquotationalist—viz., appeal to an inter-personal and inter-linguistic notion of reference. This last point, (b), no doubt needs an elaboration I don't have time to give, so please deem me to have put it forward merely as a bald statement of what I take to be a problem for the proposal in question.

3. This last option retreats to a quasi-sententialist view which would provide context-independent indices. Instead of trying to use a token of 'She is a violinist' to index the state of affairs of Sally's being a violinist, the thought now is to take the index to be the ordered pair

(18)   <Sally, 'violinist'>

for which we stipulate that

(19)   <Sally, 'violinist'> is true iff 'violinist' is true-of$_{pdme}$ Sally.

But this quasi-sententialist proposal is defeated by the long arm of indexicality. Among singular terms, it's not just pronouns and demonstrative phrases like 'this' or 'that boy' which would require special treatment. So would names, as one can appreciate by considering how many Johns there are, and so would incomplete definite descriptions, such as 'the cat'. Then there is the indexicality involved in

(20)   No one showed up.
         It's raining.
         The field isn't flat enough.
         Bob's good.
         Hilda's tall.

But the biggest kibosh is put on the quasi-sententialist proposal by the extent of indexicality in our use of predicates just by virtue of the ubiquitous phenomenon of vagueness. Vagueness itself is no problem for the deflationist's notion of truth-of$_{pdme}$, since the right-hand side of

(21)   'Bald' is true-of$_{pdme}$ Harold iff Harold is bald

inherits the vagueness of its left-hand side. The problem is that the penumbra of vague concepts dilate or constrict from one context of utterance to the next as determined by the speaker's communicative intentions. A speaker's utterance of 'He's not bald' may count as true when said of a contestant in a Yul Brynner look-alike contest, but count as false when said of the same person as a possible date for Henrietta, who likes only guys with luxuriant heads of hair. This sort of predicate fine-tuning presents the same problem as the other kinds of indexicality, and it evidently plays an important role in the way we exploit the beliefs of others as a source of information.

Another kind of quasi-sententialist account of the indices is suggested by Mark Richard's "Russellian annotated matrices" and by the "interpreted logical forms" of Richard Larson, Peter Ludlow, and Gabriel Segal, which would, roughly speaking, represent the index for an utterance of 'She is a violinist' when Sally is the referent of 'she' as

(22)   <<'she', Sally>, <'is a violinist', the property of being a violinist>>.[5]

But I regard these quasi-sententialist indices as being for all intents and purposes propositions, since one can define truth conditions for them in the same way one can for Russellian propositions. These entities would function as indices of states of affairs only by virtue of the Russellian propositions contained in them.

Irreducible indexicality shows that no sentential entities can do as well as fine-grained object-dependent propositions in their role as indices of extra-cranial states of affairs. But the same indexicality considerations also show that no sentential entities can do as well as fine-grained object-dependent propositions in their role as indices of functional roles. Quite simply, this is because object-dependent propositions often index functional roles that can't be indexed by any sentential

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[5]   Richard (1990); Larson and Ludlow (1993); Larson and Segal (1995).

entity, and these functional roles—e.g. the function role of one's belief that *that woman* is a violinist—are indispensable for the maximal exploitation of head-world reliability correlations as a source of information about the extra-cranial world.

D. The Role of Propositions in Prediction and Explanation

Pretty much the same head-world reliability correlations that enable us to exploit the beliefs of others as a source of information about extra-cranial facts also enable us to exploit extra-cranial facts as a source of information about the beliefs and desires of others, and, of course, exploiting a person's beliefs and desires to predict what she will do is just another way of exploiting a person as a source of information. My distinguishing what I'm calling "information" and "prediction" was basically just a bookkeeping device, but I also wanted to emphasize that when we use a person's propositional attitudes to predict what she will do, the mechanisms relied on are different from those relied on when, say, we infer from a person's belief that it's raining that it is raining. In the prediction case, we use our knowledge of how beliefs and desires interact to produce behavior, the same knowledge we use to explain behavior, whereas in the information case we use our knowledge of how beliefs of a certain kind are apt to be caused. Nevertheless, it ought to be obvious that if nothing can do as well as fine-grained object-dependent propositions as regards exploiting others as a source of information about the extra-cranial world, then nothing can do as well as them as regards predicting what people will do. And given the point I made at the start of this article, that propositional-attitude because statements wouldn't have the value they have in our lives if we couldn't often predict what people will do on the basis of knowing what they believe and want, then it also follows that nothing can do as well as fine-grained object-dependent propositions as regards their explanatory role. There is another reason that nothing can do as well as material-object-dependent propositions as regards their explanatory role. Owing to the point about irreducible indexicality, a system of indices that includes material-object-dependent propositions is capable of indexing more functional roles that are potentially explanatory of behavior than any system that isn't capable of accommodating irreducible indexicality. These functional roles are the ones indexed by the material-object-dependent propositions that provide the contents of propositional attitudes that enter into correct propositional-attitude because-statements.

There is of course a lot more to be said, and many more questions to be addressed, about the way we use propositional attitudes to predict and explain behavior, but my purpose in this article has primarily been the more limited one of offering reasons why we need propositions to do the jobs they do for us.

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