

obscurity of purpose makes his continual references to science seem irrelevant to our views about the nature of minds. This can only reinforce what Wilson would call the OA prejudices that he deplors.

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SCIENTIFIC REALISM AND THE PLASTICITY OF MIND. By PAUL CHURCHLAND. New York and London, Cambridge University Press, 1979. Pp. x, 157. \$19.95.

Paul Churchland's book is an attempt to show how one can have a literal, realistic attitude to current scientific theory and at the same time see our current system of concepts as inconclusive, temporary, far from any cadence. He wants to let us have both a Putnam-like scientific realism and a Feyerabend-like acknowledgment of the plasticity of our understanding. His main target is our understanding of mind, both because it is natural to expect that their scientific theorizing will have some radical impact on our ordinary thinking, and because of the connections between one's theory of mind and one's theory of knowledge. And, though Churchland is not explicit on this point, some of the most puzzling questions about realism and reference arise about the vocabulary of mind.

Churchland begins by describing the continuity of commonsense and scientific belief, arguing, much in the manner of Hanson, Goodman, or a number of others, that perceptual experience is something that is informed as much by one's beliefs as by what strikes one's receptors. What is interesting here is not so much these conclusions as his attempt to describe the malleability of perception by prior belief in such a way that it allows perception to bear a referential relation to the physical realities that prompt it. No general theory of perception is given. The perception of heat is discussed in some detail, though, and a good case is made that the more our perception of heat is informed by thermodynamics, the more of the possible information in the relevant stimuli is brought to the level of perception. A nicely thought-out description of how one can come to see the visible parts solar system in a properly Copernican way complements the thermodynamic example. In both these cases Churchland wants to find something proposition-like in experience, in the way things seem rather than in the beliefs we

have about them, so that he can assimilate the effect background belief has on perceptual appearance to the effect bodies of belief have on the meanings of particular sentences. And so he says that "sensations" have meanings, which he treats in much the way that a modern philosophy of science would treat the meaning of sentences. I find myself a little confused by this. I don't understand quite what a sensation is, on a view which makes perception so plastic. I am sure that it is hard on such a view to find a suitable vocabulary to describe a purely phenomenal level of experience (should it even exist on such a view?), and I am left feeling rather up in the air. More has to be said.

In the next chapter a theory of meaning is sketched, which is meant to back up what Churchland says about perception. He begins with something resembling a defense of the analytic-synthetic distinction. While Quine's criticism has it that there is not enough substance to the notion of meaning to support the distinction, Churchland argues that there is too much to it, too much for analyticity to serve the purposes that philosophers have often wanted it for. He discusses the meaning of words and sentences in terms of the interaction of two independent factors, a roughly social factor which he describes as the semantic importance of a sentence in determining the meaning of a word in it, and a much more individually epistemic factor which consists essentially in the function that the belief expressed by a sentence plays in organizing a person's system of beliefs. There is an interesting, though irritatingly pseudo-quantitative, diagram to show how this contrast brings out the intuitive sense that, for example, 'cats are animals', ' $1 + 1 = 2$ ', and 'sensible objects are aggregates of molecules' are epistemologically solid in rather different ways. Translation, from one language to another or from one person's speech to another's, will then be underdetermined if differences of doctrine or of linguistic habit make it impossible to maximize semantic importance and systematic importance simultaneously. Usually one preserves semantic importance, but then awkward differences of doctrine and of treatment of evidence may crop up. Sometimes one concentrates on preserving systematic importance (he calls this 'transdoxation') to avoid these; this is probably the right course when talking to Martians. But in any case the two desiderata of translation, appreciating the rationale of another's beliefs and smoothing disagreement with them, will not always coincide.

Churchland must now, to preserve his general strategic symmetry, argue that the referential aspect of language can also, in principle at least, be dealt with from his general framework. He argues that on his richer notion of meaning, intension determines extension, unaffected by Putnam's counterexamples. For if the meaning of a word is fixed

by a set of sentences of varying importance, then beliefs such as 'a is made of this stuff before me' or 'a is of the same nature as b' can be part of the fixing of a term's meaning, and thus provide within a term's intension one factor, at any rate, that can help determine its extension. And what if there are also peculiar beliefs about, for example, what a natural kind is, or what it is for two samples to be of the same stuff? In translating 'kind', 'stuff', 'causes', and so on, is one not making Quinean analytical hypotheses? Churchland sees the danger here, and his reply, as I understand it, is that in these cases no extension at all is picked out. But this seems to undercut the main reason for wanting to talk about reference: that a term may preserve its reference under large changes of sense. That it is Churchland's intention to preserve this use of the notion of reference is evident from a discussion of reduction between theories, at the end of the chapter, where he argues that there can be reduction even between theories that are incommensurable in that there is no satisfying translation between their vocabularies. The notion of reduction itself is not examined very closely, though. Allusion is made to standard philosophy of science talk of bridge laws, but the example that is discussed at greatest length, the reduction of classical mechanics to the special theory of relativity, is one to which most philosophers of science now think the standard treatment does not apply very well.

The last two chapters describe how commonsense, unscientific psychology, and prescientific, unnaturalistic epistemology might come to be revised in the course of scientific developments. The reasons for revisability are rather similar in the two cases; they both turn on the reliance of the prescientific doctrine on formulations in terms of propositional attitudes. Churchland at first seems to take vernacular psychology, the commonsense conception of mind, as given by lists of platitudes about motivation and action. He goes on, though, to take the essential characteristic to be the description of states of mind in terms of the relation between agents and propositions. In fact, he goes further and takes everyday psychological explanation to depend on principles whose generality consists in a quantification over propositions, just as the generality of explanatory principles in physical science consists in part in a quantification over numbers. This affords an easy contrast between the abstract objects of commonsense psychology, propositions, and those of science, numbers.

Intensionality does not have to take this form, and Churchland does not pause to go into details about why he thinks it does. Nor does he use the contrast between numbers and propositions to throw much light on the reasons we might have to forsake intensional talk of mind. All

we are given in the way of an analysis of how this conceptual shift might occur is an attempt to transform a treatment of self-ascription like Sellars' or Putnam's into an assurance (of a piece with his earlier theory of perception) that whatever new theory of the mind we come up with, we will be able to use it to make reliable first-person ascriptions. But the transformation really is not very convincing; Sellars and Putnam have shown us that at the heart of some of our abilities to make first-person ascriptions is a skill which we are taught early in our socialization, the workings of which cannot be discovered by introspection. It does not follow that *any* theory of mind can be learned in such a way as to lead to reliable self-ascriptions. Perhaps some strong constraints on vernacular psychologies are imposed by the requirement that many ascriptions be confidently made by people of themselves and of others. And perhaps not. The only way I can see of arguing it out is by solid experimental psychology of a kind we haven't enough of yet, or by looking at the history of mental discourse with an eye to its plasticity, and this would require a very subtle touch indeed.

The way in which Churchland puts the contrast between vernacular and scientific psychology does, however, allow him to include the reform of epistemology in the program for a scientific reorganization of belief. For epistemology is expressed in an inescapably propositional vocabulary. Churchland argues for the reformulation of epistemology in nonpropositional terms. His argument is essentially that our most impressive and interesting acquisition of knowledge occurs in the first few years of life, when the attribution of propositional attitudes to us is problematic. One can quarrel with many details of his argument here; in particular, it seems to identify all use of propositional idioms with the limited vocabulary of actual, present-day commonsense. But it is undeniable, I think, that Churchland is raising an important and troubling question. His treatment of it would be more satisfying if he actually developed some principles of an alternative epistemology, and showed how they solved some problems or resolved some confusions.

The book is throughout frustrating in just this way. It holds out promise of a grand new picture of thought and knowledge, and then the large ideas that are delivered are often not very new or not very helpful. But to say just this would be unfair; there is in the book a rather inspiring picture, a view through two eyes very wide open and very far apart, of how scientific theory could permeate our belief, and there are many good points, nice formulations, helpful remarks. The lack is in middleground detail to fill in the way from the one to the other. When I first read the book I felt that perhaps in some future culmination of

Western Science, some Feyerabendland, it might be seen as prophetic. On rereading it I appreciated more the fine details, many of which cannot be discussed in a short review, and I appreciated, too, how far short they fall of filling in the really grandiose intentions. It is well worth reading, for all these reservations, and would be helpful to students (as long as they don't pick up Churchland's use of 'parameter' or of the slash as an all-purpose connective), to give them an idea of how one can drive at something undeniably important, while continuing to do orthodox philosophical spadework.

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WORDS AND DEEDS. By DAVID HOLDCROFT. Oxford, Clarendon Press, 1978. Pp. 178. \$18.50.

To what extent must the *semantic* description of a language's sentences invoke, either explicitly or implicitly, *pragmatic* notions, that is, notions having to do with communicative purposes, speech acts, presuppositions, and so on? In reaction to a strong tendency in philosophy of language in the fifties and sixties to treat pragmatic aspects of language use as part of semantic description, both informally and in formal semantic theories, there has arisen in the seventies a vigorous movement to purge semantics of pragmatic impurities.¹ This purist view of semantics has been prompted in part by the attractiveness of Davidson's suggestion that Tarskian extensional semantics is adequate for the theory of meaning; one can, of course, also envisage completely intension-based versions. The movement has not neglected pragmatics; on the contrary, there has been a lively pursuit of pragmatic topics, in part to show that what pragmatics independently delivers explains away putative semantic properties. Grice's concept of implicature, for example, has been put to extensive use in this connection.

Holdcroft's *Words and Deeds* is a notable contribution to this movement, both in its defense of semantic purism, and in emphasizing the importance of complex pragmatics. Holdcroft's purpose is to removal all *illocutionary* concepts from semantics into pragmatics (these are my terms,

¹ Evidently, by 'pragmatic' I do not here mean 'having to do with formal functions from contextual parameters to truth conditions'. The idea that formal semantics must incorporate such functions is at least notionally compatible with keeping semantics free of pragmatic reference, speech acts, and intentions.