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ested in finding ways of establishing ethical first principles, accepted certain moral principles as self-evident, was concerned with delineating an ultimate end, and never gave up trying to elaborate an ultimate principle, all distinctively unpragmatic tendencies. Kloppenberg's thesis has the virtues of a fruitful though false hypothesis. The perspective is illuminating. But it should not lead us to abandon perspective altogether.

Reprinting the essays by Schneewind, Donagan, and Mackie, Collini and Kloppenberg gives the interested reader a chance to reread and rethink them and gives access to them to those who had previously been unaware of them. They are all eminently worth reprinting and collecting. And, though the quality of the essays is somewhat uneven, this is one of those instances where the whole is greater than the sum of its parts. For the serious Sidgwick scholar, certainly, this book is indispensable and will have lasting value; it is, in addition, a valuable contribution to the study of ethical and political theory and the history of moral philosophy.

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Existential Cognition: Computational Minds in the World. RON MCCLAMROCK. Chicago: University of Chicago Press, 1995. Pp. ix, 205.

Existential Cognition, divided into four parts of three chapters each, argues that the mind "is an essentially embedded entity; one such that analyzing it in isolation from the environmental context in which it functions will be fundamentally misleading" (p. 1). Disputing internalists who accept, and who reject, information processing accounts of the mind, as well as anti-cognitivists who reject internalism, McClamrock argues for an externalist information processing account of mental states and processes.

Few would dispute that the mind is an embedded entity, in the sense that understanding ourselves as natural objects requires investigating our causal embedding in the world, and adaptations to the environments which have formed us. McClamrock's claim, to be contentious, must be about what is essential to understanding thought and cognition as such. In the end, however, not all the argumentation is directed to the stronger position. One detects two projects, one concerned only with a causal-historical account, and the other with the more general project of understanding the nature of thought and experience independently of the contingencies of our existence. While intended to be mutually reinforcing, they are related by no more than propinquity.

I cannot give attention here to everything in the book that deserves discussion. I limit myself to a few themes of philosophical interest in each part.

Chapter 1 argues persuasively for the autonomy of explanations at different levels of system organization, the importance of identifying the context of a system for identifying properties relevant to our explanatory interests, and the importance of distinguishing what a system is supposed to do and how it does it (its task versus the implementing process). This prepares for an attack in chapter 2 on methodological solipsism. McClamrock accepts uncritically externalist accounts of thought content, and sets out to show that the relational character of content properties is no threat their causal relevance. The counter argument pro-

ceeds by giving examples of relational differences in thought content making an explanatory difference, and, hence, for a difference in causal powers. Chapter 3 gives a more general defense of the causal relevance of higher level properties.

The examples fail to establish the case. I discuss one. Molecular twins on different worlds both announce, "I want to go to Cleveland." For each the route is different. The difference in content, expressed by the different referents of 'Cleveland', leads to a difference in behavior. Several things need to be sorted out. First, it is not just the beliefs so announced that are required for each to engage in his behavior. Each must have other thoughts, e.g., connecting the city each has in mind with descriptions of his immediate environment (perhaps a mark on a map, and other marks on the map with the local environment). For their behavior to differ (described without prejudice to location), some of those thoughts will be or become different. Our feeling that we have a causal explanation in the offing may depend on our recognition that this is an explanation sketch. We expect it to be filled in by appeal to different thoughts for each which describe objects related to them, thoughts intuitively not relationally determined. There would still be behavioral differences even were their thoughts qualitatively identical throughout their trips: after all, they arrive at different places. But they started out at different places as well. One might as well argue that qualitatively identical but numerically distinct physical objects *ipso facto* have different causal powers.

This points to a different problem. Our concept of causal relevance derives from that of a causal law; causal laws connect purely qualitative properties. Predicates that contain directly referring terms don't pick out purely qualitative properties, and so are not candidates for the causal relevance relation. They may figure in explanations: John broke the vase in your house rather than mine in part because he was in *your* house. But this hardly makes the property of being in your house a candidate for subsumption by a causal law.

Chapter 3 aims to show how higher level, particularly relational, properties can be causally relevant to an effect type, by arguing that they may screen off lower level ones. For example, different genotypes may generate the same phenotype (coloration, e.g., that camouflages an organism). McClamrock argues that the phenotype, not the genotype, is causally relevant. But genotype and phenotype are not in competition. The genotype is causally relevant to the phenotype, which is causally relevant to success in avoiding predators, and reproductive success. Causal relevance is transitive. The screening off test is misapplied to show that event types instantiated by earlier links in a causal chain cannot be causally relevant to later ones.

It would be astonishing for McClamrock to give examples in which all lower level properties were screened off by higher level properties. For then no lower level causally explanatory story could be told. McClamrock accepts that there is always a lower level explanation. But he overlooks the fact that this implies that the lower level properties are causally relevant to the effect (type) in question. McClamrock notices only that focusing on multiply realizable higher level properties may lead to more useful generalizations.

Part 2 urges that, in thinking about ourselves as agents whose behavior is suited to their environments, it is better to see us as designed to exploit the nature of our environment to reduce the resources required to solve practical problems than as optimally rational creatures designed for all eventualities. McClamrock argues that this is how natural beings get around the generalized frame problem. This seems right, but provides little support for the book's anti-Cartesian theme.

A content internalist could happily accept all of this. Let the environment be "... an ineliminable part of the account of thought and action even under the idealization of the organism as having completed whatever learning it does" (p. 82). Being a causal-historical account, it has no bearing on whether thought content is fundamentally relationally determined.

Turning to part 3, chapter 7 urges that the advantages of modularity, as an instance of bounded though non-optimal rationality, need not be given up if modules are not informationally isolated from the rest of the system. The key to modularity is not isolation, but that access to information is controlled from outside, so that the module's own information search remains bounded. Chapters 8 and 9 turn to philosophical themes. Chapter 8 is about the relational character of thought content, and chapter 9 purports to explain what is right about the direct perception view.

Chapter 8 offers a just-so story (as McClamrock characterizes it) about recent developments in the philosophy of mind and language. The argument for thought content being relational, such as it is, is summarized succinctly in chapter 11: "it's now an entirely ubiquitous suggestion that what we refer to is conditioned by the environmental context in which our thoughts and utterances occur" (p. 173). The history is a caricature. One example will have to suffice. McClamrock says that the tradition held that knowing the meaning of a word is knowing necessary and sufficient conditions for its application. Taken literally, this is trivially true. For example, anyone who knows the meaning 'duck' knows that 'duck' is true of something iff it is a duck. Presumably, McClamrock intends the claim to be that to know the meaning of a word is to know a substantive analysis of it. But who ever thought that?

Chapter 9 aims to show what's right about direct perception. McClamrock's target is "The metaphor of the 'veil of perception'" and "its underlying theme— that we never really perceptually interact with the world itself, but only our internal representations of it," which "is at the heart of the internalist conception of mind, the idea of methodological solipsism, and most mainstream accounts of perception" (p. 132). I doubt that anyone since the '50s has thought that we perceive only our own sense data. And no one that I know of has ever thought that we perceive only our retinas, which McClamrock (p. 139) treats as equivalent to the claim that perception is indirect! Further, no incompatibility exists between our perceiving distal objects and psychological states being fundamentally non-relational, or methodological solipsism, as McClamrock thinks. The epistemological worry expressed by the metaphor of the veil of perception, McClamrock thinks, is that proximal stimuli fix perceptual experiences. (He describes the argument from illusion as aiming to show that one "can have the percept without the object as long as you have the right proximal stimulus" (p. 140).) He rightly notes that the relation between perceptual experience and proximal stimulus is more complex. But this has nothing to do with any philosophical or epistemological issue. Whether our perceptual experiences are epistemically prior to our knowledge of the external world is an issue untouched by McClamrock's discussion. It is hard to avoid the impression that McClamrock has mixed up different explanatory projects.

Part 4, chapters 10 through 12, aims to consider "some more traditionally 'philosophical' questions" (p. 153). Chapter 10 aims to "give a better account of the 'object-oriented' nature of intentionality," and so explain "the possibility of intentional causation, the intentionality of sensation," and solve "the 'symbol-

grounding' problem" (p. 154). Chapter 11 discusses subjectivity, and offers a view of it which is materialist but (possibly) anti-reductionist. The final brief chapter, of which I omit discussion, compares the book's stance with the development of thinking in phenomenology.

Chapter 10 offers no account of intentionality. I focus on the discussion of intentional causation, and experience. The discussion of intentional causation gets no further than that in chapter 2. One difficulty is a confusion about the complaint with relational properties. McClamrock recasts Dretske's complaint, that intuitively properties relationally determined are screened off by non-relational properties which are necessary and independently sufficient for the effects, as the claim that distal properties are screened off by more proximal ones. He notes correctly (without recognizing it undermines the argument of chapter 2, and of the next section in chapter 10) that the distal is not *ipso facto* screened off by the proximal. But the issue isn't about distal versus proximal properties of events, but about relational versus non-relational properties, which are properties of the same event at the same time. McClamrock argues further that intentional states can screen off the mechanisms which implement them because some generalizations involving them can't be captured at the level of mechanisms. We have seen that this is a mistake. Furthermore, if the intentional states are unnecessary for the implementing mechanisms, and such a mechanism is necessary, then unless relational properties are to mysteriously causally over determine effects, they are causally irrelevant.

McClamrock attempts to show that qualitative properties of experiences are relationally determined by adopting an externalist account of the meaning of sensation terms; McClamrock has in mind terms like 'red' and 'green'. The argument hardly gets off the ground though, since 'red' and 'green' are not sensation terms. McClamrock fails to distinguish between their use as classifiers of objects, and in specifiers of experience kinds as in 'experience as of a red herring'. 'is red' and 'is green' could have had different extensions, but it doesn't follow that the extensions of experience classifying predicates would be different. We use 'red' and 'green' to classify things that look a certain way in normal conditions. Different kinds of things could have looked that way. The extension of 'is a red herring' would then have differed, but not the sort of experience we picked out using 'is an experience as of a red herring'.

Chapter 11 discusses Nagel's famous argument in "What is it like to be a bat?" (reprinted in *Mortal Questions*, 1979, pp. 165–80, Cambridge: CUP) for the conclusion that the qualitative character of conscious experience cannot be captured by science, and Lycan's reply in *Consciousness* (1988, Cambridge: MIT Press). Nagel's argument rests on the claim that some concepts we can't have except by having had experiential states sufficiently similar to those the concepts subsume. If science must provide a description of the world relying only on what is available to all intelligent beings, and not all have experiences sufficient to grasp concepts subsuming all experience types, then science leaves something out. McClamrock sees the question as whether one can be a materialist and admit irreducibly subjective states. He argues one can, since materialism requires not reductionism but monism. This misconstrues the debate. The main issue is not monism, but whether science has room for the description of experiential states. Nagel's position does not commit him to substance dualism. So the position McClamrock adopts, which is to be a "middle ground" between Lycan and Nagel that disagrees with both (section 11.4), fails to engage them.

One senses the confusion of the two projects mentioned above in the book's progress. The first two parts, and chapter 7, largely concern design problems that arise in trying to understand how natural beings accomplish what they do. This is an empirical issue. Much that McClamrock says about it seems right-headed. Understanding why we function as we do should be seen as involving essentially consideration of our environment. The second half is to build on the first. But the issues, from chapter 8 on, are quite different; it is hard to see the bearing of the first part on whether representation is essentially relational. The book is a diptych of, on the one hand, reflections on the methodology of explaining the successes of natural beings, and, on the other, a rehearsal of one strand in the philosophy of language and mind that has been developing over the last 25 years, not without opposition, concerned with the essential nature of representation. The family resemblance between the two disappears upon closer examination.

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Reason, Regulation, and Realism: Toward a Regulatory Systems Theory of Reason and Evolutionary Epistemology. CLIFFORD A. HOOKER. Albany: State University of New York Press, 1995). Pp. 432.

Professor Hooker's mind is not unlike a telescope: it sees farther than the rest of us. Never mind the chromatic aberration that attends his higher magnifications; the present volume is a book of vision, and it will profit any reader to see the philosophical universe through Hooker's well-turned lens.

The issue at prime focus is the proper form that a thoroughly *naturalist* theory of science should take. Hooker enters well-browsed territory here, especially where evolutionary epistemologies, sociological approaches, scientific realism, and the criticism of logicist philosophies of science are concerned. Yet the perspective he brings is uniquely his own, and, to this reviewer's eyes at least, it brings a novel and compelling order to a scattered family of issues.

Hooker begins by expressing a real but cautious sympathy with the evolutionary epistemologies of such thinkers as Toulmin and Popper. But it is a mistake, he argues, to see the activities of Science as a sort of propositional reprise of biological evolution. Despite the temptations, there are too many disanalogies to sustain such an assimilation, and a propositional conception of the cognitive kinematics of Science is far too narrow in any case. Better to see them both, the biological and the cognitive processes, as instances of a deeper and more general type of process. Biological and cognitive evolution are both, he argues, instances of the progressive development of *self-regulating dynamical systems.*

This view expresses two fundamental theoretical ideas dear to Hooker's heart— one old, and one relatively new. The older is the essentially thermodynamic idea of a quasi-isolated, far-from-equilibrium, self-organizing dynamical system that systematically interacts with the profile of its energetic environment, an environment also far from thermodynamic equilibrium, in a fashion that reliably results in an increase of its own thermodynamic order. More figuratively expressed, it is the idea of the "negentropy eater" that feasts on an ambient flow of externally-supplied energy flowing from an ordered to a disordered configuration. The eater "steals" some of that order as it flows by. The appeal of this idea derives,