

On why constructivism does not yield relativism

MARK H. BICKHARD

Department of Psychology, Chandler-Ullmann Hall, 17 Lehigh University, Bethlehem, PA 18015, USA

Abstract. There are many varieties of epistemological and cognitive constructivism. They have in common an appreciation of the failures of centuries of attempts to realize a correspondence notion of truth and representation, and they all propose some constructivist programme as an alternative. The programmatic proposals, however, can differ greatly. Some contemporary constructivisms that are being vigorously advocated propose a social form of idealism with a consequent relativism. Such proposals risk giving constructivism a bad name. The main burden of this article is to show that such an idealism and relativism is not forced by constructivism, but, instead, is the result of an additional and questionable presupposition. Constructivism *per se* is a strong epistemological position that is fully compatible with realism.

Keywords: cognition, constructivism, correspondence, encoding, epistemology, idealism, realism, relativism, representation

Received 19 January 1993

What is constructivism: negative and positive identities

Constructivism has both a negative identity and many positive identities. The negative identity consists most fundamentally of a common recognition that knowledge cannot be impressed from the world into a passive mind—the waxed slate is not, and cannot be, a mind. There are many aspects of this point, such as the resultant naive correspondence theory of truth in which the impacts and the scratchings on the waxed slate are supposed to represent and to be true of that which they correspond to, where the correspondence is itself due to the initial imprint from the world. This view was clearly stated by Aristotle and has been dominant throughout Western history both before and since Aristotle. Different constructivists will emphasize different aspects of this false view in their criticisms, but constructivism is most clearly united in the general recognition that *any* version of this view is untenable.

The positive aspects of constructivism, correspondingly, are the various purported alternatives to such epistemological passivity. In general, such alternatives require that knowledge and representation be *constructed* by the system or organism. There are many versions of such constructivism, and many different claimed consequences of those versions: the unity on the positive side

of constructivism is much less than that on the negative side. There is much more agreement about the problem than about how to fix it.

Some versions of claimed solutions to the epistemological problem, in fact, are anathema to the proponents of other versions. This can be a confusing and dangerous situation in that it runs the risk that all constructivists might be subsumed alike, and perhaps rejected alike, with the sins of some particularly visible but unacceptable version of constructivism. On the current scene, there is such a danger with respect to versions of constructivism that yield a social idealism, along with the consequent radical epistemological relativism and ontological nihilism. Such radical social constructivists, or constructionists, are giving constructivism a bad name.

If there is any validity to constructivism in its general form, and I for one am fully convinced that there is, then such a situation is unfortunate not only for the proponents of constructivism, but also for anyone else who might not learn useful points and come to useful constructivist understandings because of the clear unacceptability of fringe versions. There is the danger of rejecting the baby along with the bath water—or along with the dirty diapers.

Since I clearly cannot represent all constructivists, and do not wish to try, I will outline my own constructivism with an intent to (1) demonstrate that it is a rational position, (2) claim that there are important considerations in it, and (3) show that it does not commit to a social or linguistic idealism, nor to any consequent relativisms or nihilisms. Instead, constructivism, I claim, is simply the way the world is—it is how epistemology must work, and any research programme with epistemological aspirations, such as artificial intelligence, that ignores it will do so at severe cost (Bickhard and Terveen, in preparation).

There are two aspects to the constructivist position that I will outline: first, an examination of the *nature* of knowledge and representation, and second, an examination of the results of that nature for the *origins* of knowledge and representation. Each aspect, in turn, has its own pair of subaspects—roughly, a critical position with respect to purported alternatives, and a model, or at least design constraints on a model, of how things actually work. My goal here is not so much to argue the ultimate correctness of the model that I propose—that would require a rather massive work, and I have presented such arguments elsewhere (Bickhard 1980, 1987, 1991a, 1992a, in press-a, in press-b, Bickhard and Richie 1983, Campbell and Bickhard 1986)—as it is to limn enough of a constructivist position to indicate the three claims above: it's reasonable, it's potentially important, and it doesn't commit to an idealism. Consequently, this discussion will be rather abridged in several respects—I will abbreviate and skip many details that would be essential for a fuller account or argument.

Models of representation: criticisms

Concerning the nature of knowledge and representation, and beginning with the critical aspect, I will point out that in any model of the impression of representation into a passive system, a set of serious problems emerges. To mention three: (1) The internal states impressed into a system are supposed to represent something in the world by virtue of the induced correspondence between that internal state and that something in the world. But any such factual correspondence will also involve an unbounded number of additional correspondences—not just a correspondence with the table in front of you, but also with light patterns in the

air, molecular activities in your retina, electron orbital interactions in the surfaces of the table, various aspects of the history of the table and its being built, and the cosmological, evolutionary, historical, and developmental preconditions for its being built, and so on. Which of these myriad correspondences is the 'representational' one, and how is it distinguished from all the others? (2) If representation is constituted by causally induced correspondences between internal and external states, how can representation ever be wrong? If the correspondence in fact exists, then the representation, on this account, *must* be correct. But if the correspondences doesn't in fact exist, then the representation, on this account, doesn't exist either, so it can't be wrong. And (3) even if such a correspondence is induced between internal and external states, how does the system have any functional or epistemic access to whatever it is that the correspondence is with? Crudely, how can the system know the other end of the correspondence? How can the system 'know' even what the induced 'representation' is *supposed* to be a representation of?

The first two of these problems are subjects of intense work in the contemporary literature—which indicates, for my purposes, that they are in fact recognized as serious problems. There are no successful answers. A common strategy for the problem of determining which of the myriads of correspondences is the representational one is to posit not just correspondence, but, in addition, some further system-functioning dependent on that correspondence, with the notion that that functioning might depend on some particular one of those correspondences, and not depend on any others, thus selecting that one as the critical one. I have argued elsewhere that some such strategy might work for a strictly functional analysis, but it won't explicate representation: for example, a neurotransmitter docking on a receptor molecule in a cell wall and triggering various functional activities inside the cell will satisfy such conditions—there is factual correspondence between whatever induces the transmitter release and the internal cell activities, and those cell activities are functional, adaptive, and the products of evolution—yet there is only a functional story to tell here, not an epistemic story. There is no sense in which the cell 'knows' anything about what that correspondence is with (Bickhard, in press-a).

One proposed solution to the problem of error is that of asymmetric dependency. The idea here is that there will be some standard inducer of a particular internal state, a cow, say, and that standard inducer—cows—will be the content of the state as a representation, but that other conditions might also induce that internal state in error, perhaps a horse on a dark night. The distinction between correct inducers and errorful inducers is in terms of the intuition that the errorful inducers are in some sense parasitic on the correct ones: the errorful inductions wouldn't occur if it weren't for the correct ones, while the correct ones would occur even if the errorful ones never did. There is an asymmetry here between the possibilities of the correct instances and the possibilities of the incorrect instances, and, so the story goes, it is this asymmetry that distinguishes correct correspondence as representational content from incorrect evocations of those contents. Horses on dark nights would never induce cow representations unless cows induced them, while cows could well induce cow representations even if horses on dark nights never did.

Again, a potentially interesting functional story, I claim, but no representation. Consider, for just one argument, a poison molecule that partially mimics the

neurotransmitter molecule mentioned above, thereby dysfunctionally triggering the internal cell functional activities. There is exactly the same asymmetric dependence between the transmitter molecule and the poison molecule as between cows and horses on dark nights, yet there is still no representational content for the cell here. There is still only a functional story, not an epistemic story (Bickhard, in press-a).

The third problem mentioned above, of how a system is supposed to have any knowledge at all of what its representations are supposed to represent, is not so much a focus of current work as the first two. It is recognized occasionally, however, in recognitions that being in correspondence with something simply is not the same thing as representing that something. Induced factual correspondences may play some important roles in inducing representations in systems under useful conditions, but they have no direct bearing on the nature of those representations or their contents (Fodor 1987, 1990).

My own arguments, in fact, take this third problem to be the most fundamental one. Pursuing it within standard assumptions about representation, in fact, yields a logical incoherence; that is, standard assumptions about the nature of representation rest on an incoherence. Essentially, for the waxed slate to know what is on the other end of the correspondences that have been scratched into it, or even what is *supposed* to be on the other end of those correspondences, is for that system to *already* know about cows or tables or whatever those representations are supposed to be representations of—yet it is precisely those scratched-in-correspondences that are supposed to *provide* knowledge of cows and tables and so on in the first place. The passive induction or transduction of correspondences into a system cannot provide new representational content that is not already there for the system to deploy in the first place, yet that is the fundamental epistemological task that those correspondence-representations were supposed to solve. There is much more detail to be developed here, and counterarguments and counter-counterarguments, and so on, but this circularity of representation requiring that representation be already available is at the centre of the problems. *Some* representation might be built on or out of other representation without problem, but, ultimately, representation must come into being out of non-representation—presumably it did so sometime between the big bang and the present—and standard conceptions of representation cannot account for that (Bickhard 1987, 1991a, 1992a, in press-a).

These criticisms are only indications of the full arguments, but they should suffice to show that standard conceptions of passively induced representation are not in pristine trouble-free condition. They are, at best, seriously problematic, with no consensual solutions to the problems. My own arguments yield the conclusion that there are no solutions to those problems. In any case, alternatives to passivity have a strong prima facie case that they deserve consideration, simply by virtue of the difficulties that passive approaches are experiencing.

Representation: a modelling approach

The alternative that I propose, of course, has its own details and intricacies. For the purpose of indicating a connection to and support for constructivism, however, I only need one very general aspect of that alternative model: the model of the nature of knowledge and representation that I propose has as a consequence that all 'knowing that' is based on, and emergent from, 'knowing how'—from

'knowing how' to interact with the environment. That is a classical distinction, and mine is not the first attempt to integrate the two sides of the distinction. All previous attempts have failed in one way or another, and that might seem sufficient to dismiss one more such attempt. But so also have all previous attempts to construe 'knowing that' independently of, or as the foundation for, 'knowing how' failed. The current literature falls mostly in one of these latter two cases, and, as mentioned above, is in serious trouble. Exploring the possibility that 'knowing how' is the fundamental form of knowledge and representation, then, is at least a reasonable, if not a logically forced, task. For one heuristic consideration, 'knowing how' connects with simple organisms and the evolution of human knowledge without obvious aporia, while construing 'knowing that' as foundational, or even independent, requires some very strange evolutionary jump at some point between the first cells and homo sapiens.

Interactive 'knowing how' representation yields constructivism

A critical difference between 'knowing how' and 'knowing that' for my current purposes is that *no one* has strong intuitions that 'knowing how' could be impressed from the world into a passive system. 'Knowing how' is a matter of functional system organization and those organizations' functional interactive relationships with environments. 'Knowing how' as a ground for the emergence of representation and intentionality yields an *interactivism* model of representation—representation as an aspect of competence for interaction between system and environment (Bickhard, in press-a)—rather than a structural correspondence notion of representation. It doesn't have anything (directly) to do with factual correspondences, and, thus, *could not* be impressed from the world into the system.

System organization, thus, 'knowing how', *must* be constructed—either by the system itself, or by some designer of the system. This general notion of the nature of knowledge and representation, then, logically *forces* a constructivism of the origins of such knowledge and representation (Bickhard and Campbell 1989). There are clearly enormous numbers of issues to be explored concerning the mechanisms for and constraints on such constructions, but passive impression from the environment is not an option.

Evolutionary epistemology

Furthermore, such constructions, at least initially, cannot be assured of success—assured that the organizations constructed will in fact constitute 'knowing how'. Such assurance that 'this' is the right construction constitutes foreknowledge. Foreknowledge often in fact exists—at least heuristic foreknowledge—and it is very useful when available, and each of us devotes a fair amount of effort to acquiring it. But knowledge construction in general cannot logically *require* foreknowledge upon pain of the same sort of regress and circularity as the incoherence problem for standard approaches. If knowledge construction *required* foreknowledge, then knowledge could not be constructed without knowledge already being available, and, ultimately, this makes knowledge impossible to have ever come into being at all (Bickhard 1991a, 1991b).

Knowledge construction, then, must in the limit be some form of trial and error process—a variational construction that then faces various pressures of selection on whether it is acceptable or not. Knowledge construction must be

some sort of variation and selection constructivism—an evolutionary epistemology (Campbell 1974).

To recapitulate: passive induction of knowledge cannot occur because it requires that knowledge of the inducers be already available (along with many other related problems)—this forces a constructivism. And constructivism cannot require foreknowledge of what to construct, because that too would require that knowledge be already available in order for knowledge to exist. There are two versions of the same circularity here, of knowledge requiring knowledge, that successively force first, constructivism, and second, variation and selection constructivism. As mentioned, such construction can and does involve heuristic foreknowledge of what sorts of constructions might work, but that foreknowledge, however, important as it is, cannot be logically required by the underlying model of epistemology, on pain of being rendered circularly impossible.

This is clearly a severely abbreviated outline of a constructivist position, but it suffices, I think, to indicate that constructivism is a reasonable position to explore, that it has important consequences, and that it does not commit to an idealism, with rampant relativism and nihilism as consequences. This last point has not been addressed yet, so I turn to it now.

Constructivism does not force idealism

The rejection of idealism is, in fact, inherent in the model as already outlined: idealism results from the assumption that our world is constituted solely by our representational constructions about it. There is no ‘other end’ of the correspondences. In classic approaches, the circularity of passive representation shows up in many ways, but a historically important one that often motivated idealisms is that of skepticism—how can we check if our representations are in error if we cannot even establish what they are supposed to be representations of? How can we check if our representations are in error if all such checks circularly depend on the very representations that are supposed to be checked? Despair, or glee, at the seeming unsolvability of such problems can yield a kind of Occam’s razor conclusion that it’s superfluous to even postulate anything on the other side of the supposed representational correspondences, leaving us with only those representational elements themselves—they don’t just represent our world, they *are* our world.

An individual level version of this yields a classic solipsism. More sophisticated contemporary versions usually construe the locus of those world-constituting ‘representations’ in language and society—linguistic or social idealisms. These are the forms most commonly found today.

Social constructionist idealism

There is a particular historical track leading to contemporary social-idealist social-constructionism that might be severely inspissated as follows: Kant argued that the conditions and forms for the very possibility of thought and representation must be provided by the mind. Heidegger and Wittgenstein are taken as having shown that those forms and conditions, in turn, are provided by language—and, thus, by society, culture, and history (Gier 1981). Furthermore, so the reasoning goes, since persons are ontologically constituted by their own hermeneutics—their own interpretive processes and products—and since these are themselves

necessarily constituted as language, it follows that personhood, e.g., Dasein, is ontologically constituted within this social linguistic realm.

The significance of that point for current purposes is that, if persons are constituted from and within language, then persons have no epistemological standpoint from outside of language—and the cultural history which it sediments. Therefore, at least in the idealist version, all thought and all possibility of thought and representation is bounded by the possibilities of language. There is no epistemological access to any ‘outside’ of language; therefore, any talk of anything outside of language is pointless or meaningless or incoherent. A person cannot step outside of him or herself. The world, then, is linguistically constituted; what the world is, is constituted by what language, culture, takes it to be—and we have a full social-linguistic idealism. ‘That which can be understood is language’ (Gadamer 1975, p. 432); ‘Man’s relation to the world is absolutely and fundamentally linguistic in nature’ (Gadamer, 1975, p. 432); ‘...we start from the linguistic nature of understanding ...’ (Gadamer, 1975, p. 433); ‘All thinking is confined to language, as a limit as well as a possibility’ (Gadamer 1976, p. 127).

Such conclusions are always supported by discussions of the historical failure of correspondence theories of truth or representation to live up to any of their own aspirations. The idealist story is offered, in effect, as an explanation of why correspondence notions cannot make sense. It is this step that most strongly connects this historical development with the failures of encodingism, and the reaction against skepticism into idealism. In order for the idealism story to be more than just a structure of bald contentions, it must be anchored in the very historical tradition which it claims to be correcting. That anchor is, basically, that history has demonstrated the failure of correspondence notions, and that such an idealism is the only alternative.

But here we find a simple recapitulation of the move from skepticism to idealism: correspondence encodings don’t work, therefore get rid of the other end of the presumed correspondences—get rid of the ‘corresponded to’. We also find here the dependence of these positions on the encodingist view of representation: it is only from *within* the encodingist view that the correspondence versus idealism pair of alternatives is an exhaustive dichotomy, and, therefore, it is only from *within* the encodingist view that the move from rejecting correspondences to an idealism is a valid move. The ‘knowing how’, or interactive, model of representation, and the consequent constructive epistemology, render this step thoroughly invalid.

Such social idealisms are invalid by virtue of their presupposition of encodingism as framing all of the possibilities for representation and epistemology. They also have several additional problems. For example, from within the idealist view, with its consequent epistemological relativism and nihilism, it is not clear why the standard historical story concerning the failures of correspondence should be taken seriously—after all, isn’t that story itself just another construction with no more logical claim to our acceptance than any other? Yet, without taking that historical story very seriously, the move to idealism is, on its own terms, groundless and unmotivated.

Such social idealist positions, for additional examples, fail to address the ontological move from pre-linguistic infants to full hermeneutically constituted adult persons—strictly, they would have to claim that infants are themselves

merely social constructs. No one to my knowledge actually takes this absurd step, but instead the issues here are simply ignored.

Similarly, although the adult is taken to be hermeneutically constituted, there is nevertheless generally acknowledged to be some distinction between individuals and the societies that they jointly constitute. But this raises the problems of the epistemological relationships between those individuals and the society and other individuals around them—how does one person know anything about others or about what they have been doing or are doing? Unfortunately, this is just the original epistemological problem that such positions claim to transcend by transcending the subject–object dualism in favour of the social idealism. But the claimed social ontology can't even begin without there being some sort of epistemology between individuals, however much hermeneutically or socially constituted, and those around them. A question cannot be resolved by simply ignoring it, and here we have the claimed resolved epistemological question reappearing directly in the middle of the proposed social ontologies.

The only move that avoids this problem is to a single epistemological locus, with an idealism for this one single locus—then epistemological problems concerning the relations among the various ontological 'parts', e.g., individuals, cannot emerge: there is only one 'part'. Such a single epistemological locus, however, renders the idealism as either a classic single individual level solipsism or as a universal pan-psychism, such as Hegel's Geist. As the story goes, history has shown these to be untenable positions, and, besides, no one is seriously proposing them in the contemporary scene.

Social idealisms, then, fail for a number of reasons. The deepest, so I argue, is their own dependence on a presupposition of the encodingism model of representation. But they also commit egregious errors in papering over and ignoring such issues as the ontological relationships between babies and adults, and the epistemological relationships among adults. This is not mentioning, of course, the issues of the epistemological relationships between either individuals or society, on the one hand, and rocks, trees, houses, cars, streets, nuclear reactors, pollutants, paintings, and so on, on the other hand, since, in the idealist view, these have no ontology other than that of a linguistic construction internal to the society itself. Social idealisms are multiply internally incoherent and multiply absurd (Bickhard, in preparation; for an outline of the sociality of human beings that does *not* commit to a social idealism, see Bickhard 1992a, 1992b).

Social constructionisms are constructivist

Note that such positions generally do count as constructivist in both the negative sense of rejecting correspondence notions of meaning and truth, and in the 'positive' sense of holding that our 'representations' are constructed—in language, by society, or whatever. But they do not posit anything like a variation and selection constructivism, an evolutionary epistemology—and they cannot. If our world is constituted by our collective constructions, then there is no source, no locus, for selection pressures against those constructions outside of those very constructions themselves. The ontological nihilation of any world independent of our constructions also nihilates any possibility of those constructions failing any independent selection pressures.

Thus follows the radical epistemological relativism: there are no grounds for

claiming that any one construction is preferable in any fundamental sense to any other construction. All such selection criteria are themselves just more constructions, with no particular claims against each other. There is an utter flattening and nihilation of all distinctions in such a view, such as between reason and rhetoric, rationality and irrationality, morality and immorality, success and failure, and so on. At times, such nihilations are revealed in and, paradoxically, given moral and political weight. In the end, however, such a position reduces everything to matters of radically arbitrary taste and whim.

But idealism does not follow from constructivism per se

It must be strongly noted, however, that these absurd consequences follow *not* from constructivism, but from the ontological nihilism of rejecting there being anything on the other end of our correspondence-representations. But this step, in turn, requires assuming that such correspondence-representations *are the only possibilities for representation*, and, thus, for distinctions between, for example, success and failure, correctness and error, and so on. That is, the idealism follows, even motivationally follows—which is much weaker than ‘logically follows’—only if the basic correspondence-representation model is accepted in the first place. The rejection of ‘the other end of the correspondences’ yields idealism only if there is no alternative to such a correspondence notion of representation. Again paradoxically, the idealism follows from the rejection of classical correspondence notions of representation only if those same correspondence notions are accepted as the only possible form of representation.

‘Knowing how’ constitutes an alternative. Correspondence notions of representation are not the only possibility. Efforts clearly sometimes work, and sometimes don’t, independently of those efforts *per se*. We cannot simply construct our way to any criterion of success that we care to construct, all simply by virtue of those constructions themselves. ‘Knowing how’ as a fundamental form of knowledge does not encounter the impossibilities of passive correspondence notions of representation. In particular, it retains a powerful sense of independent possibilities for failure, and, thus, does not lead into idealisms. It does, however, force a variation and selection form of constructivism.

Virtually no details have been presented here of either the nature of a ‘knowing how’ model of knowledge and representation, nor of how ‘knowing that’ could be based on it. The case I’m attempting to make, therefore, is not that I am presenting a correct model complete with sufficient arguments, but, rather, something much more modest. In effect, I am simply exploring some of the constraints on any such models—and some of the consequences, and lack of consequences, of those constraints. To reiterate, once again: (1) some alternative to passive models of knowledge and representation is a reasonable, if not necessary, exploration; (2) rejection of passive models requires some sort of constructivism; (3) recognition of the circularity of requiring foreknowledge yields a variation and selection constructivism; and (4) such an evolutionary epistemology does not and cannot yield an idealism or relativism or nihilism.

References

- Bickhard, M. H. (1980) *Cognition, Convention and Communication* (New York: Praeger).
 Bickhard, M. H. (1987) The social nature of the functional nature of language. In M. Hickmann (ed.) *Social and Functional Approaches to Language and Thought* (New York: Academic) pp. 39–65.

- Bickhard, M. H. (1991a) The import of Fodor's anti-constructivist argument. In Les Steffe (ed.) *Epistemological Foundations of Mathematical Experience* (New York: Springer-Verlag) pp. 14–25.
- Bickhard, M. H. (1991b) Homuncular innatism is incoherent: a reply to Jackendoff. *The Genetic Epistemologist*, 19(3): 5.
- Bickhard, M. H. (1992a) How does the environment affect the person? In L. T. Winegar, J. Valsiner (eds) *Children's Development within Social Contexts: Metatheory and Theory* (Hillsdale, NJ: Erlbaum) pp. 63–92.
- Bickhard, M. H. (1992b) Scaffolding and self scaffolding: central aspects of development. In L. T. Winegar, J. Valsiner (eds) *Children's Development within Social Contexts: Research and Methodology* (Hillsdale, NJ: Erlbaum) pp. 33–52.
- Bickhard, M. H. (in preparation) World mirroring versus world making: there's gotta be a better way. In L. Steffe (ed.) *Proceedings of the Conference on Alternative Epistemologies in Education*. Athens, Georgia, Feb 20–23, 1992.
- Bickhard, M. H. (in press-a). Representational content in humans and machines. *Journal of Experimental and Theoretical Artificial Intelligence*, 5, 285–333, and in K. Ford, C. Glymour (eds) *Proceedings of the Conference on Android Epistemology*.
- Bickhard, M. H. (in press-b) Levels of representationality. In C. Glymour (ed.) *Proceedings of the Conference on The Science of Cognition*. Santa Fe, New Mexico, June 15–18.
- Bickhard, M. H. and Campbell, R. L. (1989) Interactivism and genetic epistemology. *Archives de Psychologie*, 57(221): 99–121.
- Bickhard, M. H. and Richie, D. M. (1983) *On the Nature of Representation: A Case Study of James J. Gibson's Theory of Perception* (New York: Praeger).
- Bickhard, M. H. and Terveen, L. (in preparation) *The Impasse of Artificial Intelligence and Cognitive Science—And its Solution*.
- Campbell, D. T. (1974) Evolutionary epistemology. In P. A. Schlipp (ed.) *The Philosophy of Karl Popper* (LaSalle, IL: Open Court).
- Campbell, R. L. and Bickhard, M. H. (1986) *Knowing Levels and Developmental Stages* (Basel: Karger).
- Fodor, J. A. (1987) A situated grandmother? *Mind and Language*, 2: 64–81.
- Fodor, J. A. (1990) *A Theory of Content* (Cambridge, MA: MIT Press).
- Gadamer, Hans-Georg (1975) *Truth and Method* (New York: Continuum).
- Gadamer, Hans-Georg (1976) *Philosophical Hermeneutics* (Berkeley: University of California Press).
- Gier, N. F. (1981) *Wittgenstein and Phenomenology* (Albany: SUNY Press).