

WHO INTERPRETS THE ISOMORPHISMS? A RESPONSE TO VANDERVERT*

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I wish to advance only one basic criticism of Vandervert's discussion of matters mental. The central theme of his discussion is a proliferation of isomorphisms: "isomorphic energy transforms", "template of the *body in the brain*", "Mind and body are *algorithmically isomorphic*", and so on. He suggests that dynamic isomorphisms involving "creature activity" become "encapsulated" in the nervous system; that there is a portion of this neuromatrix that is isomorphic with the "active 'body universe'" thereby constituting a "template of the *body in the brain*"; and that mind arises in the projection of culturally shareable mental modes, which, by the mathematical transitivity and reflexivity of isomorphisms, are "*mappable back onto the neuromatrix of conscious experience—back onto experienced human reality.*" There are many fundamental questions that could be asked concerning this framework, such as: where did "awareness" come from ("Consciousness is this holonomic world of awareness composed within the skull"). I wish to focus, however, on the notion of isomorphism that lies at the center of his framework: dynamic isomorphisms with creature activity involve dynamic isomorphisms with the body which yield mental models which, when "exteriorized" in culturally shareable forms (shareable because of the isomorphisms involved), "self-referentially" constitute mind. If there is a problem with this notion, as I will claim that there is, then the entire framework is infected with it.

Vandervert wishes to account for matters mental in terms of this proliferation of isomorphisms. Such matters include representation, consciousness, mental models, mind, and so on. The plausibility of the framework would seem to turn entirely on the sense in which isomorphisms contain information about that which they are in isomorphism. Isomorphisms do carry such information, but only in a sense of "information" that cannot do what Vandervert wants and needs it to do. It is this point that I wish to elaborate.

There is a host of problems with isomorphic correspondences as models of mental phenomena, representational phenomena in particular. Just to begin: isomorphisms are invertible, so any mental model, any representation, by virtue of isomorphism will just as well be the represented, not the representing: whatever is

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supposedly being represented by virtue of the mental model being isomorphic with it, will in turn be isomorphic with the mental model. Representation is not symmetric, but isomorphism is. “Knowing,” “consciousness of,” and so on, are similarly not symmetric, but isomorphism and correspondence are. For a parallel problem, representation, and so on, are not *transitive*, but isomorphism and correspondence are.

One source of the appeal of isomorphisms is that standard representations are construably isomorphic. Pictures, statues, Morse code, computer codes, maps, blueprints, and so on, have the sorts of structural correspondences with that which they are taken to represent that can be construed in “isomorphism” terms. It is tempting, then, to assume that *mental* representations are similarly constituted as isomorphisms with what is represented. But pictures, codes and blueprints are understood as representations by us only insofar as we can and do *interpret* those isomorphisms, and for that we have to *know about* those isomorphisms. That point holds even for nonconventional isomorphisms: the world contains many many physically natural correspondences (every instance of every law provides one) that human beings can in principle use to learn about the other ends of those correspondences—neutrino fluxes allowing us to “see” into the interior of the sun, for example—but we have to know, to learn, about the existence of such correspondences before they can be put to such purposes.

This point does not in itself undermine such usages of such isomorphisms, but when attempting to model *mental* phenomena, we are attempting to model systems that *engage* in such interpretation and understanding. If interpretation and understanding are in turn modeled as just more of the same—more isomorphisms—then we have committed a category error: *internal* representationality is being circularly modeled as if it were *external* representationality. The circularity is manifested in multiple infinite regresses that arise. For example, the internal isomorphisms require an internal interpreter, which presumably just generates more isomorphisms which require still another interpreter, and so on in an infinite regress of interpretive homunculi.

The universe is filled with myriads of isomorphisms. They do not thereby intrinsically constitute representations, though they might be used—interpreted—as such by appropriately knowledgeable epistemic agents. The “information” that isomorphisms carry is a strictly *factual* information—the facts of isomorphism and correspondence—and it requires addressing the problems of representation and mind—of interpretation, for one—in some manner *other* than in terms of the isomorphisms *per se*. It is incumbent on any isomorphism approach to representation and mind to explain the difference between the isomorphisms that are supposed to intrinsically constitute representations and those that are not. This cannot be done simply in terms of further isomorphisms on pain of circularity and regress. Vandervert doesn’t attempt this distinction.

There are many variants on the problems with correspondences and isomorphisms as models of representation (Bickhard, 1993) and many of them are the focus of active and sometimes heated contemporary research (e.g., Dretske, 1981, 1988; Fodor, 1987, 1990a, 1990b; Loewer & Rey, 1991; Millikan, 1984, 1993; Smith, 1987). One such, for example, is the problem of error. If the constitutive

correspondence or isomorphism exists, then the representation exists and it is *correct*, while if the constitutive correspondence or isomorphism doesn't exist, then the representation doesn't exist, and so cannot be in *error*. So how is the possibility of representational error to be accounted for?

Vandervert doesn't address any of these issues. It is not my purpose to provide a thorough review of them here, but only to point out that there is a seriously problematic assumption in Vandervert's approach, one that is recognized in voluminous literature, and one that is not solved *for* Vandervert in that literature. Without such a solution, Vandervert's "vapor trails" vaporize.

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