Understanding Origins
FRANCISCO J. VARELA & JEAN-PIERRE DUPUY (Eds)
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The theme of this book is its title: understanding origins. It is organized into four sections addressing four domains of issues regarding origins:

Part I: Violence: The Origin of Social Order
Part II: The Origin of Money: Symbols and Texts
Part III: Evolution and the Diversity of Life.
Part IV: Perception and the Origin of Cognition

A more general sense of the problematics of origins—e.g. how can something come into being if it is not in existence already—suffuses the editors comments, and their motivations in organizing the conference from which the book originated.

The problem of origins is, in this reviewer's judgement, a powerful fulcrum for prying apart the metaphysics implicit in much contemporary psychology and philosophy. For example, if a substance metaphysics is presupposed, then questions of the origins of whatever are taken to be the basic substances cannot be addressed. If the world is composed of earth, air, fire and water, then the origins of earth or air or fire or water themselves are inexplicable. For a more contemporary example, if representations are presumed to be composed of atoms of fundamental representational kinds (substances), then the origins of those atoms cannot be explicated, and we are forced, seemingly, to postulate a radical innatism of representations (Bickhard, 1991; Fodor, 1981; Piattelli-Palmarini, 1980). Of course, evolution cannot generate new fundamental atomic representations either—or, if evolution can, then so could learning and development—so the problem remains. The problem is a logical one, and evolution can no more solve it than can individual development: fundamental atoms of fundamental substances cannot be composed of anything still more fundamental, on pain of contradiction.

In spite of a potentially powerful unifying theme, however, this book remains an odd duck, and it is not clear what its audience will or should be. The oddness of the collection consists of the divergent perspectives from which the question of origins is approached. In particular, the editors frame the issue of origins in terms of post-structuralist Derridean notions but, while some of the contributors share at least in a general post-structuralist orientation, others proceed from "origins" that seem quite alien to deconstruction and its neighbors. The attempt to bridge the gap between these perspectives is, in my judgement, not successful. It might be an instructive failure, however, for others who might be interested in attempting such an integration.

The lack of integration of the perspectives makes for a difficulty in reviewing, as well as for reading. There are at least two, and perhaps four (the sections), and perhaps fifteen or so (the chapters) possible focuses for review and comment. Furthermore, some of the chapters I found to be not especially successful or interesting, but others are quite provoking when considered on their own. How to choose?

Arbitrarily! In particular, I will make a few comments on the general Derridean framework, Stuart Kauffman's chapter on "Origins of order in evolution", and Varela's chapter on "Whence Perceptual Meaning?" plus, to be sure, a few additional stray asides.

Derrida and deconstruction

A system as complex and as deliberately obscure as Derrida's (Descombes, 1980; Kortian, 1980; Montefiore, 1983) cannot be explicated in a few paragraphs. So I will present a caricature of Derrida, but a caricature that focuses on what I take to be a basic problematic in the entire system, and, therefore, in much work that proceeds from within a Derridean framework.

In the general structuralist view, language is construed as interlocking systems of differences, or differentiations, in which the locations in the systems have no unifying nature other than being in that location. It is not possible, for example, to characterize what is in common among all possible font variations, encodings, and so on of the letter "a" except in terms of the common "location" they all have with respect to the other letters of the alphabet. This system is supposed to be representationally anchored to the world via some sort of fusion of sound and meaning in the mind.

Derrida attacks this presumed anchoring in Saussure, Husserl and others (Staten, 1984). He argues that all that can be found in the mind is just more of the same sorts of unanchored systems of differences. Systems of differences that constitute language and representation in general, then, are lifted away from any possible criteria outside of themselves. There are no anchors.

Derrida's interpretations of other works in these arguments have been criticized (Evans, 1991), but, setting these particulars aside, Derrida's general position here is quite strong—he is articulating his own versions of skeptical arguments against any such meaning-to-world relations, and skeptical arguments have not exactly been decisively defeated in at least a few decades of trying.

Instead of taking such arguments as refutations of standard conceptions of language and representation, however, Derrida concludes that this unanchored system of differences is all we have. Many interesting consequences follow from this view. For example, there are, and can be, no criteria outside of systems of differences. Consequently, purported invidious distinctions between, for example, philosophy and science, on one hand, and rhetoric, on the other, are themselves merely rhetorical successes that philosophy and science have perpetrated against rhetoric. (Within the Derridean perspective, such distinctions are allegedly not eliminated in favor of rhetoric: the distinctions can still be made, but they cannot be based on any anchoring outside the system of differences.) For another consequence, there is much room for play in such a system of differences, both in the ludic sense and in the engineering sense of, say, play in a steering wheel, and the two senses can synergize each other. Some of the wilder deconstructionist writings can be read as illustrating and thereby demonstrating such possibilities of play in language.

An important consequence of this view is that, because all categories are defined by locations in systems of differences, what is not included in the category, what is on the other side of the distinctions forming the differences, is just as important to the category as what *is* included in the category. Categories that are standardly taken as supplemental or derivative, then, become central because they provide the distinctions that generate the entire system—rhetoric with respect to philosophy, for example, or feminine with respect to masculine, or non-standard speech acts with respect to standard speech acts, or writing with respect to speech, and so on (Derrida, 1974). This "logic of the supplement" can be the "origin" of sometimes very interesting analyses and social and political critiques—deconstructions—and it frames the issues of origin in general for the editors of this volume.

By eliminating all anchoring of systems of differences—all anchoring of language in anything outside of language—all criteria other than intrasystem criteria, with all of their possibilities of play, are eliminated. (This would seem to eliminate all criteria other than rhetorical criteria, except that the distinctions between rhetoric and other forms of text are not supposed to be eliminated—just unanchored.) This makes it difficult to argue or to investigate *any*thing scientifically: on what grounds are any principles of critique or refutation or falsification to be taken seriously? (An interesting chapter of the Derridean framework is how he allegedly sidesteps such nihilistic consequences for his own critiques of Saussure, Husserl, and so on.) All too often, implicit criteria of richness or ingenuity or outrageousness of interpretive webs are all that seem to be involved. Derrida, in fact, often seems more responsible in his deconstructions than many other deconstructionists, but it is difficult to see how any criteria of responsibility can make sense within his overall system (Derrida, 1988; Dews, 1987; Norris, 1987).

In any case, such an explicit delegitimation of

philosophic and scientific criteria (or a leveling of legitimation with respect to non-scientific criteria) renders any attempt to use some of the tools available in deconstruction, such as the logic of the supplement, seriously problematic: on what grounds can any such attempt be evaluated? Any attempt to honor or use such criteria constitutes a contradiction of the general deconstructionist framework from within which the analysis claims to proceed. This lack of scientific criteria, however fallible and themselves subject to critique—or the inconsistency between such criteria and the logic of the supplement framework within which such criteria are supposedly being applied—permeates at least half of this book, and will make those parts of the book very difficult going for those readers who are more logically or scientifically minded—those who are less interested in play, even interpretive play, for play's sake.

Kauffman

Kauffman's chapter on the origins of order in evolution introduces some of the themes and analyses in his massive book (Kauffman, 1993). Of particular interest, in my judgement, is Kauffman's explanations of evolutionary and biological phenomena in terms of properties of the entire space of possibilities—e.g. fitness landscapes—within which those phenomena occur. For example, if the regions of maximal adaptation relative to some underlying space (perhaps a gene substitution space) are narrow isolated peaks or ridges in that space, then *any* genetic variation will knock organisms and species off of such peaks and ridges. With very reasonable estimates of rates of variation, many such adaptive spaces will not permit evolution toward nor, if achieved, maintenance of locations of maximal fitness, or even high fitness. One consequence may be that species do not survive in such spaces and are thereby selected to remain within fitness spaces that have better statistical properties. Independent of the specifics of this analysis, the *locus* of analysis in entire spaces of possibility is new (though not in physics) and quite powerful.

Kauffman argues that there can be various complexity phase changes in such spaces that are explanatory. For example, if the dynamic complexity of some self regulatory system is too simple, it will not be able to adjust sufficiently to changing conditions—it will be "frozen". Conversely, if that dynamic complexity is too complex, the dynamics will be "chaotic"—uncontrollably running off into unexplored regions of dynamic possibilities and making impossible the "reuse" of dynamic possibilities that have worked in the past. In either case, frozen or chaotic, the system will not survive. Kauffman's conclusion is that dynamic systems will tend to evolve to "the edge of chaos", at or near the point of phase change from frozen to chaotic. This edge of chaos often involves, and for similar reasons, the partially decomposable and potentially hierarchical modularity that Simon argued for some decades ago (Simon, 1969). In his book, Kauffman applies a novel phase change model to problems of the origins of life.

One of Kauffman's themes is that selection is not the only source of order. In fact, many dynamic systems are self-organizing (as in the phase change cases) or intrinsically constrained (as in a fitness landscape that does not permit high levels of fitness). Selection can only select within what is available, and these are sources of and constraints on such availability. Kaufmann frequently construes this as order, or constraints, "in spite of" selection. The "in spite of" perhaps makes sense if the alternative is some Panglossian view in which everything is an explicit construction of selection, and the space within which selection functions is flat or nominal, with no relevant properties or structures of its own. As a corrective to such naiveté, Kauffman's rendering may be a service. But, nevertheless, he distorts the nature of selection in these interpretations: "in spite of" makes sense only if selection is interpreted as being somehow teleological. It also considers only selective processes *external* to the systems of interest, and ignores selective processes *internal* to such systems that, for example, underlie the process of self-organization itself (Nicolis & Prigogine, 1977, 1989).

I also enjoyed the other chapters in the biology part of the book, by Dupre, Brooks, Goodwin and Oyama, and only wish I had the space to summarize and address them.

Varela

Varela's chapter is primarily an overview of approaches in cognitive science, with suggestions about limitations of the various alternatives, and urging his view of embodied knowledge. In this view, there is an integration of cognitive emergence and "enaction": cognition is supposed to

emerge in effective action. At these levels of generality, I am in full agreement with Varela about the best course for cognitive science to pursue (Bickhard, 1993). I do have, however, a worry and a criticism.

The worry stems from the fact that issues of representation pose a delicately poised risk of falling either into a problematic realism, in which the notion of "effective action", for example, is taken as unproblematic, or an equally problematic idealism, in which representational relations to the world are severed and we are left with only our "representations"—perhaps even a Derrida-style idealism. I am not persuaded that even this most general outline of Varela's approach succeeds in avoiding this dilemma—particularly the idealism side of it. This worry, however, stems primarily from other publications (Dreyfus, 1993; Maturana & Varela, 1980, 1987); there is not sufficient elaboration in this chapter to develop such a critique.

And that yields my criticism: the discussion here is so general that it is difficult to understand what the criteria for successful or unsuccessful investigation are supposed to be. The primary criteria discussed have to do with overcoming the limitations of alternative approaches to cognition. But, even if that general point is accepted, there is no model, and there are no criteria for models, that might fit within the enactive framework that Varela urges. For example, are we to maintain or to reject the currently hot criterion that representation must be capable of being false (e.g. Fodor, 1987, 1990)? Even more stringent would be a criterion that representation must be capable of being false and that that falsity must be capable of being detected by the system itself. Alternatively, Varela might wish to argue that we should abandon such criteria—"exeunt the representations" is one section heading—but that would require difficult and absent argumentation. My criticism, in fact, is that such issues of meta-scientific criteria are not discussed much at all. They are discussed enough to indicate that Varela wants to urge changes at such levels, but there is no exploration of what criteria might be best adopted, and, therefore, a strong underspecification of what Varela's "enactionism" amounts to.

Conclusion

Many chapters in this book are thought-provoking taken alone, and, in some cases, in the context of comments from other chapters. This includes several chapters that I have not touched upon at all. The book has an overarching integrating theme addressing issues of origins, but it does not have any integration of the several widely divergent approaches to that theme. Furthermore, in my judgement, although Derrida may offer some powerful tools for conceptual analysis, there is currently no consistent way to use these tools and simultaneously to claim to be doing science. This undermines a number of chapters and also the alleged integration by the editors. Finally, there are many typographic errors, and a typical Kluwer Academic price. Recommendation: take a look at the table of contents, and read the ones that look interesting to you in a library copy.

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