

Book Reviews

On the origin of objects

BRIAN CANTWELL SMITH

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Ontology, or the study of being, has waxed and waned in popularity in the recent history of philosophy. Currently it is undergoing a resurgence of interest due, in part, to its practical use in fields such as Geographic Information Systems (GIS), artificial intelligence (AI) and in computer science in general. It is through the study of computation that Brian Cantwell Smith begins the present epic foray into ontology and metaphysics. In fact, his computational background lends a much needed multidisciplinary breadth to the study of ontology as a whole.

Ontology is of particular interest to those working in GIS, AI, and computation because each of these involve, to varying degrees, the development of expert systems. Expert systems are pieces of software which incorporate processes typically associated with human intelligence. At its most ambitious, AI seeks to develop intelligent agents which simulate the full panoply of features possessed by human intelligence. At a minimum, expert systems must be able to discern differences and similarities among objects. Although at first blush such a task seems simple, it has proven to be one of the greatest impediments to the development of useful expert systems, and it is a core problem of ontology. For some time, researchers in computation have attempted to downplay the ontological difficulties posed by AI research. Smith describes this problem as follows:

Within the analytic tradition ... it is traditional to analyze semantical or intentional systems, such as computers or people, under the following presupposition: (i) that one can parse or register the relevant theoretical situation in advance into a set of objects, properties, types, relations, equivalence classes, and the like (e.g., into

people, heads, sentences, real-world referents, etc.) as if this were theoretically innocuous; and then (ii) with that ontological parse in hand, go on to proclaim this or that or the other thing as an empirically justified result. (p. 16)

Such assumptions very often work in given contexts, and the world may yet be modeled in ways useful for the brute-force purposes of many work-a-day problems of computation. But Smith recognizes the meta-theoretical limitations posed by an inadequate ontological description of the world, especially given his goal of developing an ontology of computation itself. Smith's meta-theoretical project is to move beyond the assumptions of the analytical tradition which he criticizes to develop a foundation for a general metaphysics. As with most meta-theoretical problems, including that posed by metaphysics, one can anticipate the recursive loops that defy solution and confound theoreticians, but which researchers and technicians often blithely ignore [1]. Smith's onslaught into ontology begins with questions which have largely gone unanswered regarding the ontology of computation. These questions include: "What are *programs*, for example, really; and how do they differ from *data structures*? What is an implementation level?" (p. 27). These are questions which Smith himself does not answer, or even attempt to answer, but which serve as a starting point for an attempt to develop a more perfect approach to ontology which would be adequate to the tasks of computation. As Smith points out: "the representational nature of computation implies something very strong: that *it is not just the ontology of computation that is at stake; it is the nature of ontology itself*" (p. 42, emphasis in original).

From this bold proclamation, Smith moves diligently and deliberately through a number of principles which he argues should be embraced by all ontology. Notable among these principles is that of *irreduction*, which he describes as:

a standard of metatheoretic accountability, it mandates that no theoretical assumption—empirical premise, ontological framework, analytical device, investigative equipment, laboratory tool, mathematical technique, or other methodological paraphernalia—be given *a priori* pride of place. (p. 77)

This principle is important. It enables one to

pursue ontology from a standpoint of metaphysical neutrality. That is, metaphysical debates regarding the existence of the world often get in the way of useful work which may be done in the categorization of its objects, despite ideological differences regarding metaphysics. Ontology should be practiced from a standpoint of metaphysical neutrality in which objects are categorized based upon our common perceptions and we need not concern ourselves with metaphysical questions about the ultimate reality of things.

Having set out this principle of irreduction, Smith admits to certain metaphysical assumptions which he does hold, including those which he claims belong to what he calls "symmetrical realism". Smith accepts certain "background" assumptions regarding the existence of both subjects and objects (p. 85). By this admission, and in accord with his meta-theoretical project, Smith steps back from a position of absolute metaphysical neutrality, as he must if the aims of his larger project are to be realizable.

Smith calls what results a "successor metaphysics". It aims to bridge the gap between anti-foundationalist "postmodern" metaphysics and a classical or foundationalist metaphysics (pp. 96–97). Smith attempts to do this by rejecting the primacy of any one tool, method, ideology or viewpoint in telling the story of the world while simultaneously admitting that there is a story to be told (p. 117).

It is in giving the groundwork for his successor metaphysics in Part I of the book that Smith makes his greatest contribution to the practice of ontology as a whole. The author makes a convincing argument in favor of an ontological methodology which is devoid, for the most part, of many of the biases of formal ontology and which is yet not lacking in practical applicability. Smith has made a convincing case for a form of ontological anti-foundationalism while setting forth a credible list of minimum necessary criteria for an ontology. Among these features are: particularity, individuality, sameness and difference. Any useful ontology must account for at least these features of objects. From this bare foundation, Smith then works almost from the ground up to develop a new metaphysics.

Founded as it is on the principles set forth in Part I, the metaphysics developed in Part II is interesting and useful, but I think unavoidably limited in its scope of applicability. Recall that Smith approaches the project of successor meta-

physics from his research in computation. It is perhaps in that field that Smith's metaphysics, which he calls a "*philosophy of presence*", has its most limited use. Smith's metaphysics conceives the world as consisting of a "flux" to which subjects or "s-regions" bring stability through a process which Smith calls "registration" (p. 347).

Smith's ontology, which places equal importance on subjects which register the world as upon the objects which subjects register, is as meaty as an anti-foundationalist metaphysics can be. For that, Smith deserves credit. The author admits the dilemma posed by his competing goals, content with a "metaphysical *zest*" which he believes his picture of representation brings to the world. Indeed, it is difficult to argue against this point of view once one accepts the tenets of Part I. I wonder, though, to what extent such a metaphysics can be *implemented* through computational machines (as opposed to humans).

I am reminded of an early account of the Cyc project (now under the auspices of Cycorp—a large employer of professional ontologists in Austin). The account that I recall is of an early iteration of a neural net artificial agent which was given the description of a man shaving his face with an electric razor. The Cyc engine was trained to ask questions about given situations in order to build upon its knowledge net, and in response to the given description it asked whether the man became electrical in the process of shaving his face. I have always thought this to be a very good ontological question for which I can think of no easy, non-tautological answer. For the purposes of designing expert systems, however, it may well be enough to say simply that the man does not become electrical because electric razors and people do not work that way. This is brute-force ontology, however, and reveals little-to-nothing of the metaphysics of electric razors or people. Smith's metaphysics, moreover, does little to resolve such questions. For this reason, Smith's groundwork in methodology is the most useful portion of the work and can stand virtually on its own as a significant contribution to ontology. In fact, ontology is the most worthwhile theoretical pursuit for those seeking to make sense of the world, and metaphysics can largely be ignored by everyone but hard-core philosophy wonks. Smith successfully overlooks the impenetrable questions of metaphysics, those which concern the ultimate reality of the world, and presents an ontological methodology with potentially great applicability.

The practice of applying the tools of ontology is expanding. As noted above, these tools have proven useful in research in fields such as GIS, AI, and computation, amongst others [2]. More recently, the ontology of the social world, including such social objects as institutions, conventions, and laws, has begun to be explored [3]. This exploration is aided by the metaphysical (ontological) "zest" which Smith embraces, in which

all distinctions and stabilities—empirical, conceptual, categorical, metaphysical, logical—are taken *not*, at least not necessarily, and not in the first instance, to be "clear and distinct", sharp, or in any other way *formal*, but instead to be wily, critical, obstreperous, contentious, and in general richly eruptive with fine structure. (p. 348)

Further exploration into objects of the social world, and objects yet to be discovered, can benefit from this metaphysical zest and all ontologists can gain from a careful examination of the arguments and methodology employed in this work.

Notes

- [1] In other words, ontology is distinguished from metaphysics as the study of being, rather than that of "being *qua* being". A given ontology may usefully categorize and describe the world, but metaphysics seeks to *accurately* describe the world. Proof in metaphysics is less accessible than in ontology and so competing schools, or ideologies, proliferate, e.g. idealist vs. realists. To end such conflicts, might we not need a meta-metaphysics, and so on?
- [2] Including, more recently, into "social" reality. See Searle (1996).
- [3] See also Dipert (1993).

References

- DIPERT, R.R. (1993). *Artifacts, artworks, and agency*. Philadelphia: Temple University Press.
- SEARLE, J. (1996). *The construction of social reality*. New York: Free Press.

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Modern philosophy of mind

WILLIAM LYONS (Ed.)

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To summarize before I begin, this is an excellent collection of essays. Lyons has done a masterful job of choosing clear, concise, easy-to-read, and seminal papers in philosophy of mind. The only reason not to use this collection in a course is because of a difference in topic. In other words, the job this book has been designed to do it does very well. It is, of course, difficult to critique the arguments presented in such papers without writing a book of one's own. So, I set the task of this review as one of description, not of argument or insight.

The title *Modern philosophy of mind* might mislead some to think the essays are on current trends in philosophy of mind. This is not the case, as a quick glance at the table of contents will show. Essays from William James, J. B. Watson, and Rudolf Carnap begin the discussion, which then continues to the middle of this century with pieces from U. T. Place, Hilary Putnam, Donald Davidson, and concludes with some early work from Daniel Dennett, Paul Churchland and Jerry Fodor. Presumably, the term "modern" designates the historical period (as opposed to post-modern), not the recency of the publication of the chosen essays.

This text would be an excellent reader for a number of possible courses including, at the undergraduate level, a first philosophy of mind intensive course, or perhaps a more general course which includes a section on philosophy of mind. At the graduate level, the book could serve as an excellent background or overview piece. The collection has all the basics of a good course reader including an index, suggestions for further readings, a clear introduction to the area and an extremely affordable price tag. What makes it stand out as above-average are the comprehensive chronology, which parallels important events in philosophy of mind to the political climate and scientific discoveries, and more importantly, careful organization which leads the reader naturally from one topic to the next while retaining near chronological order. Thus, together with the introduction, this group of essays forms a coherent picture of the development of many of the theses which comprise the philosophy of mind. Also, each essay is a clear expression of the central