CAMBRIDGE STUDIES IN PHILOSOPHY

The ontology of physical objects
The ontology of physical objects:
Four-dimensional hunks of matter

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To my first philosophy teacher,
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Preface

This text is devoted to developing an ontology of four-dimensional hunks of matter. I argue that every filled region of spacetime is exactly filled by one such object and that any one of these objects has its actual spatiotemporal configuration and location at every world at which it exists. This ontology should be contrasted with what I take to be our standard ontology, according to which one and the same three-dimensional object exists in its entirety at several times and at several worlds, having a different spatiotemporal shape and location at many of these other worlds. My arguments can be taken to support either of the following conclusions: (A) the standard ontology should be rejected and the hunk ontology accepted; (B) the standard ontology must really be the hunk ontology rather than the ontology of three-dimensional objects that exist at worlds at which they have different configurations and locations. For the most part I present my arguments as a defense of (A), but I will also show how to read them as a defense of (B).

Since I hope to argue for the hunk ontology over the “standard ontology,” it is natural that this book should contain both a constructive project and a destructive project, though it is crucial that the two projects not be completely separated. Much of the constructive project is closely connected to the work of David Lewis and much of the destructive project is closely connected to the work of Peter Unger. I hope that I have managed to make original contributions to each of their projects – partly by making some of the same points in new ways, partly by providing new motivations for positions that resemble theirs, and partly by demonstrating the relationships between the two projects.

The two projects are to a large extent mutually supportive. The rejection of the standard ontology (destructive project) does not seem so extreme once a replacement ontology is provided (constructive project). The replacement ontology, with objects that have temporal parts and restricted transworld existence (constructive),
will not seem as problematic once it is noticed that it conflicts with common sense only at the points at which common sense goes wrong anyway (destructive). The two projects also bear upon each other in that each restricts the other. If the replacement ontology is itself going to successfully avoid the attack posed by the destructive project, the relationship between that ontology and our every-day utterances will be more complex than it would first appear. On the other hand, once that relationship is understood, the conclusion of the destructive project can be seen to be less shocking than it would first appear.

In the first chapter I begin to explain my recommended ontology of four-dimensional hunks of matter. I propose that such objects are physical and have temporal parts in just the same way that supposed three-dimensional objects would have spatial parts. However, I emphasize that the four-dimensional objects should not be thought of as being “built up out of” instantaneous parts. Indeed, one can accept my proposed ontology without accepting that there are any instantaneous objects. I argue in detail that accepting my ontology avoids commitment to such objectionable theses as that two objects can exist in one place at one time. I also argue in detail that certain general criticisms of ontologies that include temporal parts do not apply to the particular ontology I have offered.

Part of the first chapter is a revised version of “Temporal Parts of Four-Dimensional Objects,” *Philosophical Studies* Vol. 46 (1984): 323–34, and I thank Kluwer Academic Publishers for permission to use that material here. Also, part of Chapter 1 was supported by a 1984 Syracuse University Senate Research Grant, for which I am grateful.

In the second chapter the hunk ontology is developed in more depth, paying special attention to those features of an object that seem to be most tied to its identity – its persistence conditions and essential properties. I explain the concept of a conventional object, arguing that if a supposed object’s persistence conditions or essential properties are a function of human convention, then there really is no such object. I suggest that all of the objects of our standard ontology are conventional, though the argument for this is left until the third chapter. One goal of the second chapter is to specify what requirements are forced on the hunk ontology if it is to avoid the accusation that it is just as conventional as the standard ontology. I argue for the following two requirements: First, *every* filled region
of spacetime must contain an object; and, second, these objects must have their spatiotemporal configurations essentially.

In the third chapter I present my case against the standard ontology. The objects of our standard ontology are vague, and of all the possible ways of handling vagueness, the only acceptable one is to accept the conventionality of the standard ontology. If we assume that the standard objects are not conventional, then they must either have precise temporal boundaries or imprecise temporal boundaries. I argue that the boundaries of a nonconventional object cannot be imprecise. If the boundaries are precise, then they must either be knowable or unknowable. I argue that there is a sense of ‘knowable’ in which it is obvious that no standard object’s precise boundaries are knowable. I then argue that, in that same sense of ‘knowable’, the boundaries cannot be unknowable, unless we are prepared to accept an extreme skepticism about diachronic identity. I conclude that the vagueness of our standard ontology is the result of the vagueness of our conventions governing our everyday use of language – the standard ontology is conventional. Much of Chapter 3 is a revised version of “Vagueness and the Standard Ontology,” NOUS, Vol. 22 (1988):109–31, and I thank the editor of NOUS for permission to use that material.

In the fourth and final chapter I show that my rejection of the standard ontology is not as extreme as it might first appear. I offer my hunk ontology as a replacement for the standard ontology. Though the standard ontology is false, it is still useful. It is because we have no need for precision in our day-to-day affairs that our conventions lack precision. It is because our conventions do, in spite of their imprecision, require a certain connection between our utterances and the true ontology that those utterances can serve their purposes without making any very particular assertion about the structure of the objects of the true ontology. The primary concern of the fourth chapter is to come to understand exactly what the connection is between our typical utterances and the true ontology. The effect should be to eliminate any apparent absurdity involved in rejecting the standard ontology in favor of the hunk ontology.

Nowhere in this text do I argue for the claim that there are physical objects. Nor do I argue for the claim that if there are physical objects, we can know what these objects are. For the purposes of this work, I take these two claims for granted. If certain skeptical
arguments are sound, then we cannot know whether there are physical objects or not. If certain idealist arguments are sound, then there is nothing that is physical (or at least there is nothing that is nonmental). If certain extreme conventionalist arguments are sound, then there are no physical objects, although there may still be matter. If certain Kantian arguments are sound, then there is really nothing that is either physical or mental, although there is still the thing-in-itself. I do not deal with any of these arguments in this text. I am offering an ontology of physical objects on the assumption that there are some. My concern is with the nature of such objects. Even assuming that there are such things, they are not what we think they are. In proposing an ontology I am offering an account of what physical objects would have to be like if there were any.

One other assumption that I make is that there are such things as sets, states of affairs, possible worlds, and propositions. It is tempting to characterize this assumption generally as a realism about abstract entities. But the distinction between abstract and concrete is not as clear as we might hope, and I do not want to accidentally assume too much by characterizing my assumption in a way that might commit me to some particular theory about the nature of sets, states of affairs, possible worlds, or propositions. My assumption that these objects exist is supposed to have a different status for my project than those assumptions that I adopted in the preceding paragraph. The assumptions that there are physical objects and that we can know what those objects are can be thought of as similar to the assumptions in a conditional proof. The assumption presently being considered, on the other hand, is merely a convenience.

For instance, if someone objects to possible worlds, it is incumbent upon the objector to provide a means of paraphrasing ‘possible world’ talk into talk that is not explicitly committed to such entities. If it turns out that there are no possible worlds, if the opponent of those entities is successful, then the things that I say in terms of possible worlds should be sayable in other terms. So I do not have to qualify the conclusion of this work by saying that if there are possible worlds, then our standard ontology must be replaced by an ontology of four-dimensional hunks of matter. My arguments would be just as successful if there were no possible worlds, although they would have to be restated if they were to avoid their
apparent commitment to such objects. Similar considerations apply to sets, states of affairs, and propositions.

I emphasize that my discussion is restricted to physical objects. I offer no explicit commentary on mental entities (if they are non-physical). I do assume that people are physical, but this is just for the sake of argument. If they are not physical, then my claims about physical objects do not apply to people. But if they are physical, they are no exception to my claims. I might suggest in passing that even if people were mental, it seems that the Sorites paradox would still apply to them. A mentalistic conception of people would be no less vague than a physicalistic one. I do not pursue this line of thought in the body of this work. I am content to give an account of what physical things there are.

This work has, of course, benefited from the advice and criticism of several people. I have learned (I hope) in various ways from all of the philosophers mentioned below. I thank Hal Brown, Mark Brown, Jan Cover, Evan Fales, Larry Hohm, Paul Hrycaj, Jim Hudson, and Thomas McKay both for their specific comments and their general reactions. I am also grateful for the comments I received from Sydney Shoemaker, as editor of the Cambridge Studies in Philosophy series, and the comments I received from the anonymous referees.

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the formative stages of this project, I doubt that the project would have been attempted. I am sure that it would not have been successful. Of course, I also thank them for their specific helpful comments. Van Inwagen especially forced me to face many difficulties that I might have otherwise passed over. In offering my gratitude to all of the kind and wise philosophers mentioned above I do not mean to suggest that they endorse my position, but only that my having to deal with their comments has helped me to become more satisfied with this work.

Finally, I would like to thank Susan and Kaitlin Heller for their support, and, most of all, for the pleasure of their company.