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Ontology

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Ontology

Ontology, or metaphysics after the title given to Aristotle's 'first philosophy', is investigation of the nature, structure and constitution of reality. The term 'ontology' is cognate with the Latin *ens*, existing thing or entity, from the verb *esse* to be, so that ontology may also be characterized simply as investigation of that which exists. As such, ontology is distinct from other branches of philosophy, such as epistemology, which concerns the nature of knowledge, and logic, which concerns the nature of valid reasoning. Entity in the most basic sense includes individual things (or particulars), properties, relations, events, states of affairs, sets and so on, any of which, according to different philosophical views, may or may not be reducible to one another. For example, one might ask whether space and time should be thought of as particular types of individual things, within which we find more familiar types of individuals, or whether space and time should be thought of as (systems of) relations between individual things. Similarly, one might ask whether properties are reducible to sets of things, whether individual things are reducible to series of events, and so on.

In recent years, two positions regarding ontology have attracted the attention of economic methodologists. On the one hand, there are proponents of ontological realism, the view that the world is populated by real objects independent of our experience, and that these objects possess properties and enter into relations with one another independently of our understanding of them. On the other hand, there is the idealist view that the idea of objects with properties and relations independent of our experience and conception is incoherent, since any idea is a form of conception, and we cannot conceive what is independent of conception. This latter view seems to have recently enjoyed something of a revival among economic methodologists, but there are at least two good reasons to question it.

First, the expression 'our experience and conception' presupposes that there exist many individuals, who presumably possess properties and stand in various relations to one another largely independently of each other's experience and understanding. Thus it cannot be denied that some things exist independently of someone's conception. But if some things exist independently of someone's conception, it is possible that some things exist independently of anyone's conception and thus that ontological realism is true at some level. The eighteenth-century Irish idealist philosopher Berkeley saw the logic of this argument, and sought to escape it by assuming that God perceived everything (Berkeley, 1710). Modern philosophers, scientists and economic methodologists, however, tend to adopt a more secular perspective, accept the existence of many finite minds and are by and large ontological realist.

Second, the view that things do not exist independently of conception necessitates our explaining what exists in terms of what we may conceive. But we may conceive of many sorts of things as existing, including fabulous and imaginary things such as unicorns and green cheese moons. What, then, distinguishes conceiving that a particular tree we see before us exists from conceiving that a unicorn exists? Lacking the standard realist device of saying that the tree exists in conception and in an independent reality, but that the unicorn only exists in conception, the idealist must differentiate between kinds of existence appropriate to different kind of things. But this runs contrary to a widely held intuition that one can say that things either exist or they do not, in that the idealist must say that unicorns exist in one sense, but not in some other. A related problem in the history of pre-modern philosophy arises in connection with the ontological argument (compare Plantinga, 1965), in which the mediaeval scholastics argued that God's possessing the property of perfection, which we may conceive as necessary to the meaning of

God, proved that God exists. But that God's perfection may be conceived does not prove God exists in the sense that we believe that trees exist. Essentially, then, that the scholastics believed that conceiving God's perfection demonstrated God's existence turned on an ambiguity in the concept of existence.

In general, it seems fair to say that the majority of modern philosophers regard existence and conception as ontologically distinct and irreducible domains, and that they also subscribe to some form of ontological realism. Debate, nonetheless, has attached to the question of whether ontological investigation of any sort, realist or otherwise, is philosophically promising, and whether philosophers should restrict themselves to epistemology, logic and analysis as modes of inquiry. Thus Moore (1911) argued that neo-Hegelian idealism of Bradley and McTaggart violated the claims of common sense. Following the early Wittgenstein, the logical positivist Vienna Circle treated metaphysical (or ontological) propositions as meaningless. Carnap (1932) in particular asserted, 'The meaning of a statement lies in the method of its verification' and argued that, since metaphysical statements were incapable of verification, they were therefore meaningless. In response, Popper (1934) proposed that verifiability be replaced by falsifiability as a criterion of demarcation between science and metaphysics – not as a criterion of meaning – and then suggested that metaphysical ideas could be quite useful for science. Indeed, he went on to argue that theories may initially be metaphysical in nature and then later play heuristic roles in the formulation of scientific hypotheses: 'Atomism is an excellent example of a non-testable metaphysical theory whose influence upon science has exceeded that of many testable scientific theories' (Popper, 1983: 192). Against this, Quine, following Duhem in what has come to be known as the Duhem–Quine thesis, noted that falsifiability is not a successful demarcation criterion, denied that science and metaphysics could be sharply distinguished and warned of the danger of 'a blurring of the supposed boundary between speculative metaphysics and natural science' (Quine, 1951: 20). Better, in his view, to concentrate on science which alone provides genuine knowledge.

However, science and its empirical practices, as well as common sense, clearly all presuppose various ontological commitments, such as the idea that every event has a cause, the idea that our experiences are generated by things in the world and the idea that the world is populated by individuals with whom we interact in science and ordinary life. Thus, however difficult it may be to explain the nature of these commitments and their relation to science and common sense, that such commitments underlie our thinking seems adequate justification for their investigation. Moreover, though ontological or metaphysical propositions lack the status of being the sort of well-confirmed beliefs which scientific knowledge aspires to produce, metaphysics may still be regarded as a realm of belief in which distinct propositions may be rationally examined and disputed. An arguably more important posture towards ontology, then, concerns what attitude we ought to take towards the explanation of our ontological commitments. Should we be content to describe common sense and scientific views of the structure and nature of reality – a descriptivist metaphysics (Strawson, 1959) – or should we rather engage in a revisionary metaphysics that aims to develop a self-consistent ontological system?

These two projects are not always sharply distinguishable, but the former descriptivist project is sometimes associated with producing accounts of the most basic sorts or categories of entities (individual things or particulars, properties, relations, events, states of affairs and so on) presupposed in a science or discourse under investigation. Aristotle asked whether some things endure through time and through change in their properties and relations; that is, whether some things were substances. Thus in connection with neoclassical economics we might

ask whether individuals are substances, or whether comparative statics analysis requires that they be treated as temporal series of momentary individuals with no essential connection. Relatedly, are firms substances that we may model as intentional beings, or are they nothing but bundles of properties and relations lacking any particular unity? Aristotle also distinguished between substances' essential and accidental properties, or between those properties required and not required for their existence. Economics might be said to encounter this distinction in the debate over whether mathematical formalization captures accidental rather than essential characteristics of individuals and firms, and thus whether formal theories are 'about' real world individuals.

The latter revisionist project may be associated with broad ontological views, such as realism, idealism, materialism, dualism, nominalism, holism and organicism. For example, materialism is the view that everything can be satisfactorily explained in naturalistic terms, where this implies, among other things, that mental states are brain states; or organicism is the view that the relations between things are internal, and as such explain their relations, or the things they relate. Often, however, individual philosophers subscribe to combinations of views, where how these views are structured and identified is a matter of prior views held about the nature of basic ontological categories. One might thus be a realist with respect to particulars, believing that they indeed exist as self-subsistent things, but be a nominalist or conceptualist with respect to their properties, believing that the predicates we use to characterize individual things do not refer to really existing properties. Alternatively, one might be a realist in the Platonist sense of believing that properties we predicate of things truly exist, and that things 'instantiate' or instance properties. Things, on this view, are always of a particular kind or sort.

Properties, characteristics, attributes, qualities, meanings and so on – perhaps the most disputed over and most complex of ontological categories – are generally referred to as universals by philosophers. Our interest in them as an ontological category derives in part from the fact that they constitute a subject matter from which knowledge is constructed, whether this is a matter of general epistemic relationships (such as when we ask about the relationship between income distribution and consumption) or a matter of our knowledge about particular things (such as when we ask about the income and consumption of particular individuals). Perhaps not surprisingly, then, ontological views often underlie epistemological ones. If one is a realist with respect to particular things yet a nominalist with respect to their properties, one is more likely to be empiricist in orientation. If one is a realist with respect to properties, since properties are generally not thought to be spatiotemporal in nature, one is more likely to invest less significance in empirical work and to be rationalist or formalist in orientation. Accordingly, methodological differences regarding how knowledge is organized and constructed often relate to differing opinions about the constituents of knowledge, which in turn link up with differing opinions about what is thought to be knowable according to what is thought to actually exist.

In economics, the question of what is thought to actually exist is central to one of the longest and most intractable ontological disputes. In classical political economy (and its subsequent revival), classes are said to exist, acquiring most clearly in Marx's thinking the status of agents over and above the collections (or sets) of individuals that make them up. In neoclassical economics, in contrast, individuals alone are thought to exist and act as agents, classes are not regarded as real, but constitute merely conceptual constructions. Methodological collectivism and methodological individualism, that is, are rooted in opposed ontological commitments that underlie entire research programmes and their associated epistemological strategies. Related disputes exist between old and new institutionalists and between proponents

of individualist microfoundations for macroeconomics and proponents of an aggregative macroeconomics of a more holistic nature. In the latter dispute, those who propose individualist-reductionist accounts of macroeconomic relationships often reason that these relationships are theoretical constructions that must be explained in terms of the choices individuals make, the reason being that only individuals exist. Those who believe it is unnecessary to reduce aggregative relationships to individual action suppose that these relationships are real in and of themselves, and as such are objects of investigation.

Evaluation of these ontological positions by philosophers and economic methodologists involves what has been labelled above as descriptive metaphysics. Determining what sorts of agents or entities exist in economic life may be investigated in classic Aristotelian terms as a set of questions concerning whether one type of entity is reducible to or subsumed within another, and whether individuation and identity conditions are satisfied with respect to entities proposed as real. Ontological investigations of this sort are not likely to dispel classic oppositions in orientation between economists, but they may, as Popper suggested, permit formulation of scientific hypotheses regarding the nature and scope of economic agency that, if not directly testable, may nonetheless be subject to empirical and theoretical examination.

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Operationalism

Operationalism was established as a philosophical term by Percy Bridgman's book, *The Logic of Modern Physics* in 1927, although historians have traced essentially similar uses of the term by other American physical scientists in the first decades of the twentieth century (Moyer, 1991: 381). In his seminal text, Bridgman defined the concept as follows (1961: 5):

In general, we mean by any concept nothing more than a set of operations; the concept is synonymous with the corresponding set of operations. If the concept is physical, as of length, the operations are actual physical operations, those by which length is measured; or if the concept is mental, as of mathematical continuity, the operations are mental operations, namely those by which we determine whether a given aggregate of magnitudes is continuous.

Bridgman, although a Nobel Prize winner in physics, always prided himself upon a plain-spoken style, and in his book he made it seem as though his doctrine was little more than a restatement of the homespun wisdom that 'the true meaning of a term is to be observing what a man does with it, not what he says about it' (ibid.: 7). In order to conflate meaning with action