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# Recent Advances in Metaphysics: Ontological Categories and Categorial Schemes

## Recientes avances en metafísica: Categorías ontológicas y esquemas categoriales

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Desde una perspectiva ontológica tradicional, y con la declarada intención de alejarse del relativismo contemporáneo, el presente escrito busca establecer algunos principios básicos para mantener la posición de la metafísica como el estudio sistemático de la realidad como un todo, y de la ontología como la *ciencia del ser*, sustentada en una teoría de categorías. Estas categorías están diferenciadas por las características distintivas de existencia e identidad de sus respectivos miembros, tomándose como «categorías ontológicas fundamentales» aquellas en donde sus miembros tienen condiciones para estas características de existencia e identidad que no sean especificables en una forma exhaustiva, en términos de dependencia ontológica, entre esos miembros y los miembros de otras categorías ontológicas. Este escrito hace entonces una revisión de las diferentes teorías de categorías ontológicas, y sus respectivas interpretaciones de cuántas y cuáles categorías deben ser reconocidas.

Metafísica · Ontología · Teoría de categorías ontológicas · Existencia · Realidad.

From a traditional ontological perspective, and with the declared intention to move away from contemporary relativism, this paper aims to establish some basic principles to maintain the position of Metaphysics as the systematic study of reality as a whole, and Ontology as the *science of being*, based on a theory of categories. These categories are differentiated by the distinctive features of existence and identity of their respective members, taking as «fundamental ontological categories» those where its members have conditions for these characteristics of existence and identity that are not exhaustively specifiable, in terms of ontological dependence, between those members and members of other ontological categories. This paper then makes a revision of the different theories of ontological categories, and their respective interpretations of how many and which categories should be recognized.

Metaphysics · Ontology · Theory of ontological categories · Existence · Reality.

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**ARTÍCULO**

# Recent Advances in Metaphysics: Ontological Categories and Categorial Schemes

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## §1. Philosophy, metaphysics and ontology

THERE IS A WIDESPREAD ASSUMPTION AMONGST NON-PHILOSOPHERS, which is shared by a good many practising philosophers too, that «progress» is never really made in philosophy, and above all in metaphysics. In this respect, philosophy is often compared, for the most part unfavourably, with the empirical sciences, and especially the natural sciences, such as physics, chemistry and biology. Sometimes, philosophy is defended on the grounds that to deplore the lack of «progress» in it is to misconceive its central aim, which is challenge and criticise received ideas and assumptions rather than to advance positive theses. But this defence itself is liable to be attacked by the practitioners of other disciplines as unwarranted special pleading on the part of philosophers, whose comparative lack of expertise in other disciplines, it will be said, ill-equips them to play the role of all-purpose intellectual critic. It is sometimes even urged that philosophy is now «dead», the relic of a pre-scientific age whose useful functions, such as they were, have been taken over at last by genuine sciences. What were once «philosophical» questions have now been transmuted, allegedly, into questions for more specialised modes of scientific inquiry, with their own distinctive methodological principles and theoretical foundations.

This dismissive view of philosophy is at once shallow and pernicious. It is true that philosophy is not, properly speaking, an empirical science, but there are other disciplines of a non-empirical character in which progress most certainly can be and has been made, such as mathematics and logic. So there is no reason, in principle, why progress should not be made in philosophy. However, it must be acknowledged that even professional philosophers are in much less agreement amongst themselves as to the nature of their discipline and the proper methods of practising it than are mathematicians and logicians. There is more disagreement about fundamentals in philosophy than in any other area of

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human thought. But this should not surprise us, since philosophy is precisely concerned with the most fundamental questions that can arise for the human intellect.

The conception of philosophy that I favour is one which places metaphysics at the heart of philosophy and ontology –the science of being– at the heart of metaphysics.[1] Why do we need a «science of being», and how is such a science possible? Why cannot each special science, be it empirical or *a priori*, address its own ontological questions on its own behalf, without recourse to any overarching «science of being»? The short answer to this question is that reality is one and truth indivisible. Each special science aims at truth, seeking to portray accurately some part of reality. But the various portrayals of different parts of reality must, if they are all to be true, fit together to make a portrait which can be true of reality as a whole. No special science can arrogate to itself the task of rendering mutually consistent the various partial portraits: that task can alone belong to an overarching science of being, that is, to ontology. But we should not be misled by this talk of «portraits» of reality. The proper concern of ontology is not the portraits we construct of it, but reality itself.

Here, however, we encounter one of the great divides in philosophy, whose historical roots lie in the seventeenth and eighteenth centuries. There are those philosophers –Kant is the most obvious and seminal figure– who consider that we cannot, in fact, know anything about reality «as it is in itself», so that ontology can be coherently conceived only as the science of our thought about being, rather than as the science of being as such. On the other hand, there are philosophers, many of whom would trace their allegiances back to Plato and Aristotle, who think that there is no obstacle in principle to our knowing at least something about reality as it is in itself. On behalf of this view, which I share, it may be urged that to deny the possibility of such knowledge is ultimately incoherent and self-defeating. The easiest way to sustain this charge is to point out that if, indeed, we could know nothing about reality as it is in itself, then for that very reason we could know nothing about our own thoughts about, or portrayals of, reality: for those thoughts or portrayals are nothing if not parts of reality themselves. In short, ontological questions –understood as questions about being rather than just about our thoughts about being– arise with regard to the ontological status of our thoughts, and of ourselves as thinkers of those thoughts: so that to attempt to recast all ontological questions as questions

[1] See further E. J. Lowe (1998) ch. 1, and (2002e), ch. 1, where many of the points made in the present section of this paper receive a fuller treatment.

about our thoughts about what exists is to engender a regress which is clearly vicious.

This still leaves unanswered the question of how we can attain knowledge of being, or of reality «as it is in itself», especially if ontology is conceived to be not an empirical but an *a priori* science. The answer that I favour divides the task of ontology into two parts, one which is wholly *a priori* and another which admits empirical elements. The *a priori* part is devoted to exploring the realm of metaphysical possibility, seeking to establish what kinds of things could exist and, more importantly, *co-exist* to make up a single possible world. The empirically conditioned part seeks to establish, on the basis of empirical evidence and informed by our most successful scientific theories, what kinds of things do exist in this, the actual world. But the two tasks are not independent: in particular, the second task depends upon the first. We are in no position to be able to judge what kinds of things actually *do* exist, even in the light of the most scientifically well-informed experience, unless we can effectively determine what kinds of things *could* exist, because empirical evidence can only be evidence for the existence of something whose existence is antecedently possible.

This way of looking at ontological knowledge and its possibility demands that we accept, whether we like it or not, that such knowledge is fallible –not only our knowledge of what actually does exist, but also our knowledge of what could exist. In this respect, however, ontology is nowise different from any other intellectual discipline, including mathematics and logic. Indeed, it is arguable that it was the mistaken pursuit of certainty in metaphysics that led Kant and other philosophers in his tradition to abandon the conception of ontology as the science of being for a misconception of it as the science of our thought about being, the illusion being that we can attain a degree of certainty concerning the contents of our own thoughts which eludes us entirely concerning the true nature of reality «as it is in itself».

## §2. Ontological categories

I have described ontology as being concerned, in its *a priori* part, with what kinds of things can exist and co-exist. By «kinds» here I mean *categories*, a term which is inherited, of course, from Aristotle, who wrote a treatise going under that title.[2] (Later I shall be using the term «kinds» in a more restricted sense, to

[2] See Aristotle (1963).

denote one ontological category amongst others, so it is important that no confusion should arise on this score). And by «things» I mean *entities*, that is, *beings*, in the most general sense of that term. Category theory, then, lies at the heart of ontology –but, properly understood, concerns categories conceived as categories of being, not, in Kantian style, as categories of thought. (There is, of course, also a branch of mathematics called «category theory», but since ontology has the first claim on the term, I use it here without apology to the mathematicians concerned).

Strangely, for much of the twentieth century, many philosophers, even those who were broadly sympathetic to the realist conception of ontology that I favour, saw no need for category theory to lie at the heart of metaphysics. This is because they imagined that all the purposes of ontology could be served, in effect, by set theory, perhaps in the belief that anything can be «modelled» in set theory and that any adequate model can be substituted, without loss, for whatever it is supposed to be a model of.[3] Thus, for instance, they supposed that instead of talking about properties of objects, we could talk about sets of objects, or, more sophisticatedly, about functions from possible worlds (themselves conceived, perhaps, as sets of objects) to sets of objects «at» or «in» those worlds. For instance, the property of being red might be «represented» as a function which has, for each possible world as an argument, the set of red objects in that world as the corresponding value. And functions themselves, of course, are also ultimately «represented» as sets, namely, as sets of ordered pairs of their arguments and values (ordered pairs in turn being «represented» as sets of sets in the standard Wiener–Kuratowski fashion).

Nothing could be more myopic and stultifying than this view that all the purposes of ontology can be served by set theory and set-theoretical constructions. Sets themselves comprise just one category of entities amongst many, and one which certainly could not be the sole category of entity existing in any possible world.[4] Even if we suppose that so-called «pure» sets are possible –sets that have in their transitive closure only other sets, including the «empty» set– there must be more kinds of thing in any possible world than just such sets. This is true even if it is also true that anything whatever can, in some sense, be «modelled» set-theoretically. We should not conflate a model with what it is a model of. Indeed, there is a kind of unholy alliance between this way of doing ersatz ontology via set-theoretical constructions and the anti-realist conception

[3] For similar strictures, see B. Smith (1997, pp. 105-27), especially p. 107.

[4] See further E. J. Lowe (1998) ch. 12, and also (2002c, pp. 62-73).

of ontology as the science of our thoughts about, or representations of, reality. What is common to both approaches is the misbegotten conviction that we must and can substitute, without significant loss, models or representations of things for the things themselves.

So what, then, are ontological categories and which such categories should we acknowledge? How are such categories to be «individuated», that is, identified and distinguished? Here I shall make two preliminary claims, neither of them expressed very precisely at this stage. First, ontological categories are hierarchically organised and, second, ontological categories are individuated by the distinctive existence and/or identity conditions of their members. The two claims are mutually dependent, furthermore. I have already mentioned some ontological categories in passing: for instance, the categories of *object*, *property* and *set*. A hierarchical relation is observable even here, since sets comprise a sub-category of objects: that is to say, a set is a special kind of object –namely, it is an abstract object whose existence and identity depend entirely upon the existence and identities of its members. And thus we see here too how the category of set is individuated in terms of the existence and identity conditions of the entities that belong to it. (I hasten to emphasise that the sense in which an entity «belongs» to a category is not to be confused with the special set-theoretical sense in which something is a «member» of a set: to indulge in this confusion would be to treat the categories themselves as sets, whereas in fact sets comprise just one ontological category amongst many. I should perhaps remark, indeed, that ontological categories are not themselves to be thought of as *entities* at all, nor, *a fortiori*, as comprising a distinctive ontological category of their own, the category of *category*. To insist, as I do, that ontological categories are categories of being, not categories of thought, is not to imply that these categories are themselves *beings*).

As a further illustration of the foregoing points, consider the following two sub-categories of object, each of which is a special kind of *concrete* object, in contrast with such abstract objects as sets and propositions: *masses*, or material bodies, on the one hand, and *living organisms* on the other. Entities belonging to these two categories have quite different existence and identity conditions, because a living organism, being the kind of thing that is by its very nature capable of undergoing growth and metabolic processes, can survive a change of its constituent matter in a way that a mere mass of matter cannot. A mere mass, being nothing but an aggregate of material particles, cannot survive the loss or exchange of any of those particles, any more than a set can undergo a change of its members. As a consequence, it is impossible to *identify* a living organism with

the mass of matter which constitutes it at any given stage of its existence, for it is constituted by different masses at different stages.[5]

It is a matter of debate how, precisely, ontological categories are hierarchically organised, although the top-most category must obviously be the most general of all, that of *entity* or *being*. Everything whatever that does or could exist may be categorised as an «entity». According to one view, which I favour myself, at the second-highest level of categorisation all entities are divisible into either *universals* or *particulars*.[6] A partial sketch of a categorial hierarchy embodying this idea and others that I have just outlined is provided in Fig. 1 below. I must emphasise its partial and provisional character. Other ontologists deny the very existence of universals, while yet others believe that all particulars are reducible to, or are wholly constituted by, coinstantiated or «compresent» universals. Already here we see a kind of question that is central to ontology: a question concerning whether one ontological category is more «fundamental» than another. Those ontologists who maintain that particulars are wholly constituted by coinstantiated universals are not denying –as some other ontologists do– the existence of either particulars or universals, but they are claiming that the category of universals is the more fundamental of the two. The point of such a claim is to effect an ontological economy. An ontologist who is never concerned to effect such economies is in danger of ending up with an ontological theory which amounts to nothing more than a big list of all the kinds of things that do or could exist: ships and shoes and sealing wax, cabbages and kings –not to forget dragons, witches, ectoplasm and the philosopher´s stone.[7]

[5] See further E. J. Lowe (1989) ch. 7.

[6] For an alternative view, see R. M. Chisholm (1996), or his (1992).

[7] Compare F. Jackson (1998), pp. 4-5.

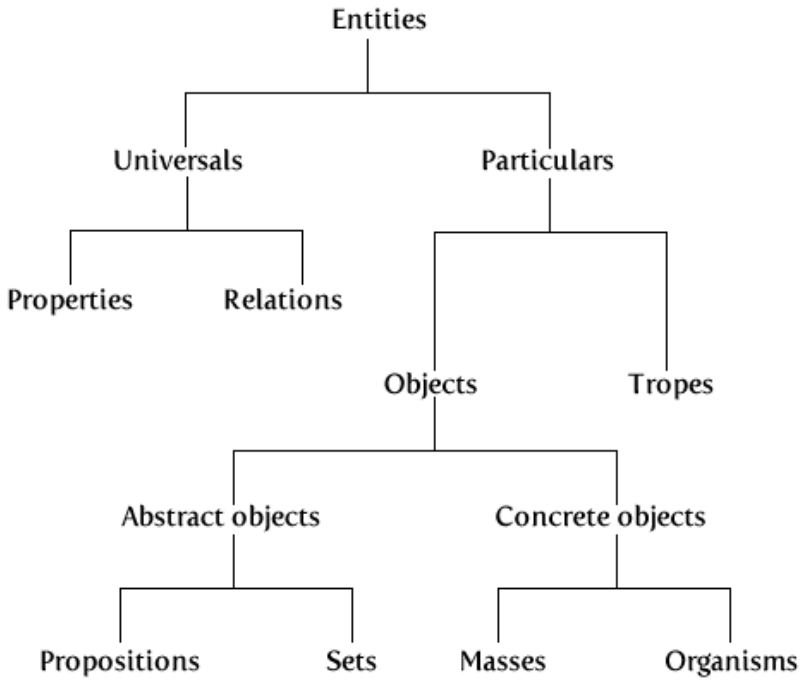


Fig. 1: A fragment of the hierarchy of categories

## §3. Some competing ontological systems

This is where I can begin to make good my contention, implicit in the title of this paper, that there have been recent advances in metaphysics. Progress has certainly been made of late in thinking about how ontological categories may be related to one another and, more especially, about which categories might have the strongest claim to being «fundamental». What does it mean to describe a certain ontological category as being «fundamental»? Just this, I suggest: that the existence and identity conditions of entities belonging to that category cannot be exhaustively specified in terms of ontological dependency relations between those entities and entities belonging to other categories. This is why particulars cannot comprise a «fundamental» ontological category if, in fact, they are wholly constituted by coinstantiated universals: for in that case, a particular exists just in case certain universals are coinstantiated and is differentiated from any other particular by the universals which constitute it. In point of fact, however, not many contemporary ontologists see much prospect in this account of particulars, not least because it implausibly excludes as metaphysically impossible a world in which two distinct particulars are qualitatively exactly alike –in other words, because it exalts to the status of a metaphysically necessary truth an implausibly strong version of Leibniz´s

principle of the identity of indiscernibles.[8]

I have been getting ahead of myself a little in talking of universals and particulars without offering any explicit account of the distinction between them. Even in this matter, however, there is controversy. Loosely, it is often said that universals are «repeatable» and particulars «non-repeatable» entities. By this account, the property of being red, or redness, conceived as a universal, is something that may be wholly and repeatedly present at many different times and places, whereas a particular red object is wholly confined to a unique space-time location and cannot «recur» elsewhere and elsewhen.[9] There are problems with this way of characterising the distinction between universals and particulars, but I shall not go into them here. Not surprisingly, however, a good many contemporary ontologists would like either to eliminate universals altogether from their inventories of existence or else to reduce them to particulars. This is the position of so-called trope theorists, for whom properties themselves are one and all particulars, with the redness of any one red object being numerically distinct from the redness of any other, even if the two objects in question resemble each other exactly in respect of their colours.

Another ontological distinction which requires some explication at this point is the distinction between *object* and *property*. Although for some ontologists this simply coincides with the distinction between particular and universal, clearly it does not for trope theorists. Objects are entities which possess, or «bear», properties, whereas properties are entities that are possessed, or «borne» by objects. Matters are complicated by the fact that properties can themselves possess properties, that is, so-called «higher-order properties» –as, for example, the property of being red, or redness, has the second-order property of being a colour-property. In view of this, one may wish to characterise an «object» more precisely as being an entity which bears properties but which is not itself borne by anything else. This, however, is one traditional way of characterising the category of *individual substance* –a way that may be found in some of the works of Aristotle, for instance.[10]

Trope theorists hold that objects, or individual substances, are reducible to tropes, that is, to properties conceived as particulars rather than as universals. On this view, an object, such as a certain individual flower, is wholly constituted by a number of «compresent» tropes: it is, as it were, nothing over and above

[8] See further J. van Cleve (1985, pp. 95-107).

[9] See, for example, D. Armstrong (1989, pp. 98-99), and, for an objection, E. J. Lowe (1998, p. 156).

[10] For more on the category of substance, see J. Hoffman and G. S. Rosenkrantz (1994).

the particular properties that it possesses, such as a certain colour, shape, size, mass and so forth. It is, as they say, a «bundle» of tropes, all of which exist in the same place at the same time. Trope theorists advertise as one of the main virtues of their theory the fact that it is a «one-category» ontology –meaning by this that, according to their theory, there is only one fundamental ontological category, that of tropes. Objects, or individual substances, are regarded, as we have just seen, as being «bundles» of tropes, depending for their existence and identity upon the tropes which constitute them, while universals, if they are wanted at all, are reducible to classes of resembling tropes –redness, thus, to the class of red tropes.

I may have given the impression of such a diversity of opinion amongst contemporary ontologists as to undermine my own claim that advance has been made in modern metaphysics. But advance is not always made simply by arriving at a consensus of opinion. Sometimes it is made by the development of new theories and healthy argument between their adherents. This, indeed, is what very often happens in the empirical sciences too. However, it is time that I injected more order into my characterisation of the rival ontological systems that are currently under debate.

To fix nomenclature, if only for the time being, let us operate with the terms *object*, *universal* and *trope*. An object is a property-bearing particular which is not itself borne by anything else: in traditional terms, it is an individual substance. A universal (at least, a first-order universal) is a property conceived as a «repeatable» entity, that is, conceived as something that may be borne by many different particulars, at different times and places. And a trope is a property conceived as a particular, a «non-repeatable» entity that cannot be borne by more than one object. Current ontological theories differ both over the question of the very existence of entities belonging to these three categories and over the question of which of the categories are fundamental. Of the many possible positions arising from different combinations of answers to these two questions, I shall pick out just four which have received some support in recent times.

First, then, there is the position of the pure trope theorists –such as Keith Campbell[11]– who regard tropes alone as comprising a fundamental category, reducing objects to bundles of compresent tropes and universals, if they are wanted at all, to classes of resembling tropes. A second position –espoused, for

[11] See K. Campbell (1990). See also P. Simons (1994, pp. 553- 75).

example, by David Armstrong[12]– acknowledges both objects and universals as comprising fundamental categories, while denying the existence of tropes. A third position –one that is currently championed by C. B. Martin[13]– acknowledges both objects and tropes as comprising fundamental categories, while denying the existence of universals or, again, reducing them to classes of resembling tropes. Unsurprisingly, the fourth position acknowledges all three categories of entity –object, universal and trope– as being fundamental, without denying, of course, that members of these categories stand in various ontologically significant relationships to one another. The distinguishing features of the four different ontological systems are set out in Table 1 below.

| | Objects | Universals | Tropes |
|---|---|---|---|
| 1 | R | E/R | F |
| 2 | F | F | E |
| 3 | F | E/R | F |
| 4 | F | F | F |

Table 1: Four ontological systems
*Key:* F = Fundamental R = Reduced E = Eliminated

Before moving on, I want to make special mention of a variant of the fourth position which distinguishes between two different but equally fundamental categories of universals. This is the position that I favour myself, for reasons that I shall outline later. According to this position, there are two fundamental categories of particulars –objects and tropes– and two fundamental categories of universals: substantial universals, or *kinds*, whose particular instances are objects, and property-universals, whose particular instances are tropes. This is a position which some commentators have attributed to Aristotle on the basis of passages in his previously mentioned work, the *Categories*. It has also found some other adherents in modern times.[14]

## §4. States of affairs and the truthmaker principle

At this point we need to reflect on the some of the considerations that motivate current debate between the adherents of these different ontological systems. Of

[12] See D. Armstrong (1997).
[13] See C. B. Martin (1980, pp. 3-10), and (1993, pp. 505-22). See also C. B. Martin and J. Heil (1999, pp. 34-60).
[14] See, for example, B. Smith (1997, pp. 124-5).

the four systems, perhaps the most popular today are pure trope theory on the one hand and the two-category ontology of objects and universals on the other. Pure trope theory is largely driven, it would seem, by a strong desire for ontological economy and a radically empiricist stance in epistemology, inspiring frequent appeals to Occam´s razor and a nominalistic hostility to belief in the existence of universals. The ontology of objects and universals is motivated at least in part by the desire to provide an adequate metaphysical foundation for natural science, including most importantly laws of nature. Adherents of this ontological system typically hold that laws of nature can properly be understood only as consisting in relations between universals. But another important driving force in this case is commitment to the so-called *truthmaker principle*.[15] This is the principle that any true proposition or statement –or, at least, any contingently true proposition or statement– must be *made* true by the existence of something appropriate in reality. (I set aside here the question of whether propositions or statements, or indeed sentences, are the primary bearers of truth and falsehood).

It is a matter for some debate exactly what «truthmaking» is, but on one plausible (if not entirely unproblematic) account of it, a truth-bearer is made true by a truthmaker in virtue of the truthmaker´s existence entailing the truth of the truth-bearer. In the case of the contingent truth of a simple existential proposition, such as the proposition that Mars exists, it will then simply be a certain *object* –in this case, Mars itself– that is the truthmaker. But in the case of a contingently true predicative proposition, such as the proposition that Mars is red, the truthmaker, it seems, will have to be something in the nature of a *fact* or *state of affairs* –Mars´s being red– which contains as constituents both an object, Mars, and a universal exemplified by that object, redness.[16] For the leading adherent of this sort of view, states of affairs are the building blocks of reality: the world is, in the words of David Armstrong, a world of states of affairs – recalling the famous opening remarks of Wittgenstein´s *Tractatus*, «The world is everything that is the case ... [it] is the totality of facts, not of things».[17]

Saying that states of affairs are the building blocks of reality need not be seen as inconsistent with saying that objects and universals are the two fundamental

[15] See D. Armstrong (1997, pp. 115 ff).

[16] As Armstrong himself acknowledges, this claim may not seem compelling to believers in tropes, for at least some of whom Mars´s particular redness suffices as a truthmaker of the proposition in question. See further, for example, K. Mulligan, P. Simons and B. Smith (1984, pp. 287-321) and B. Smith (1999, pp. 274-91). The latter paper also highlights some of the difficulties attending a simple entailment account of truth-making.

[17] See D. Armstrong (1997), especially ch. 8. See also L. Wittgenstein (1922).

ontological categories. On the view now under discussion, states of affairs are constituted by objects and universals, in the sense that these entities are the ultimate constituents of states of affairs. At the same time, it is held that objects and universals can only exist in combination with one another as constituents of states of affairs. Each category of entity may be conceived of as a distinct species of invariant across states of affairs. Objects recur in one way in different states of affairs, namely, as exemplifying different universals. And universals recur in another way in different states of affairs, namely, as being exemplified by different objects. Talk of objects «recurring» in this sense is not at odds with their being particulars and so «non-repeatable». Their non-repeatability is a matter of their not being «wholly present» at different times and places, in the way that universals supposedly are. As for states of affairs themselves, they are said to be particulars rather than universals, even though they contain universals as constituents: Armstrong speaks of this as «the victory of particularity».[18]

Not all ontologists who recognise the fundamental status of objects and universals are equally enamoured of states of affairs, however. They may have doubts about the truthmaker principle or, at least, about the reification of states of affairs. There are certainly problems about treating facts or states of affairs as entities, let alone as the ultimate building blocks of reality. The existence and identity conditions of facts are hard to formulate in a trouble-free way. Perhaps the best-known problem in this connection is posed by the so-called «Slingshot argument», which purports to reduce all facts to one fact, ironically called by Donald Davidson «the Great Fact».[19] The argument purports to show that, given certain allegedly plausible rules of inference, for any two true propositions *P* and *Q*, the expressions «the fact that *P*» and «the fact that *Q*» must have the same reference, if they refer to anything at all. The rules stipulate merely that in such an expression «*P*» or «*Q*» may be replaced, without the expression undergoing a change of reference, by any logically equivalent sentence or by any sentence in which a referring expression is replaced by another having the same reference. I shall not attempt to pass a verdict on the Slingshot argument here, but I do believe that it poses a significant challenge to the idea that states of affairs can be seen as the building blocks of reality, with objects and universals forming their «constituents».[20]

[18] See D. Armstrong (1997, pp. 126-7).

[19] See D. Davidson (1984). For wide-ranging discussion, see S. Neale (1995, pp. 761-825).

[20] See further E. J. Lowe (1998, pp. 241-3).

## §5. Laws of nature and properties as ways of being

I mentioned earlier the role that universals are thought by some ontologists to play in laws of nature. The issue here is whether laws can be seen as consisting in mere uniformities –or, as David Hume might have put it, «constant conjunctions»– amongst particulars. For instance, does the law that planets move in elliptical orbits –Kepler´s first law– simply amount to the fact that each and every individual planet moves in such an orbit? (I do not necessarily mean talk of a «fact» here to carry any ontological weight: one may, if one is suspicious of facts, reconstrue what is said in terms of the truth of a proposition). One apparent problem with such a suggestion is that not every individual planet does so move, because some –indeed, in reality, all– are subject to interference by the gravitational attraction of other bodies besides the star which they are orbiting.

More seriously still, the suggestion renders inexplicable our conviction that statements of natural law entail (or at least support) corresponding counterfactual conditionals. We want to say that if an actually planetless star had had a planet, then that planet would have moved in an elliptical orbit: but this cannot be entailed by the fact that each and every actually existing planet moves in an elliptical orbit. The answer to this problem, it is urged, is to say that the law consists in a relation between two universals, the property of being a planet and the property of moving in an elliptical orbit –a relation of «necessitation» which constrains any particular exemplifying the first property to exemplify the second as well.[21] For this constraint will apply not just in the actual world, but in any counterfactual situation –any possible world– in which those properties are related in the same way as they are in the actual world, and thus in any possible world in which the law in question obtains. The pure trope theorist, in denying universals, is apparently committed to a «constant conjunction» conception of laws, as is the advocate of an ontology admitting only objects and tropes as fundamental entities.

In another respect, however, an advocate of the latter sort of ontology can to some extent find common cause with the advocate of universals on the matter of property-bearing. For the pure trope theorist, individual objects are just «bundles» of «compresent» –that is, spatiotemporally coinciding– tropes. However, this seems to grant to tropes a kind of ontological independence

[21] See David Armstrong (1983b, p. 85).

which they plausibly cannot have. It is not clear, on this view, why the tropes in any given bundle should not separate from one another and either float free of other tropes altogether or migrate to other trope-bundles. It has seemed better to many ontologists to conceive of properties –whether they be regarded as universals or as particulars– as *ways* objects are.[22] An object´s redness, thus, is its way of being coloured and its roundness, say, is its way of being shaped. If one thinks that different objects may literally be coloured or shaped in the very *same* way –that is, in numerically the same way– then one is thinking of these «ways» as universals. Otherwise, one is thinking of them as trope-like entities – particular «ways», or, to revert to a more traditional terminology, *modes*. Opponents of pure trope theory will say that it makes no sense to suppose that an object –something that *has* properties such as redness and roundness– can just be constituted by those very properties, being nothing over and above the sum of its properties. To suppose this is, they will say, quite literally to make a «category mistake». It is to confuse an object´s properties with its *parts*: for the parts of an object, if it has any, are themselves objects, with properties of their own.[23]

In reply, the trope theorist may challenge opponents to say what *more* there is or can be to an object than the properties that it bears. This is a dangerous question for the opponents of trope theory, for they may be tempted to say that objects do indeed possess an additional «ingredient» or «constituent», over and above the properties that they bear, characterising this additional constituent as a «substratum» or «bare particular» –that is, an entity which is not itself a property, nor yet a propertied object, but a constituent of an object which plays the role of «bearing» that object´s properties.[24] In my view, those who go down this road make the mistake of conceding in the first place that an object´s properties are «constituents» of the object. For it was this move that committed them to finding some *further* «constituent» of an object once they denied the trope theorist´s contention that an object is *wholly* constituted by its properties. The proper thing to do, I suggest, is just to emphasise again that an object´s properties are *ways* it is and say that the object itself is the «bearer» of its properties, not some mythical «constituent» of the object that is somehow buried within it and inescapably hidden from view.

Suppose we accept that universals must be included in our ontology as

[22] See J. Levinson (1978, pp. 1- 22).

[23] See C. B. Martin (1980), for such a criticism. Other philosophers, however, contend that tropes are indeed parts of objects, but *dependent* rather than independent parts.

[24] I criticise this view in E. J. Lowe (2000, pp. 499-514).

fundamental in order to account for the ontological status of natural laws and accept too that individual objects comprise a fundamental category of entities, irreducible to their properties, whether the latter are conceived as universals or as particulars. What is to be said for including properties *both* as universals *and* as particulars in our ontology? Mainly this, I think: it seems that only particulars can participate in causal relationships and that an object participates in such relationships in different ways according to its different properties. Thus, it is a rock´s *mass* that explains the depth of the depression it makes upon falling on to soft earth, whereas it is the rock´s *shape* that explains the shape of the depression. Perception itself involves a causal relationship between the perceiver and the object perceived and we perceive an object by perceiving at least some of its properties –we perceive, for instance, a flower´s colour and smell. But this seems to require that what we thus perceive are items that are unique to the object in question– *this* flower´s redness and sweetness, say, as opposed to a universal redness and sweetness that are also exemplified by other, exactly resembling flowers.[25] For, surely, in seeing and smelling this flower, I cannot be said to perceive the colour and smell of any other flower.

The only response to this last point that seems available to the opponent of properties conceived as particulars is to say that what I see and smell in such a case is not, literally, the redness and sweetness of the flower as such, these allegedly being universals, but, rather, the *fact* that the flower is red and the *fact* that it is sweet, these facts being construed as particulars which enter into causal relations when perception occurs. But this then saddles us again with an ontology of facts or states of affairs, which we have seen to be open to objection.

## §6. The four-category ontology

If the foregoing diagnosis is correct, we should gravitate towards the fourth system of ontology identified earlier, the system which acknowledges three distinct ontological categories as being fundamental and indispensable –the category of *objects*, or individual substances; the category of *universals*; and the category of tropes, or, as I shall henceforth prefer to call them, *modes*. It is then but a short step to my own variant of this system, which distinguishes between two fundamental categories of universal, one whose instances are objects and the other whose instances are modes. This distinction is mirrored in language by the distinction between *sortal* and *adjectival* general terms –that is, between such general terms as «planet» and «flower» on the one hand and such general

[25] See further E. J. Lowe (1998, p. 205).

terms as «red» and «round» on the other.[26] The former denote *kinds* of object, while the latter denote *properties* of objects. Individual objects are particular instances of kinds, while the modes of individual objects are particular instances of properties. If a distinctive term is wanted to speak of properties thus conceived as universals, the term *attribute* will serve, though in what follows I shall for the most part either allow context to eliminate any ambiguity or else speak explicitly of property-universals. I believe that this system of ontology has a number of advantages over all of its rivals, a few of which I shall briefly sketch now.

The four-category ontology –as I like to call it– provides, I believe, a uniquely satisfactory metaphysical foundation for natural science.[27] It can, for instance, account for the ontological status of natural laws by regarding them as involving universals, but not simply property-universals. Rather, laws typically involve both kinds and either properties or relations. Take, for example, the law that I expressed earlier by means of the law-statement «Planets move in elliptical orbits». According to the most popular current view of laws as involving universals –the view championed by David Armstrong– this law consists in the fact that a second-order relation of necessitation obtains between the first-order properties of being a planet and moving in an elliptical orbit. I say, rather, that the law consists in the fact that the property of moving in an elliptical orbit characterizes the kind *planet*. In this way, I both obviate the need to appeal to any second-order relation and provide an account of the ontological status of laws which more closely reflects the syntactical structure of law-statements. For, as I have pointed out elsewhere, the standard form of law-statements in natural language is that of dispositional predications with natural kind terms in subject-position, other examples being «Gold is fusible», «Electrons are negatively charged» and «Mammals are warm-blooded».[28] Notice, in this connection, that the predicate in «Planets move in elliptical orbits» is clearly dispositional in force: the law-statement is an expression of how planets are *disposed* to move, under the gravitational influence of a star. And this, indeed, is why such a law-statement is not falsified by the fact that the *actual* movements of planets often deviate from the elliptical orbits in which they would move if they were not subject to interference by the gravitational forces exerted by other planets. I

[26] See further E. J. Lowe (1989), ch. 2.

[27] I first introduced this name for the present ontological system in E. J. Lowe (1998, pp. 203-4). Many of the points that follow are developed in more detail in the following papers: E. J. Lowe (2001, pp. 5-23), (2002d, pp. 137-150), (2002b, pp. 189-206), and (2002a, pp. 225-40).

[28] See my E. J. Lowe (1989) ch. 8.

should add that some laws are genuinely relational, such as the law that electrons and protons attract one another: but here the relation is not one in which only universals can stand to one another, so it is not in that sense a «second-order» relation, like the relation of «necessitation» invoked by the rival universalist account of laws.

Next, the four-category ontology can account for the distinction between dispositional and occurrent (or «categorical») states of objects –between, for instance, an object´s being fusible and its actually melting, or between an object´s being soluble and its actually dissolving. Various other accounts of this distinction have been offered recently by metaphysicians, none of which, in my view, is entirely satisfactory. Attempts to analyse disposition statements in terms of counterfactual conditionals all founder on the fact that the manifestation of a disposition can always be inhibited or prevented by interfering factors.[29] Thus, for example, «*O* is water-soluble» cannot be analysed as «If *O* were immersed in water, then *O* would be dissolving», nor can the antecedent of this counterfactual be expanded by any finite list of specifiable additional conditions in a way which will secure its logical equivalence with the original disposition statement. Merely adding the catch-all *ceteris paribus* condition that «all other things are equal», or «nothing interferes», simply serves to trivialise the proposed analysis.

According to the four-category ontology, the distinction between dispositional and occurrent states of objects may be explained in the following way. An object possesses a *disposition* to *F* just in case it instantiates a kind which is characterized by the property of being *F*. Thus, for example, an object *O* has a disposition to be dissolved by water just in case *O* instantiates a kind, *K*, such that the law obtains that water dissolves *K*. Here, *K* might be, say, the kind *sodium chloride* and the law, correspondingly, the law that water dissolves sodium chloride. As we have already seen, by my account of laws, laws themselves are dispositional in force. And, indeed, this is borne out in the present case by the fact that the law just stated can be equally well expressed by the sentence «sodium chloride is water-soluble». On the other hand, an object is *occurrently F* just in case it possesses a mode which is an instance of the property of being *F*, that is, a mode of the universal *F*ness. To apply this sort of analysis to the case of an object *O*´s occurrently being dissolved by some water, we merely need to invoke *relational* modes, whereupon we can analyse this occurrent state as obtaining just in case *O* and some water are related by a mode which is an instance of the universal

[29] See C. B. Martin (1994, pp. 1-8).

relation of dissolution. By the account of laws which I favour, it is, of course, the fact that this same universal relation holds between the kinds *water* and *sodium chloride* that constitutes the law that water dissolves sodium chloride. Thus it emerges that the distinction between the dispositional and the occurrent simply reflects, ultimately, the ontological distinction between the domain of universals and the domain of particulars.

Combining this observation with my earlier remarks about perception, we can now understand why it is that an object´s occurrent states are perceptible but its dispositions are not. For what we can perceive of an object are its modes –its *particular* «ways of being»– and it is in virtue of possessing these that the object is in various occurrent states, say of melting or dissolving. By contrast, the object is in various dispositional states in virtue of instantiating kinds which are characterised by various property-universals, that is, kinds which are subject to various laws –and this is not the sort of circumstance that perception can acquaint us with directly (although, of course, it can provide empirical evidence for it).

The four-category ontology has no difficulty in saying what «ties together» the particular properties –that is, the *modes*– of an object. An object´s modes are simply «particular ways it is»: they are characteristics, or features, or aspects of the object, rather than constituents of it. If properties were constituents of an object, they would need, no doubt, to be tied together somehow, either very loosely by coexisting in the same place at the same time, or more tightly by depending in some mysterious way either upon each other or upon some still more mysterious «substratum», conceived as a further constituent of the object, distinct from any of its properties. It is precisely because a mode is a particular way this or that particular object is that modes cannot «float free» or «migrate» from one object to another –circumstances that pure trope theorists seem obliged to countenance as being at least metaphysically possible. Moreover, the four-category ontology allows us to say that the properties of a *kind* are tied to it, in the laws to which it is subject, in a manner which entirely parallels, at the level of universals, the way in which an individual object´s modes are tied to that object. In both cases, the tie is simply a matter of the «characterization» of a propertied entity by its various properties and consists in the fact that the properties are «ways» the propertied entity is.

Fig. 2 below may help to highlight the main structural features of the four-category ontology as I have just outlined it. I shall return to it (or slightly modified versions of it) frequently in later chapters of my book, *The Four-*

*Category Ontology*, where —in deference to tradition— I shall call it «the Ontological Square». In this diagram I use the term «attribute», as suggested earlier, to denote the category of property– universals and, for simplicity of presentation, I am ignoring relational universals. An object *O* may exemplify an attribute *A* in either of two ways. *O* may instantiate a kind *K* which is characterised by *A*, in which case *O* exemplifies *A dispositionally*. Alternatively, *O* may be characterised by a mode *M* which instantiates *A*, in which case *O* exemplifies *A occurrently*.

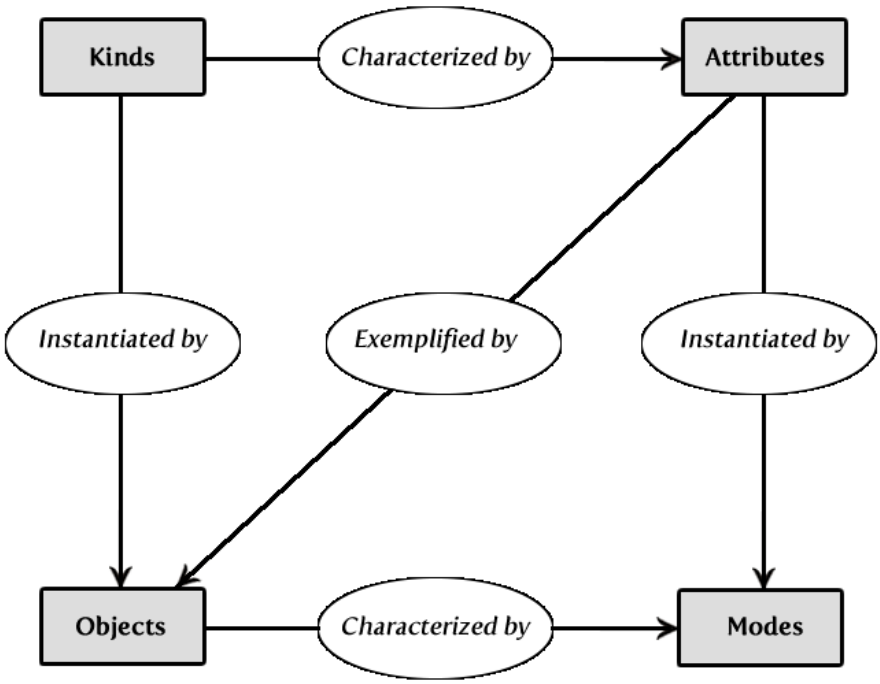


Fig. 2: The four-category ontology[30]

It may perhaps be doubted whether the four-category ontology provides an adequate metaphysical foundation for the more esoteric reaches of modern physics, such as the general theory of relativity and quantum physics. But I believe that even here it will serve well enough. The examples of «objects», «kinds», «attributes» and «modes» that I have so far utilized have been for the most part fairly familiar and mundane ones. But nothing hinders us from saying, if need be, that relativistic space-time has the status of an individual substance or object, with the consequence, perhaps, that the entities that we are ordinarily apt to regard as objects –such as material bodies– are «really» just spatiotemporally continuous successions of space-time modes. This is a view of

[30] See also E. J. Lowe (2011, pp. 109-126) and (2012b, p. 98) to updated version «The Ontological Square».

the material world which, indeed, is prefigured in the metaphysical system of Spinoza. Again, we need not take a stand on the issue of whether the ontology of quantum physics is best construed in a way which treats quantum entities as particles –a kind of object– or as modes of a quantised field. Either way, the four-category ontology will admit of application.

It is important to stress, then, that metaphysics should not be in the business of dictating to empirical scientists precisely how they should categorise the theoretical entities whose existence they postulate. Metaphysics supplies the categories, but how best to apply them in the construction of specific scientific theories is a matter best left to the theorists themselves, provided that they respect the constraints which the categorial framework imposes. So long as the empirical sciences invoke laws for explanatory purposes and appeal to perception for empirical evidence, the four-category ontology[31] will, I believe, adequately serve as a metaphysical framework for the scientific enterprise. That *some* metaphysical framework is necessary for the success of that enterprise and that its formulation is not the business of any special science, but only that of the general science of being, or ontology, I hope to be by now beyond dispute.

[31] See further E. J. Lowe (2003, pp. 75-95), (2009a, pp. 28-36), (2009b), (2012a, pp. 23-48), (2013, pp. 338-57), especially (2006), (2012b, pp. 93-111) and (2011, pp. 109-126), where many of the points made in this paper receive a fuller and updated treatment.

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