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PAPERS READ BEFORE THE SOCIETY,

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I.—ON THE RELATIONS OF UNIVERSALS AND PARTICULARS.*

By BERTRAND RUSSELL.

THE purpose of the following paper is to consider whether there is a fundamental division of the objects with which metaphysics is concerned into two classes, universals and particulars, or whether there is any method of overcoming this dualism. My own opinion is that the dualism is ultimate; on the other hand, many men with whom, in the main, I am in close agreement, hold that it is not ultimate. I do not feel the grounds in favour of its ultimate nature to be very conclusive, and in what follows I should lay stress rather on the distinctions and considerations introduced during the argument than on the conclusion at which the argument arrives.

It is impossible to begin our discussion with sharp definitions of universals and particulars, though we may hope to reach such definitions in the end. At the beginning, we can only roughly indicate the kind of facts that we wish to analyze and the kind of distinctions that we wish to examine. There are several cognate distinctions which produce confusion by intermingling,

* The thesis of the present paper is closely similar to that of Mr. Moore's paper "Identity," read before this Society in 1900–1901. My chief reason for thinking that the question demands a fresh discussion is that the statement of the grounds for the thesis appears to require some examination of the nature of sensible space as opposed to physical space.

and which it is important to disentangle before advancing into the heart of our problem.

The first distinction that concerns us is the distinction between percepts and concepts, *i.e.*, between objects of acts of perception and objects of acts of conception. If there is a distinction between particulars and universals, percepts will be among particulars, while concepts will be among universals. Opponents of universals, such as Berkeley and Hume, will maintain that concepts are derivable from percepts, as faint copies, or in some other way. Opponents of particulars will maintain that the apparent particularity of percepts is illusory, and that, though the act of perception may differ from the act of conception, yet its objects differ only by their greater complexity, and are really composed of constituents which are, or might be, concepts.

But the distinction of percepts and concepts is too psychological for an ultimate metaphysical distinction. Percepts and concepts are respectively the relata of two different relations, perception and conception, and there is nothing in their definitions to show whether, or how, they differ. Moreover, the distinction of percepts and concepts, in itself, is incapable of being extended to entities which are not objects of cognitive acts. Hence we require some other distinction expressing the intrinsic difference which we seem to feel between percepts and concepts.

A cognate distinction, which effects part at least of what we want, is the distinction between things which exist in time and things which do not. In order to avoid any question as to whether time is relative or absolute, we may say that an entity x "exists in time" provided x is not itself a moment or part of time, and some such proposition as "x is before y or simultaneous with y or after y" is true of x. (It is not to be assumed that *before, simultaneous*, and *after* are mutually exclusive: if x has duration, they will not be so.) *Primâ facie*, a percept exists in time, in the above sense, while a

concept does not. The object of perception is simultaneous with the act of perception, while the object of conception seems indifferent to the time of conceiving and to all time. Thus, *primâ facie*, we have here the non-psychological distinction of which we were in search. But the same controversies will break out as in the case of percepts and concepts. The man who reduces concepts to percepts will say that nothing is really out of time, and that the appearance of this in the case of concepts is illusory. The man who reduces percepts to concepts may either, like most idealists, deny that anything is in time, or, like some realists, maintain that concepts can and do exist in time.

In addition to the above distinction as regards time, there is a distinction as regards space which, as we shall find, is very important in connection with our present question. Put as vaguely as possible, this is a distinction which divides entities into three classes: (*a*) those which are not in any place, (*b*) those which are in one place at one time, but never in more than one, (*c*) those which are in many places at once. To make this threefold division precise, we should have to discuss what we mean by a place, what we mean by "in," and how the different kinds of space—visual, tactile, physical—produce different forms of this threefold division. For the present I will merely illustrate what I mean by examples. Relations, obviously, do not exist anywhere in space. Our bodies, we think, exist in one place at a time, but not in more than one. General qualities, such as whiteness, on the contrary, may be said to be in many places at once: we may say, in a sense, that whiteness is in every place where there is a white thing. This division of entities will be discussed later; for the present I merely wish to indicate that it requires examination.

In addition to the above psychological and metaphysical distinctions, there are two logical distinctions which are relevant in the present enquiry. In the first place, there is

the distinction between relations and entities which are not relations. It has been customary for philosophers to ignore or reject relations, and speak as if all entities were either subjects or predicates. But this custom is on the decline, and I shall assume without further argument that there are such entities as relations. Philosophy has, so far as I know, no common name for all entities which are not relations. Among such entities are included not only all the things that would naturally be called particulars, but also all the universals that philosophers are in the habit of considering when they discuss the relation of particulars to universals, for universals are generally conceived as common properties of particulars, in fact, as predicates. For our purpose it is hardly worth while to invent a technical term *ad hoc*; I shall therefore speak of entities which are not relations simply as *non-relations*.

The second logical distinction which we require is one which may or may not be identical in extension with that between relations and non-relations, but is certainly not identical in intension. It may be expressed as the distinction between verbs and substantives, or, more correctly, between the objects denoted by verbs and the objects denoted by substantives.* (Since this more correct expression is long and cumbrous, I shall generally use the shorter phrase to mean the same thing. Thus, when I speak of verbs, I mean the objects denoted by verbs, and similarly for substantives.) The nature of this distinction emerges from the analysis of complexes. In most complexes, if not in all, a certain number of different entities are combined into a single entity by means of a relation. "A's hatred for B," for example, is a complex in which *hatred* combines A and B into one whole; "C's belief that A hates B" is a complex in which *belief* combines A and B and C and

* This is the distinction which I formerly spoke of as the distinction between *things* and *concepts*, but these terms no longer seem to me appropriate. Cf. *Principles of Mathematics*, § 48.

hatred into one whole, and so on. A relation is distinguished as dual, triple, quadruple, etc., or dyadic, triadic, tetradic, etc., according to the number of terms which it unites in the simplest complexes in which it occurs. Thus in the above examples, hatred is a dual relation and belief is a quadruple relation. The capacity for combining terms into a single complex is the defining characteristic of what I call *verbs*. The question now arises: Are there complexes which consist of a single term and a verb? "A exists" might serve as an example of what is possibly such a complex. It is the possibility that there may be complexes of this kind which makes it impossible to decide off-hand that verbs are the same as relations. There may be verbs which are philosophically as well as grammatically intransitive. Such verbs, if they exist, may be called *predicates*, and the propositions in which they are attributed may be called subject-predicate propositions.

If there are no such verbs as those whose possibility we have been considering, *i.e.*, if all verbs are relations, it will follow that subject-predicate propositions, if there are any, will express a *relation* of subject to predicate. Such propositions will then be definable as those that involve a certain relation called *predication*. Even if there are subject-predicate propositions in which the predicate is the verb, there will still be equivalent propositions in which the predicate is related to the subject; thus "A exists," for example, will be equivalent to "A has existence." Hence the question whether predicates are verbs or not becomes unimportant. The more important question is whether there is a specific relation of predication, or whether what are grammatically subject-predicate propositions are really of many different kinds, no one of which has the characteristics one naturally associates with subject-predicate propositions. This question is one to which we shall return at a later stage.

The above logical distinctions are relevant to our enquiry because it is natural to regard particulars as entities which can only be subjects or terms of relations, and cannot be

predicates or relations. A particular is naturally conceived as a *this* or something intrinsically analogous to a *this*; and such an entity seems incapable of being a predicate or a relation. A universal, on this view, will be anything that is a predicate or a relation. But if there is no specific relation of predication, so that there is no class of entities which can properly be called predicates, then the above method of distinguishing particulars and universals fails. The question whether philosophy must recognise two ultimately distinct kinds of entities, particulars and universals, turns, as we shall see more fully later on, on the question whether non-relations are of two kinds, subjects and predicates, or rather terms which can only be subjects and terms which may be either subjects or predicates. And this question turns on whether there is an ultimate simple asymmetrical relation which may be called predication, or whether all apparent subject-predicate propositions are to be analysed into propositions of other forms, which do not require a radical difference of nature between the apparent subject and the apparent predicate.

The decision of the question whether there is a simple relation of predication ought perhaps to be possible by inspection, but for my part I am unable to come to any decision in this way. I think, however, that it can be decided in favour of predication by the analysis of *things* and by considerations as to spatio-temporal diversity. This analysis and these considerations will also show the way in which our purely logical question is bound up with the other questions as to particulars and universals which I raised at the beginning of this paper.

The common-sense notion of things and their qualities is, I suppose, the source of the conception of subject and predicate, and the reason why language is so largely based on this conception. But the thing, like other common-sense notions, is a piece of half-hearted metaphysics, which neither gives crude data nor gives a tenable hypothesis as to a reality

behind the data. A thing, of the every-day sort, is constituted by a bundle of sensible qualities belonging to various senses, but supposed all to co-exist in one continuous portion of space. But the common space which should contain both visual and tactile qualities is not the space of either visual or tactile perception: it is a constructed "real" space, belief in which has, I suppose, been generated by association. And in crude fact, the visual and tactile qualities of which I am sensible are not in a common space, but each in its own space. Hence if the thing is to be impartial as between sight and touch, it must cease to have the actual qualities of which we are sensible, and become their common cause or origin or whatever vaguer word can be found. Thus the road is opened to the metaphysical theories of science and to the metaphysical theories of philosophy: the thing may be a number of electric charges in rapid motion, or an idea in the mind of God, but it is certainly not what the senses perceive.

The argument against things is trite, and I need not labour it. I introduce it here only in order to illustrate a consequence which is sometimes overlooked. Realists who reject particulars are apt to regard a thing as reducible to a number of qualities co-existing in one place. But, apart from other objections to this view, it is doubtful whether the different qualities in question ever do co-exist in one place. If the qualities are sensible, the place must be in a sensible space; but this makes it necessary that the qualities should belong to only one sense, and it is not clear that genuinely different qualities belonging to one sense ever co-exist in a single place in a perceptual space. If, on the other hand, we consider what may be called "real" space, *i.e.* the inferred space containing the "real" objects which we suppose to be the causes of our perceptions, then we no longer know what is the nature of the qualities, if any, which exist in this "real" space, and it is natural to replace the bundle of qualities by a collection of pieces of matter having whatever characteristics the science of

the moment may prescribe. Thus in any case the bundle of co-existing qualities in the same place is not an admissible substitute for the thing.

For our purposes, the "real" object by which science or philosophy replaces the thing is not important. We have rather to consider the relations of sensible objects in a single sensible space, say that of sight.

The theory of sensible qualities which dispenses with particulars will say, if the same shade of colour is found in two different places, that what exists is the shade of colour itself, and that what exists in the one place is identical with what exists in the other. The theory which admits particulars will say, on the contrary, that two numerically different *instances* of the shade of colour exist in the two places: in this view, the shade of colour itself is a universal and a predicate of both the instances, but the universal does not exist in space and time. Of the above two views, the first, which does not introduce particulars, dispenses altogether with predication as a fundamental relation: according to this view, when we say "this thing is white," the fundamental fact is that whiteness exists here. According to the other view, which admits particulars, what exists here is something of which whiteness is a predicate—not, as for common sense, the thing with many other qualities, but an instance of whiteness, a particular of which whiteness is the only predicate except shape and brightness and whatever else is necessarily connected with whiteness.

Of the above two theories, one admits only what would naturally be called universals, while the other admits both universals and particulars. Before examining them, it may be as well to examine and dismiss the theory which admits only particulars, and dispenses altogether with universals. This is the theory advocated by Berkeley and Hume in their polemic against "abstract ideas." Without tying ourselves down to their statements, let us see what can be made of this theory.

The general name "white," in this view, is defined for a given person at a given moment by a particular patch of white which he sees or imagines; another patch is called white if it has exact likeness in colour to the standard patch. In order to avoid making the colour a universal, we have to suppose that "exact likeness" is a simple relation, not analysable into community of predicates; moreover, it is not the general relation of likeness that we require, but a more special relation, that of colour-likeness, since two patches might be exactly alike in shape or size but different in colour. Thus, in order to make the theory of Berkeley and Hume workable, we must assume an ultimate relation of colour-likeness, which holds between two patches which would commonly be said to have the same colour. Now, *primâ facie*, this relation of colour-likeness will itself be a universal or an "abstract idea," and thus we shall still have failed to avoid universals. But we may apply the same analysis to colour-likeness. We may take a standard particular case of colour-likeness, and say that anything else is to be called a colour-likeness if it is exactly like our standard case. It is obvious, however, that such a process leads to an endless regress: we explain the likeness of two terms as consisting in the likeness which their likeness bears to the likeness of two other terms, and such a regress is plainly vicious. Likeness at least, therefore, must be admitted as a universal, and, having admitted one universal, we have no longer any reason to reject others. Thus the whole complicated theory, which had no motive except to avoid universals, falls to the ground. Whether or not there are particulars, there must be relations which are universals in the sense that (*a*) they are concepts, not percepts; (*b*) they do not exist in time; (*c*) they are verbs, not substantives.

It is true that the above argument does not prove that there are universal qualities as opposed to universal relations. On the contrary, it shows that universal qualities *can*, so far as logic can show, be replaced by exact likenesses of various

kinds between particulars. This view has, so far as I know, nothing to recommend it beyond its logical possibility. But from the point of view of the problem whether there are particulars, it has no bearing on the argument. It is a view which is only possible if there are particulars, and it demands only an easy re-statement of subject-predicate propositions: instead of saying that an entity has such and such a predicate, we shall have to say that there are entities to which it has such and such a specific likeness. I shall therefore in future ignore this view, which in any case assumes our main thesis, namely, the existence of particulars. To the grounds in favour of this thesis we must now return.

When we endeavoured to state the two theories as to sensible qualities, we had occasion to consider two white patches. On the view which denies particulars, whiteness itself exists in both patches: a numerically single entity, whiteness, exists in all places that are white. Nevertheless, we speak of *two* white patches, and it is obvious that, in some sense, the patches are two, not one. It is this spatial plurality which makes the difficulty of the theory that denies particulars.

Without attempting, as yet, to introduce all the necessary explanations and distinctions, we may state the argument for particulars roughly as follows. It is logically possible for two exactly similar patches of white, of the same size and shape, to exist simultaneously in different places. Now, whatever may be the exact meaning of "existing in different places," it is self-evident that, in such a case, there are two different patches of white. Their diversity might, if we adopted the theory of absolute position, be regarded as belonging, not to the white itself which exists in the two places, but to the complexes "whiteness in this place" and "whiteness in that place." This would derive their diversity from the diversity of this place and that place; and since places cannot be supposed to differ as to qualities, this would require that the places should be particulars. But if we reject absolute position, it

will become impossible to distinguish the two patches as two, unless each, instead of being the universal whiteness, is an *instance* of whiteness. It might be thought that the two might be distinguished by means of other qualities in the same place as the one but not in the same place as the other. This, however, presupposes that the two patches are already distinguished as numerically diverse, since otherwise what is in the same place as the one must be in the same place as the other. Thus the fact that it is logically possible for precisely similar things to co-exist in two different places, but that things in different places at the same time cannot be numerically identical, forces us to admit that it is particulars, *i.e.*, *instances* of universals, that exist in places, and not universals themselves.

The above is the outline of our argument. But various points in it have to be examined and expanded before it can be considered conclusive. In the first place, it is not necessary to assert that there ever are two exactly similar existents. It is only necessary to perceive that our judgment that this and that are two different existents is not necessarily based on any difference of qualities, but may be based on difference of spatial position alone; and that difference of qualities, whether or not it always in fact accompanies numerical difference, is not logically necessary in order to insure numerical difference where there is difference of spatial position.

Again, it is not easy to state exactly what sort of spatial distribution in perceived space warrants us in asserting plurality. Before we can use space as an argument for particulars, we must be clear on this point. We are accustomed to concede that a thing cannot be in two places at once, but this common-sense maxim, unless very carefully stated, will lead us into inextricable difficulties. Our first business, therefore, is to find out how to state this maxim in an unobjectionable form.

In rational dynamics, where we are concerned with matter

and "real" space, the maxim that nothing can be in two places at once is taken rigidly, and any matter occupying more than a point of space is regarded as at least theoretically divisible. Only what occupies a bare point is simple and single. This view is straightforward, and raises no difficulties as applied to "real" space.

But as applied to perceived space, such a view is quite inadmissible. The immediate object of (say) visual perception is always of finite extent. If we suppose it to be, like the matter corresponding to it in "real" space, composed of a collection of entities, one for each point which is not empty, we shall have to suppose two things, both of which seem incredible, namely: (1) that every immediate object of visual (or tactile) perception is infinitely complex; (2) that every such object is always composed of parts which are by their very nature imperceptible. It seems quite impossible that the immediate object of perception should have these properties. Hence we must suppose that an indivisible object of visual perception may occupy a finite extent of visual space. In short, we must, in dividing any complex object of visual perception, reach, after a finite number of steps, a *minimum sensibile*, which contains no plurality although it is of finite extent. Visual space may, in a sense, be infinitely *divisible*, for, by attention alone, or by the microscope, the immediate object of perception can be changed in a way which introduces complexity where formerly there was simplicity; and to this process no clear limit can be set. But this is a process which substitutes a new immediate object in place of the old one, and the new object, though more subdivided than the old one, will still consist of only a finite number of parts. We must therefore admit that the space of perception is not infinitely divided, and does not consist of points, but is composed of a finite though constantly varying number of surfaces or volumes, continually breaking up or joining together according to the fluctuations of attention. If

there is a "real" geometrical space corresponding to the space of perception, an infinite number of points in the geometrical space will have to correspond to a single simple entity in the perceived space.

It follows from this that, if we are to apply to the immediate objects of perception the maxim that a thing cannot be in two places at once, a "place" must not be taken to be a point, but must be taken to be the extent occupied by a single object of perception. A white sheet of paper, for example, may be seen as a single undivided object, or as an object consisting of two parts, an upper and a lower or a right hand and a left hand part, or again as an object consisting of four parts, and so on. If we on this account consider that, even when the sheet appeared as an undivided object, its upper and lower halves were in different places, then we shall have to say that the undivided object was in both these places at once. But it is better to say that, when the sheet appeared as an undivided object, this object occupied only one "place," though the place corresponded to what were afterwards two places. Thus a "place" may be defined as the space occupied by one undivided object of perception.

With this definition, the maxim that a thing cannot be in two places at once might seem to reduce to a tautology. But this maxim, though it may need re-wording, will still have a substantial significance, to be derived from the consideration of spatial relations. It is obvious that perceived spatial relations cannot hold between points, but must hold between the parts of a single complex object of perception. When the sheet of paper is perceived as consisting of two halves, an upper and a lower, these two halves are combined into a complex whole by means of a spatial relation which holds directly between the two halves, not between supposed smaller subdivisions which in fact do not exist in the immediate object of perception. Perceived spatial relations, therefore, must have a certain roughness, not the neat smooth properties of geometrical

relations between points. What, for example, shall we say of distance? The distance between two simultaneously perceived objects will have to be defined by the perceived objects between them; in the case of two objects which touch, like the two halves of the sheet of paper, there is no distance between them. What remains definite is a certain order; by means of right and left, up and down, and so on, the parts of a complex object of perception acquire a spatial order, which is definite, though not subject to quite the same laws as geometrical order. The maxim that a thing cannot be in two places at once will then become the maxim that every spatial relation implies diversity of its terms, *i.e.*, that nothing is to the right of itself, or above itself, and so on. In that case, given two white patches, one of which is to the right of the other, it will follow that there is not a single thing, whiteness, which is to the right of itself, but that there are two different things, instances of whiteness, of which one is to the right of the other. In this way our maxim will support the conclusion that there must be particulars as well as universals. But the above outline of an argument needs some amplification before it can be considered conclusive. Let us therefore examine, one by one, the steps of the argument.

Let us suppose, for the sake of definiteness, that within one field of vision we perceive two separated patches of white on a ground of black. It may then be taken as quite certain that the two patches are two and not one. The question is: Can we maintain that there are two if what exists in each is the universal whiteness?

If absolute space is admitted, we can of course say that it is the difference of place that makes the patches two; there is whiteness in this place, and whiteness in that place. From the point of view of our main problem, which is as to the existence of particulars, such a view would prove our thesis, since this place and that place would be or imply particulars constituting absolute space. But from the point of view of our immediate problem, which is concerned with plurality

in perceived space, we may reject the above view on the ground that, whatever may be the case with "real" space, perceived space is certainly not absolute, *i.e.*, absolute positions are not among objects of perception. Thus the whiteness here and the whiteness there cannot be distinguished as complexes of which this place and that place are respectively constituents.

Of course the whitenesses may be of different shapes, say one round and one square, and then they could be distinguished by their shapes. It will be observed that, with the view adopted above as to the nature of perceived space, it is perfectly possible for a simple object of perception to have a shape: the shape will be a quality like another. Since a simple object of perception may be of finite extent, there is no reason to suppose that a shape must imply spatial divisibility in the object of perception. Hence our two patches may be respectively round and square, and yet not be spatially divisible. It is obvious, however, that this method of distinguishing the two patches is altogether inadequate. The two patches are just as easily distinguished if both are square or both are round. So long as we can see both at once, no degree of likeness between them causes the slightest difficulty in perceiving that there are two of them. Thus difference of shape, whether it exists or not, is not what makes the patches two entities instead of one.

It may be said that the two patches are distinguished by the difference in their relations to other things. For example, it may happen that a patch of red is to the right of one and to the left of the other. But this does not imply that the patches are two unless we know that one thing cannot be both to the right and to the left of another. This, it might be said, is obviously false. Suppose a surface of black with a small white space in the middle. Then the whole of the black may form only one simple object of perception, and would seem to be both to the right and to the left of the white space which it entirely surrounds. I think it would be more true

to say, in this case, that the black is neither to the right nor to the left of the white. But right and left are complicated relations involving the body of the percipient. Let us take some other simpler relation, say that of surrounding, which the black surface has to the white patch in our example. Suppose we have another white patch, of exactly the same size and shape, entirely surrounded by red. Then, it may be said, the two patches of white are distinguished by difference of relation, since one is surrounded by black and the other by red. But if this ground of distinction is to be valid, we must know that it is impossible for one entity to be both wholly and immediately surrounded by black and wholly and immediately surrounded by red. I do not mean to deny that we do know this. But two things deserve notice—first, that it is not an analytic proposition; second, that it presupposes the numerical diversity of our two patches of white.

We are so accustomed to regarding such relations as "inside" and "outside" as incompatible that it is easy to suppose a *logical* incompatibility, although in fact the incompatibility is a characteristic of space, not a result of logic. I do not know what are the unanalysable spatial relations of objects of perception, whether visual or tactile, but whatever they are they must have the kind of characteristics which are required in order to generate an order. They, or some of them, must be asymmetrical, *i.e.*, such that they are incompatible with their converses: for example, supposing "inside" to be one of them, a thing which is inside another must not also be outside it. They, or some of them, must also be transitive, *i.e.*, such that, for example, if x is inside y and y is inside z, then x is inside z—supposing, for the sake of illustration, "inside" to be among fundamental spatial relations. Probably some further properties will be required, but these at least are essential, in view of the fact that there is such a thing as spatial order. It follows that some at least of the fundamental spatial relations must be such as no entity can

have to itself. It is indeed self-evident that spatial relations fulfil these conditions. But these conditions are not demonstrable by purely logical considerations: they are synthetic properties of perceived spatial relations.

It is in virtue of these self-evident properties that the numerical diversity of the two patches of white is self-evident. They have the relation of being outside each other, and this requires that they should be two, not one. They may or may not have intrinsic differences—of shape, or size, or brightness, or any other quality—but whether they have or not they are two, and it is obviously logically possible that they should have no intrinsic differences whatever. It follows from this that the terms of spatial relations cannot be universals or collections of universals, but must be particulars capable of being exactly alike and yet numerically diverse.

It is very desirable, in such discussions as that on which we are at present engaged, to be able to talk of "places" and of things or qualities "occupying" places, without implying absolute position. It must be understood that, on the view which adopts relative position, a "place" is not a precise notion. But its usefulness arises as follows:—Suppose a set of objects, such as the walls and furniture of a room, to retain their spatial relations unchanged for a certain length of time, while a succession of other objects, say people who successively sit in a certain chair, have successively a given set of spatial relations to the relatively fixed objects. Then the people have, one after the other, a given set of properties, consisting in spatial relations to the walls and furniture. Whatever has this given set of properties at a given moment is said to "occupy" a certain place, the "place" itself being merely a fixed set of spatial relations to certain objects whose spatial relations to each other do not change appreciably during the time considered. Thus when we say that one thing can only be in one place at one time, we mean that it can only have one set of spatial relations to a given set of objects at one time.

It might be argued that, since we have admitted that a simple object of perception may be of finite extent, we have admitted that it may be in many places at once, and therefore may be outside itself. This, however, would be a misunderstanding. In perceived space, the finite extent occupied by a simple object of perception is not divided into many places. It is a single place occupied by a single thing. There are two different ways in which this place may "correspond" to many places. First, if there is such a thing as "real" space with geometrical properties, the one place in perceived space will correspond to an infinite number of points in "real" space, and the single entity which is the object of perception will correspond to many physical entities in "real" space. Secondly, there is a more or less partial correspondence between perceived space at one time and perceived space at another. Suppose that we attend closely to our white patch, and meanwhile no other noticeable changes occur in the field of vision. Our white patch may, and often does, change as the result of attention—we may perceive differences of shade or other differentiations, or, without differences of quality, we may merely observe parts in it which make it complex and introduce diversity and spatial relations within it. We consider, naturally, that we are still looking at the same thing as before, and that what we see now was there all along. Thus we conclude that our apparently simple white patch was not really simple. But, in fact, the object of perception is not the same as it was before; what may be the same is the physical object supposed to correspond to the object of perception. This physical object is, of course, complex. And the perception which results from attention will be in one sense more correct than that which perceived a simple object, because, if attention reveals previously unnoticed differences, it may be assumed that there are corresponding differences in the "real" object which corresponds to the object of perception. Hence the perception resulting from attention gives more information about the "real" object than the

other perception did: but the object of perception itself is no more and no less real in the one case than in the other—that is to say, in both cases it is an object which exists when perceived, but which there is no reason to believe existent except when it is perceived.

In perceived space, the spatial unit is not a point, but a simple object of perception or an ultimate constituent in a complex object of perception. This is the reason why, although two patches of white which are visibly separated from each other must be two, a continuous area of white may not be two. A continuous area, if not too large, may be a single object of perception not consisting of parts, which is impossible for two visibly separated areas. The spatial unit is variable, constantly changing its size, and subject to every fluctuation of attention, but it must occupy a continuous portion of perceived space, since otherwise it would be perceived as plural.

The argument as to numerical diversity which we have derived from perceived space may be reinforced by a similar argument as regards the contents of different minds. If two people are both believing that two and two are four, it is at least theoretically possible that the meanings they attach to the words *two* and *and* and *are* and *four* are the same, and that therefore, so far as the objects of their beliefs are concerned, there is nothing to distinguish the one from the other. Nevertheless, it seems plain that there are two entities, one the belief of the one man and the other the belief of the other. A particular belief is a complex of which something which we may call a subject is a constituent; in our case, it is the diversity of the subjects that produces the diversity of the beliefs. But these subjects cannot be mere bundles of general qualities. Suppose one of our men is characterised by benevolence, stupidity, and love of puns. It would not be correct to say: "Benevolence, stupidity, and love of puns believe that two and two are four." Nor would this become correct by the addition of a larger number of general qualities. Moreover,

however many qualities we add, it remains possible that the other subject may also have them; hence qualities cannot be what constitutes the diversity of the subjects. The only respect in which two different subjects *must* differ is in their relations to particulars: for example, each will have to the other relations which he does not have to himself. But it is not logically impossible that everything concerning one of the subjects and otherwise only concerning universals might be true of the other subject. Hence, even when differences in regard to such propositions occur, it is not these differences that constitute the diversity of the two subjects. The subjects, therefore, must be regarded as particulars, and as radically different from any collection of those general qualities which may be predicated of them.

It will be observed that, according to the general principles which must govern any correspondence of real things with objects of perception, any principle which introduces diversity among objects of perception must introduce a corresponding diversity among real things. I am not now concerned to argue as to what grounds exist for assuming a correspondence, but, if there is such a correspondence, it must be supposed that diversity in the effects—*i.e.*, the perceived objects—implies diversity in the causes—*i.e.*, the real objects. Hence if I perceive two objects in the field of vision, we must suppose that at least two real objects are concerned in causing my perception.

The essential characteristic of particulars, as they appear in perceived space, is that they cannot be in two places at once. But this is an unsatisfactory way of stating the matter, owing to the doubt as to what a "place" is. The more correct statement is that certain perceptible spatial relations imply diversity of their terms; for example, if x is above y, x and y must be different entities. So long, however, as it is understood that this is what is meant, no harm is done by the statement that a thing cannot be in two places at once.

We may now return to the question of particulars and universals with a better hope of being able to state precisely the nature of the opposition between them. It will be remembered that we began with three different oppositions: (1) that of percept and concept, (2) that of entities existing in time and entities not existing in time, (3) that of substantives and verbs. But in the course of our discussion a different opposition developed itself, namely, (4) that between entities which can be in one place, but not in more than one, at a given time, and entities which either cannot be anywhere or can be in several places at one time. What makes a particular patch of white particular, whereas whiteness is universal, is the fact that the particular patch cannot be in two places simultaneously, whereas the whiteness, if it exists at all, exists wherever there are white things. This opposition, as stated, might be held not to apply to thoughts. We might reply that a man's thoughts are in his head; but without going into this question, we may observe that there certainly is some relation between a man's thoughts and his head (or some part of it) which there is not between his thoughts and other things in space. We may extend our definition of particulars so as to cover this relation. We may say that a man's thought "belongs to" the place where his head is. We may then define a particular in our fourth sense as an entity which cannot be in or belong to more than one place at one time, and a universal as an entity which either cannot be in or belong to any place, or can be in or belong to many places at once. This opposition has certain affinities with the three earlier oppositions, which must be examined.

(1) Owing to the admission of particulars in our fourth sense, we can make an absolute division between percepts and concepts. The universal whiteness is a concept, whereas a particular white patch is a percept. If we had not admitted particulars in our fourth sense, percepts would have been identical with certain concepts.

(2) For the same reason, we are able to say that such

general qualities as whiteness never exist in time, whereas the things that do exist in time are all particulars in our fourth sense. The converse, that all particulars in our fourth sense exist in time, holds in virtue of their definition. Hence the second and fourth senses of the opposition of particulars and universals are co-extensive.

(3) The third opposition, that of substantives and verbs, presents more difficulties, owing to the doubt whether predicates are verbs or not. In order to evade this doubt, we may substitute another opposition, which will be co-extensive with substantives and verbs if predicates are verbs, but not otherwise. This other opposition puts predicates and relations on one side, and everything else on the other. What is not a predicate or relation is, according to one traditional definition, a substance. It is true that, when substance was in vogue, it was supposed that a substance must be indestructible, and this quality will not belong to our substances. For example, what a man sees when he sees a flash of lightning is a substance in our sense. But the importance of indestructibility was metaphysical, not logical. As far as logical properties are concerned, our substances will be fairly analogous to traditional substances. Thus we have the opposition of substances on the one hand and predicates and relations on the other hand. The theory which rejects particulars allows entities commonly classed as predicates—*e.g.* white—to exist; thus the distinction between substances and predicates is obliterated by this theory. Our theory, on the contrary, preserves the distinction. In the world we know, substances are identical with particulars in our fourth sense, and predicates and relations with universals.

It will be seen that, according to the theory which assumes particulars, there is a specific relation of subject to predicate, unless we adopt the view—considered above in connection with Berkeley and Hume—that common sensible qualities are really derivative from specific kinds of likeness. Assuming this view

to be false, ordinary sensible qualities will be predicates of the particulars which are instances of them. The sensible qualities themselves do not exist in time in the same sense in which the instances do. Predication is a relation involving a fundamental logical difference between its two terms. Predicates may themselves have predicates, but the predicates of predicates will be radically different from the predicates of substances. The predicate, on this view, is never part of the subject, and thus no true subject-predicate proposition is analytic. Propositions of the form "All A is B" are not really subject-predicate propositions, but express relations of predicates; such propositions may be analytic, but the traditional confusion of them with true subject-predicate propositions has been a disgrace to formal logic.

The theory which rejects particulars, and assumes that, *e.g.*, whiteness itself exists wherever (as common-sense would say) there are white things, dispenses altogether with predication as a fundamental relation. "This is white," which, on the other view, expresses a relation between a particular and whiteness, will, when particulars are rejected, really state that whiteness is one of the qualities in this place, or has certain spatial relations to certain other qualities. Thus the question whether predication is an ultimate simple relation may be taken as distinguishing the two theories; it is ultimate if there are particulars, but not otherwise. And if predication is an ultimate relation, the best definition of particulars is that they are entities which can only be subjects of predicates or terms of relations, *i.e.*, that they are (in the logical sense) substances. This definition is preferable to one introducing space or time, because space and time are accidental characteristics of the world with which we happen to be acquainted, and therefore are destitute of the necessary universality belonging to purely logical categories.

We have thus a division of all entities into two classes: (1) particulars, which enter into complexes only as the subjects

of predicates or the terms of relations, and, if they belong to the world of which we have experience, exist in time, and cannot occupy more than one place at one time in the space to which they belong; (2) universals, which can occur as predicates or relations in complexes, do not exist in time, and have no relation to one place which they may not simultaneously have to another. The ground for regarding such a division as unavoidable is the self-evident fact that certain spatial relations imply diversity of their terms, together with the self-evident fact that it is logically possible for entities having such spatial relations to be wholly indistinguishable as to predicates.

II.—ANIMISM AND THE DOCTRINE OF ENERGY.*

By T. PERCY NUNN.

THE autonomy of the special sciences is, without doubt, a sound and important principle. Speaking generally, there are no criteria by which the legitimacy or value of the methods used, for example, by a physicist, a biologist, or a psychologist can be judged except those that arise within physics, biology, or psychology in their historical development. As Dr. Bosanquet has said, the sciences are self-normative.

Nevertheless the application of this principle has limits. In the first place, if a worker in one science makes use of the specific methods of another science—as an anthropologist may make use of psychological methods or a psychologist of physical methods—it is obvious that he must be prepared to face criticism of his procedure from the point of view of the science from which he borrows. Secondly, when sciences of independent origin—such as the different branches of physics—become departments of a wider science their provincial autonomy must naturally be subordinated to their imperial unity. The similarity in methods which makes their federation possible will become a community of governing principles. Lastly, there are principles—such as the law of Contradiction or the laws of arithmetic—which seem to bear *a priori*

* Under the title "Energy and Mental Process" the bulk of this paper was read to the British Psychological Society on March 13th, 1909, but has not hitherto been printed. Apart from changes in the form of the exposition, the new matter is contained entirely in the introduction and in the last section. The title has been changed to indicate more clearly the intended bearing of the discussion upon the central topic of Mr. McDougall's recent work on *Body and Mind*.