

Classic Text 20 - The Problem of Universals

The problem of universals is an ancient one, introduced by Plato in *The Republic* in the allegory of the cave (see Classic Text 01) but also in the *Phaedo*, *Phaedrus*, *Meno* and the *Parmenides*. Loosely speaking, a **universal** is what particular things have in common, *i.e.* their characteristics or qualities that make them what they are. Take the seemingly unproblematic example of a chair. The O.E.D. defines a chair as, “A separate seat for one person, of various forms, usually with a rest for the back and more or less comfortable”. However there are chairs without a back rest or armrests. Some are upholstered, others comprise entirely of moulded plastic. Some are collapsible, some are for kneeling, others are artistic creations or miniatures, never intended for sitting. Yet others are ceremonial or symbolic. The function of one type is designed to pass electric current through a human body until it is dead; the very antithesis of comfortable. Despite this bewildering variety of characteristics, qualities or designs, none of us has any difficulty identifying a chair from among non-chairs such as tables or piles of wood. Even seemingly “dumb” artificial intelligence networks can classify object according to their kind. The universal quality or essence of chairness is what unites all particular chairs or instances of chairs in our experience, though we are hard pressed to define exactly what it is. Although the question of chairness as a universal may seem trivial, the same could not be said about such abstract qualities as justice, beauty or courage. The Oxford Dictionary of Philosophy provides a slightly more formal definition of universals:

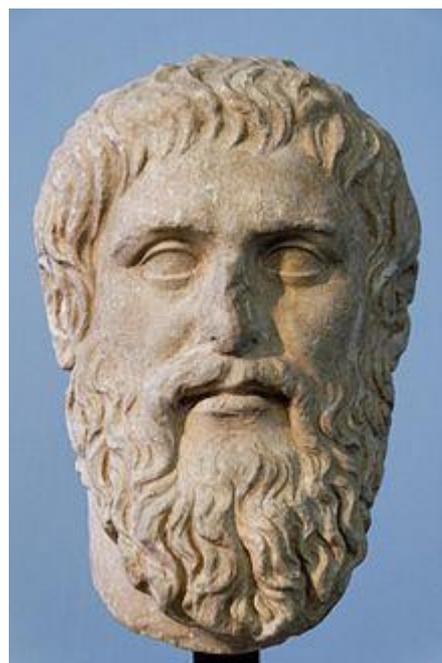
A **universal** is a property or relation that can be instanced, or instantiated, by a number of different particular things: each yellow thing provides an instance of the property of yellowness, and each square thing the property of being square. The things covered by a universal are thus similar in some respect. (Oxford Dictionary of Philosophy)

The problem of universals was addressed by Bertrand Russell in his *The Problems of Philosophy*, Chapters 9 & 10 (1912). It is written for the layperson interested in philosophy and comprises the classic text of this study unit, reproduced below, followed by a discussion.

The Problems of Philosophy by Bertrand Russell, 1912

Chapter IX - The World of Universals

At the end of the preceding chapter we saw that such entities as relations appear to have a being which is in some way different from that of physical objects, and also different from that of minds and from that of sense-data. In the present chapter we have to consider what is the nature of this kind of being, and also what objects there are that have this kind of being. We will begin with the latter question.



Roman Copy of a Portrait Bust of Plato
Originally Created by Silanion for the
Academia in Athens (c. 370 BC)

The problem with which we are now concerned is a very old one, since it was brought into philosophy by Plato. Plato's 'theory of ideas' is an attempt to solve this very problem, and in my opinion it is one of the most successful attempts hitherto made. The theory to be advocated in what follows is largely Plato's, with merely such modifications as time has shown to be necessary.

The way the problem arose for Plato was more or less as follows. Let us consider, say, such a notion as justice. If we ask ourselves what justice is, it is natural to proceed by considering this, that, and the other just act, with a view to discovering what they have in common. They must all, in some sense, partake of a common nature, which will be found in whatever is just and in nothing else. This common nature, in virtue of which they are all just, will be justice itself, the pure essence the admixture of which with facts of ordinary life produces the multiplicity of just acts. Similarly with any other word which may be applicable to common facts, such as 'whiteness' for example. The word will be applicable to a number of particular things because they all participate in a common nature or essence. This pure essence is what Plato calls an 'idea' or 'form'. (It must not be supposed that 'ideas', in his sense, exist in minds, though they may be apprehended by minds.) The 'idea' justice is not identical with anything that is just: it is something other than particular things, which particular things partake of. Not being particular, it cannot itself exist in the world of sense. Moreover it is not fleeting or changeable like the things of sense: it is eternally itself, immutable and indestructible.

Thus Plato is led to a supra-sensible world, more real than the common world of sense, the unchangeable world of ideas, which alone gives to the world of sense whatever pale reflection of reality may belong to it. The truly real world, for Plato, is the world of ideas; for whatever we may attempt to say about things in the world of sense, we can only succeed in saying that they participate in such and such ideas, which, therefore, constitute all their character. Hence it is easy to pass on into a mysticism. We may hope, in a mystic illumination, to see the ideas as we see objects of sense; and we may imagine that the ideas exist in heaven. These mystical developments are very natural, but the basis of the theory is in logic, and it is as based in logic that we have to consider it.

The word 'idea' has acquired, in the course of time, many associations which are quite misleading when applied to Plato's 'ideas'. We shall therefore use the word 'universal' instead of the word 'idea', to describe what Plato meant. The essence of the sort of entity that Plato meant is that it is opposed to the particular things that are given in sensation. We speak of whatever is given in sensation, or is of the same nature as things given in sensation, as a particular; by opposition to this, a universal will be anything which may be shared by many particulars, and has those characteristics which, as we saw, distinguish justice and whiteness from just acts and white things.

When we examine common words, we find that, broadly speaking, proper names stand for particulars, while other substantives¹, adjectives, prepositions, and verbs stand for universals. Pronouns stand for particulars, but are ambiguous: it is only by the context or the circumstances that we know what particulars they stand for. The word 'now' stands for a particular, namely the present moment; but like pronouns, it stands for an ambiguous particular, because the present is always changing.

It will be seen that no sentence can be made up without at least one word which denotes a universal. The nearest approach would be some such statement as 'I like this'. But even here the word 'like' denotes a universal, for I may like other things, and other people may like things. Thus all truths involve universals, and all knowledge of truths involves acquaintance with universals.

¹ nouns

Seeing that nearly all the words to be found in the dictionary stand for universals, it is strange that hardly anybody except students of philosophy ever realizes that there are such entities as universals. We do not naturally dwell upon those words in a sentence which do not stand for particulars; and if we are forced to dwell upon a word which stands for a universal, we naturally think of it as standing for some one of the particulars that come under the universal. When, for example, we hear the sentence, 'Charles I's head was cut off', we may naturally enough think of Charles I, of Charles I's head, and of the operation of cutting off his head, which are all particulars; but we do not naturally dwell upon what is meant by the word 'head' or the word 'cut', which is a universal: We feel such words to be incomplete and insubstantial; they seem to demand a context before anything can be done with them. Hence we succeed in avoiding all notice of universals as such, until the study of philosophy forces them upon our attention.

Even among philosophers, we may say, broadly, that only those universals which are named by adjectives or substantives have been much or often recognized, while those named by verbs and prepositions have been usually overlooked. This omission has had a very great effect upon philosophy; it is hardly too much to say that most metaphysics, since Spinoza, has been largely determined by it. The way this has occurred is, in outline, as follows: Speaking generally, adjectives and common nouns express qualities or properties of single things, whereas prepositions and verbs tend to express relations between two or more things. Thus the neglect of prepositions and verbs led to the belief that every proposition can be regarded as attributing a property to a single thing, rather than as expressing a relation between two or more things. Hence it was supposed that, ultimately, there can be no such entities as relations between things. Hence either there can be only one thing in the universe, or, if there are many things, they cannot possibly interact in any way, since any interaction would be a relation, and relations are impossible.

The first of these views, advocated by Spinoza and held in our own day by Bradley and many other philosophers, is called monism; the second, advocated by Leibniz but not very common nowadays, is called monadism, because each of the isolated things is called a monad. Both these opposing philosophies, interesting as they are, result, in my opinion, from an undue attention to one sort of universals, namely the sort represented by adjectives and substantives rather than by verbs and prepositions.

As a matter of fact, if any one were anxious to deny altogether that there are such things as universals, we should find that we cannot strictly prove that there are such entities as qualities, *i.e.* the universals represented by adjectives and substantives, whereas we can prove that there must be relations, *i.e.* the sort of universals generally represented by verbs and prepositions. Let us take in illustration the universal whiteness. If we believe that there is such a universal, we shall say that things are white because they have the quality of whiteness. This view, however, was strenuously denied by Berkeley and Hume, who have been followed in this by later empiricists. The form which their denial took was to deny that there are such things as 'abstract ideas'. When we want to think of whiteness, they said, we form an image of some particular white thing, and reason concerning this particular, taking care not to deduce anything concerning it which we cannot see to be equally true of any other white thing. As an account of our actual mental processes, this is no doubt largely true. In geometry, for example, when we wish to prove something about all triangles, we draw a particular triangle and reason about it, taking care not to use any characteristic which it does not share with other triangles. The beginner, in order to avoid error, often finds it useful to draw several triangles, as unlike each other as possible, in order to make sure that his reasoning is equally applicable to all of them. But a difficulty emerges as soon as we ask ourselves how we know that a thing is white or a triangle. If we wish to avoid the universals whiteness and triangularity, we shall choose some particular patch of white or some

particular triangle, and say that anything is white or a triangle if it has the right sort of resemblance to our chosen particular. But then the resemblance required will have to be a universal. Since there are many white things, the resemblance must hold between many pairs of particular white things; and this is the characteristic of a universal. It will be useless to say that there is a different resemblance for each pair, for then we shall have to say that these resemblances resemble each other, and thus at last we shall be forced to admit resemblance as a universal. The relation of resemblance, therefore, must be a true universal. And having been forced to admit this universal, we find that it is no longer worth while to invent difficult and unpalatable theories to avoid the admission of such universals as whiteness and triangularity.

Berkeley and Hume failed to perceive this refutation of their rejection of 'abstract ideas', because, like their adversaries, they only thought of qualities, and altogether ignored relations as universals. We have therefore here another respect in which the rationalists appear to have been in the right as against the empiricists, although, owing to the neglect or denial of relations, the deductions made by rationalists were, if anything, more apt to be mistaken than those made by empiricists.

Having now seen that there must be such entities as universals, the next point to be proved is that their being is not merely mental. By this is meant that whatever being belongs to them is independent of their being thought of or in any way apprehended by minds. We have already touched on this subject at the end of the preceding chapter, but we must now consider more fully what sort of being it is that belongs to universals.

Consider such a proposition as 'Edinburgh is north of London'. Here we have a relation between two places, and it seems plain that the relation subsists independently of our knowledge of it. When we come to know that Edinburgh is north of London, we come to know something which has to do only with Edinburgh and London: we do not cause the truth of the proposition by coming to know it, on the contrary we merely apprehend a fact which was there before we knew it. The part of the earth's surface where Edinburgh stands would be north of the part where London stands, even if there were no human being to know about north and south, and even if there were no minds at all in the universe. This is, of course, denied by many philosophers, either for Berkeley's reasons or for Kant's. But we have already considered these reasons, and decided that they are inadequate. We may therefore now assume it to be true that nothing mental is presupposed in the fact that Edinburgh is north of London. But this fact involves the relation 'north of', which is a universal; and it would be impossible for the whole fact to involve nothing mental if the relation 'north of', which is a constituent part of the fact, did involve anything mental. Hence we must admit that the relation, like the terms it relates, is not dependent upon thought, but belongs to the independent world which thought apprehends but does not create.

This conclusion, however, is met by the difficulty that the relation 'north of' does not seem to exist in the same sense in which Edinburgh and London exist. If we ask 'Where and when does this relation exist?' the answer must be 'Nowhere and nowhen'. There is no place or time where we can find the relation 'north of'. It does not exist in Edinburgh any more than in London, for it relates the two and is neutral as between them. Nor can we say that it exists at any particular time. Now everything that can be apprehended by the senses or by introspection exists at some particular time. Hence the relation 'north of' is radically different from such things. It is neither in space nor in time, neither material nor mental; yet it is something.

It is largely the very peculiar kind of being that belongs to universals which has led many people to suppose that they are really mental. We can think of a universal, and our thinking then exists in a

perfectly ordinary sense, like any other mental act. Suppose, for example, that we are thinking of whiteness. Then in one sense it may be said that whiteness is 'in our mind'. We have here the same ambiguity as we noted in discussing Berkeley in Chapter IV. In the strict sense, it is not whiteness that is in our mind, but the act of thinking of whiteness. The connected ambiguity in the word 'idea', which we noted at the same time, also causes confusion here. In one sense of this word, namely the sense in which it denotes the object of an act of thought, whiteness is an 'idea'. Hence, if the ambiguity is not guarded against, we may come to think that whiteness is an 'idea' in the other sense, *i.e.* an act of thought; and thus we come to think that whiteness is mental. But in so thinking, we rob it of its essential quality of universality. One man's act of thought is necessarily a different thing from another man's; one man's act of thought at one time is necessarily a different thing from the same man's act of thought at another time. Hence, if whiteness were the thought as opposed to its object, no two different men could think of it, and no one man could think of it twice. That which many different thoughts of whiteness have in common is their object, and this object is different from all of them. Thus universals are not thoughts, though when known they are the objects of thoughts.

We shall find it convenient only to speak of things existing when they are in time, that is to say, when we can point to some time at which they exist (not excluding the possibility of their existing at all times). Thus thoughts and feelings, minds and physical objects exist. But universals do not exist in this sense; we shall say that they subsist or have being, where 'being' is opposed to 'existence' as being timeless. The world of universals, therefore, may also be described as the world of being. The world of being is unchangeable, rigid, exact, delightful to the mathematician, the logician, the builder of metaphysical systems, and all who love perfection more than life. The world of existence is fleeting, vague, without sharp boundaries, without any clear plan or arrangement, but it contains all thoughts and feelings, all the data of sense, and all physical objects, everything that can do either good or harm, everything that makes any difference to the value of life and the world. According to our temperaments, we shall prefer the contemplation of the one or of the other. The one we do not prefer will probably seem to us a pale shadow of the one we prefer, and hardly worthy to be regarded as in any sense real. But the truth is that both have the same claim on our impartial attention, both are real, and both are important to the metaphysician. Indeed no sooner have we distinguished the two worlds than it becomes necessary to consider their relations.

But first of all we must examine our knowledge of universals. This consideration will occupy us in the following chapter, where we shall find that it solves the problem of *a priori* knowledge, from which we were first led to consider universals.

Chapter X - On Our Knowledge of Universals

In regard to one man's knowledge at a given time, universals, like particulars, may be divided into those known by acquaintance, those known only by description, and those not known either by acquaintance or by description.

Let us consider first the knowledge of universals by acquaintance. It is obvious, to begin with, that we are acquainted with such universals as white, red, black, sweet, sour, loud, hard, *etc.*, *i.e.* with qualities which are exemplified in sense-data. When we see a white patch, we are acquainted, in the first instance, with the particular patch; but by seeing many white patches, we easily learn to abstract the whiteness which they all have in common, and in learning to do this we are learning to be acquainted with whiteness. A similar process will make us acquainted with any other universal of the same sort. Universals of this sort may be called 'sensible qualities'. They can be apprehended with

less effort of abstraction than any others, and they seem less removed from particulars than other universals are.

We come next to relations. The easiest relations to apprehend are those which hold between the different parts of a single complex sense-datum. For example, I can see at a glance the whole of the page on which I am writing; thus the whole page is included in one sense-datum. But I perceive that some parts of the page are to the left of other parts, and some parts are above other parts. The process of abstraction in this case seems to proceed somewhat as follows: I see successively a number of sense-data in which one part is to the left of another; I perceive, as in the case of different white patches, that all these sense-data have something in common, and by abstraction I find that what they have in common is a certain relation between their parts, namely the relation which I call 'being to the left of'. In this way I become acquainted with the universal relation.

In like manner I become aware of the relation of before and after in time. Suppose I hear a chime of bells: when the last bell of the chime sounds, I can retain the whole chime before my mind, and I can perceive that the earlier bells came before the later ones. Also in memory I perceive that what I am remembering came before the present time. From either of these sources I can abstract the universal relation of before and after, just as I abstracted the universal relation 'being to the left of'. Thus time-relations, like space-relations, are among those with which we are acquainted.

Another relation with which we become acquainted in much the same way is resemblance. If I see simultaneously two shades of green, I can see that they resemble each other; if I also see a shade of red: at the same time, I can see that the two greens have more resemblance to each other than either has to the red. In this way I become acquainted with the universal resemblance or similarity.

Between universals, as between particulars, there are relations of which we may be immediately aware. We have just seen that we can perceive that the resemblance between two shades of green is greater than the resemblance between a shade of red and a shade of green. Here we are dealing with a relation, namely 'greater than', between two relations. Our knowledge of such relations, though it requires more power of abstraction than is required for perceiving the qualities of sense-data, appears to be equally immediate, and (at least in some cases) equally indubitable. Thus there is immediate knowledge concerning universals as well as concerning sense-data.

Returning now to the problem of *a priori* knowledge, which we left unsolved when we began the consideration of universals, we find ourselves in a position to deal with it in a much more satisfactory manner than was possible before. Let us revert to the proposition 'two and two are four'. It is fairly obvious, in view of what has been said, that this proposition states a relation between the universal 'two' and the universal 'four'. This suggests a proposition which we shall now endeavour to establish: namely, All *a priori* knowledge deals exclusively with the relations of universals. This proposition is of great importance, and goes a long way towards solving our previous difficulties concerning *a priori* knowledge.

The only case in which it might seem, at first sight, as if our proposition were untrue, is the case in which an *a priori* proposition states that all of one class of particulars belong to some other class, or (what comes to the same thing) that all particulars having some one property also have some other. In this case it might seem as though we were dealing with the particulars that have the property rather than with the property. The proposition 'two and two are four' is really a case in point, for this may be stated in the form 'any two and any other two are four', or 'any collection formed of two twos is a

collection of four'. If we can show that such statements as this really deal only with universals, our proposition may be regarded as proved.

One way of discovering what a proposition deals with is to ask ourselves what words we must understand, in other words, what objects we must be acquainted with, in order to see what the proposition means. As soon as we see what the proposition means, even if we do not yet know whether it is true or false, it is evident that we must have acquaintance with whatever is really dealt with by the proposition. By applying this test, it appears that many propositions which might seem to be concerned with particulars are really concerned only with universals. In the special case of 'two and two are four', even when we interpret it as meaning 'any collection formed of two twos is a collection of four', it is plain that we can understand the proposition, *i.e.* we can see what it is that it asserts, as soon as we know what is meant by 'collection' and 'two' and 'four'. It is quite unnecessary to know all the couples in the world: if it were necessary, obviously we could never understand the proposition, since the couples are infinitely numerous and therefore cannot all be known to us. Thus although our general statement implies statements about particular couples, as soon as we know that there are such particular couples, yet it does not itself assert or imply that there are such particular couples, and thus fails to make any statement whatever about any actual particular couple. The statement made is about 'couple', the universal, and not about this or that couple.

Thus the statement 'two and two are four' deals exclusively with universals, and therefore may be known by anybody who is acquainted with the universals concerned and can perceive the relation between them which the statement asserts. It must be taken as a fact, discovered by reflecting upon our knowledge, that we have the power of sometimes perceiving such relations between universals, and therefore of sometimes knowing general *a priori* propositions such as those of arithmetic and logic. The thing that seemed mysterious, when we formerly considered such knowledge, was that it seemed to anticipate and control experience. This, however, we can now see to have been an error. No fact concerning anything capable of being experienced can be known independently of experience. We know *a priori* that two things and two other things together make four things, but we do not know *a priori* that if Brown and Jones are two, and Robinson and Smith are two, then Brown and Jones and Robinson and Smith are four. The reason is that this proposition cannot be understood at all unless we know that there are such people as Brown and Jones and Robinson and Smith, and this we can only know by experience. Hence, although our general proposition is *a priori*, all its applications to actual particulars involve experience and therefore contain an empirical element. In this way what seemed mysterious in our *a priori* knowledge is seen to have been based upon an error.

It will serve to make the point clearer if we contrast our genuine *a priori* judgement with an empirical generalization, such as 'all men are mortals'. Here as before, we can understand what the proposition means as soon as we understand the universals involved, namely man and mortal. It is obviously unnecessary to have an individual acquaintance with the whole human race in order to understand what our proposition means. Thus the difference between an *a priori* general proposition and an empirical generalization does not come in the meaning of the proposition; it comes in the nature of the evidence for it. In the empirical case, the evidence consists in the particular instances. We believe that all men are mortal because we know that there are innumerable instances of men dying, and no instances of their living beyond a certain age. We do not believe it because we see a connexion between the universal man and the universal mortal. It is true that if physiology can prove, assuming the general laws that govern living bodies, that no living organism can last for ever, that gives a connexion between man and mortality which would enable us to assert our proposition without appealing to the special evidence of men dying. But that only means that our generalization has been subsumed under a wider generalization, for which the evidence is still of the same kind, though more

extensive. The progress of science is constantly producing such subsumptions, and therefore giving a constantly wider inductive basis for scientific generalizations. But although this gives a greater degree of certainty, it does not give a different kind: the ultimate ground remains inductive, *i.e.* derived from instances, and not an *a priori* connexion of universals such as we have in logic and arithmetic.

Two opposite points are to be observed concerning *a priori* general propositions. The first is that, if many particular instances are known, our general proposition may be arrived at in the first instance by induction, and the connexion of universals may be only subsequently perceived. For example, it is known that if we draw perpendiculars to the sides of a triangle from the opposite angles, all three perpendiculars meet in a point. It would be quite possible to be first led to this proposition by actually drawing perpendiculars in many cases, and finding that they always met in a point; this experience might lead us to look for the general proof and find it. Such cases are common in the experience of every mathematician.

The other point is more interesting, and of more philosophical importance. It is, that we may sometimes know a general proposition in cases where we do not know a single instance of it. Take such a case as the following: We know that any two numbers can be multiplied together, and will give a third called their product. We know that all pairs of integers the product of which is less than 100 have been actually multiplied together, and the value of the product recorded in the multiplication table. But we also know that the number of integers is infinite, and that only a finite number of pairs of integers ever have been or ever will be thought of by human beings. Hence it follows that there are pairs of integers which never have been and never will be thought of by human beings, and that all of them deal with integers the product of which is over 100. Hence we arrive at the proposition: 'All products of two integers, which never have been and never will be thought of by any human being, are over 100.' Here is a general proposition of which the truth is undeniable, and yet, from the very nature of the case, we can never give an instance; because any two numbers we may think of are excluded by the terms of the proposition.

This possibility, of knowledge of general propositions of which no instance can be given, is often denied, because it is not perceived that the knowledge of such propositions only requires a knowledge of the relations of universals, and does not require any knowledge of instances of the universals in question. Yet the knowledge of such general propositions is quite vital to a great deal of what is generally admitted to be known. For example, we saw, in our early chapters, that knowledge of physical objects, as opposed to sense-data, is only obtained by an inference, and that they are not things with which we are acquainted. Hence we can never know any proposition of the form 'this is a physical object', where 'this' is something immediately known. It follows that all our knowledge concerning physical objects is such that no actual instance can be given. We can give instances of the associated sense-data, but we cannot give instances of the actual physical objects. Hence our knowledge as to physical objects depends throughout upon this possibility of general knowledge where no instance can be given. And the same applies to our knowledge of other people's minds, or of any other class of things of which no instance is known to us by acquaintance.

We may now take a survey of the sources of our knowledge, as they have appeared in the course of our analysis. We have first to distinguish knowledge of things and knowledge of truths. In each there are two kinds, one immediate and one derivative. Our immediate knowledge of things, which we called acquaintance, consists of two sorts, according as the things known are particulars or universals. Among particulars, we have acquaintance with sense-data and (probably) with ourselves. Among universals, there seems to be no principle by which we can decide which can be known by acquaintance, but it is clear that among those that can be so known are sensible qualities, relations of

space and time, similarity, and certain abstract logical universals. Our derivative knowledge of things, which we call knowledge by description, always involves both acquaintance with something and knowledge of truths. Our immediate knowledge of truths may be called intuitive knowledge, and the truths so known may be called self-evident truths. Among such truths are included those which merely state what is given in sense, and also certain abstract logical and arithmetical principles, and (though with less certainty) some ethical propositions. Our derivative knowledge of truths consists of everything that we can deduce from self-evident truths by the use of self-evident principles of deduction.

If the above account is correct, all our knowledge of truths depends upon our intuitive knowledge. It therefore becomes important to consider the nature and scope of intuitive knowledge, in much the same way as, at an earlier stage, we considered the nature and scope of knowledge by acquaintance. But knowledge of truths raises a further problem, which does not arise in regard to knowledge of things, namely the problem of error. Some of our beliefs turn out to be erroneous, and therefore it becomes necessary to consider how, if at all, we can distinguish knowledge from error. This problem does not arise with regard to knowledge by acquaintance, for, whatever may be the object of acquaintance, even in dreams and hallucinations, there is no error involved so long as we do not go beyond the immediate object: error can only arise when we regard the immediate object, *i.e.* the sense-datum, as the mark of some physical object. Thus the problems connected with knowledge of truths are more difficult than those connected with knowledge of things.

End of Exert

Discussion

We all use terms like justice, beauty, courage *etc.* as if we know what they mean but when pressed for a definition of justice, say, we can only point to or describe particular just acts in the hope that what they have in common will answer to what we take justice to be. It is not uncommon to hear, for example that, "I don't know what justice/beauty/courage /*etc.* is, but I know it when I see it". For Plato, particular things or acts possess the qualities that they do because they participate in a common nature or essence. These Platonic essences are known in translation as 'forms' or 'ideas' (from the Greek ἰδέα(*idea*) and εἶδος (*eidos*) from the same Indo-European root for 'see'.) Platonic 'forms' or 'ideas' are not the same as ideas that exist in the mind, although they may be apprehended by particular minds. According to Russell, "The 'idea' justice is not identical with anything that is just: it is something other than particular things, which particular things partake of. Not being particular, it cannot itself exist in the world of sense." So although Platonic forms or ideas cannot be physical like the objects of sense, they are substantial, eternal and immutable. Indeed they occupy a "supra-sensible world" of which the changeable world of ideas is but a pale reflection, much like the shadows seen by the denizens of the cave in *The Republic*. Indeed, for Plato the world of forms or ideas is the Real World, in which the world of senses merely participates and thus acquires their character.

Russell observes that when thinking about forms it is very easy to pass into mysticism "to see the ideas as we see objects of sense; and we may imagine that the ideas exist in heaven". In admixtures of religion and Platonic philosophy we have God and the heavenly host eternally contemplating forms; however for Russell, "the basis of the theory [of forms] is in logic, and it is as based in logic that we have to consider it".

Because of their many acquired associations, we shall follow Russell's example in setting aside the terms 'form' and 'idea' in favour of the word 'universal' to describe what Plato meant. Universals and particulars can then be understood reciprocally: what is given in sensation is particular but what is shared by many particulars is universal. Thus we may witness or think about particular just acts but what unites all such particulars is their universal nature as justice. Similarly we may have seen more patches or shades of green things in particular than we can remember but what unites all of these particulars is their universal 'greenness'. Today we know that the essence of this greenness is the approximation of wavelength of emitted or reflected light to between 495 and 570 nm; however this doesn't change the present argument.

Russell's observations about how different parts of speech regularly express universals or particulars are important because, as we shall see, a number of assumptions or omissions concerning them have had an enormous influence on philosophy historically. Also the fact that we use parts of speech (mostly) correctly suggests that we have a tacit grasp of the distinction between universals and particulars. That nearly all the words in a standard dictionary stand for universals, it is indeed strange that "hardly anybody except students of philosophy [and linguistics] ever realizes that there are such entities as universals". On reflection therefore, Russell's other observation that, "no sentence can be made up without at least one word which denotes a universal", should come as no surprise. It follows then that, "all truths involve universals, and all knowledge of truths involves acquaintance with universals", even if we had not been aware of it.

Russell's point about the sentence 'Charles I's head was cut off', is that we tend to think about particulars such as Charles I and the head of Charles I and the operation of cutting off his head, while ignoring or not dwelling upon the meanings of the words 'head' or 'cut' which are universals. At first blush the matter is neither here nor there, "until the study of philosophy forces them upon our attention". And it is this attention or inattention that Russell believed largely determined much of metaphysics since Spinoza.

"Speaking generally," Russell notes that "adjectives and common nouns express qualities or properties of single things, whereas prepositions and verbs tend to express relations between two or more things". Historically, neglecting prepositions and verbs (except the verb to be) and as we necessarily did when introducing the propositional calculus in Critical Reasoning 11, lead to the belief that "every proposition can be regarded as attributing a property to a single thing, rather than as expressing a relation between two or more things." Although we put that matter right in introducing the logic of relations in Critical Reasoning 14, historically treating every proposition as the form ϕx left no room for relations that obtain between two or more things; hence it was supposed that no such relations exist. Alternatively, it was supposed that either there can be only one thing in the universe or that if there are many, that any interactions or relation between them are impossible.

The former espoused by Spinoza, is known as **metaphysical monism**² and the latter espoused by Leibniz is known as **monadism**. Neither of these opposing metaphysical views is given much attention in contemporary philosophy however both were historically very influential. According to Russell both arise "from an undue attention to one sort of universals, namely the sort represented by adjectives and substantives rather than by verbs and prepositions".

² Not to be confused monism as a position within the philosophy of mind.

If we were to deny the existence of universals we would be unable to strictly prove the existence of qualities or properties which are represented by adjectives or nouns. On the other hand, we would find that we could prove the existence of relations which are represented by verbs and prepositions. Following Russell's example, we may want to say that there is a universal such as whiteness because we believe that things are white because they have the quality of whiteness about them. According to Berkley, Hume and the later empiricists, we are mistaken because we take "abstract ideas" for real. What in fact we are doing, according to them, when we think of whiteness, is to think of some particular white thing, such as paper or milk, and reason according to this thing, taking care not to deduce anything about it, such as the crispness of paper or the wetness of milk, that is not shared by every other white thing. Similarly, a beginner at trigonometry might construct several triangles as unlike one another as possible in order to reason about them in a way that is applicable to all of them. According to Russell, "As an account of our actual mental processes, this is no doubt largely true". However, in order to avoid universals such as whiteness or triangularity, we would have to choose some particular patch of white or some particular triangle that most exemplifies or is representative of what we take a white thing or a triangular thing to be, so that we may compare them with other things. But in order to do so we would have to have some universal notion of whiteness or triangularity in mind in order to assess particular things for their representivity as such. Therefore we can no more reason universals away than we can talk away various parts of speech.

Perhaps, it may be conceded that there are such things as universals, but they are "all in the mind". Russel takes this objection seriously and sets out to refute it. Take the proposition: 'Edinburgh is north of London.' This proposition expresses a relation between two named places that is true irrespective of our knowledge of it. The term **subsist** that Russell used for abstract objects as opposed the term 'exist' for concrete objects is ontologically controversial, not to mention slightly archaic, therefore we shall do without it. If we come to know the proposition, we shall have some knowledge that is uniquely about Edinburgh and London, yet our coming to know the proposition in no wise causes it to be true. Even before there were humans, the piece of the earth's crust named by Edinburgh would have been north of the piece of the earth's crust named by London, if we take names to be **rigid designators**³ as Saul Kripke has argued. Therefore nothing mental is presupposed about the proposition or the fact that it expresses. A fact, recall, is simply a true statement.

Given that the proposition 'Edinburgh is north of London' involves a relation, '... is north of...', which is a universal, the relation must exist independently of thought but not in the same way as the places which it relates. If we were to ask, "Where in space and time are Edinburgh and London?" we would expect a definitive answer. However, ask the question "Where in space and time is '... is north of...'" and we would have to accept Russell's answer: "Nowhere and nowhen". It is not in space or in time. It does not exist in Edinburgh or London or anywhere else, nor does it exist since the founding of Edinburgh or London or at any time. Nor does it exist in the mind of one person or another or everybody, because thoughts exist in space and time. And yet this universal must be something rather than nothing or naught.

The same argument could be made about the universal, 'whiteness' which is neither in space nor time. The peculiar ontological status of universals may nevertheless lead us to believe that they

³ A **rigid designator** designates the same object in all possible worlds in which that object exists, and never designates anything else (Stanford Encyclopedia of Philosophy)

really are mental. According to Russell this turns on an ambiguity. When we think of whiteness, for example, we may be tempted to say that we have whiteness 'in mind' but, strictly speaking, what we have is the act of thinking about whiteness, which occurs at a particular time and place. The same ambiguity occurs with the word 'idea'. In one sense we mean *the object of thought*, such as whiteness or triangularity as an 'idea', however if we are not careful to distinguish it from its other meaning as *an act of thought* it is quite easy to slip into regarding universals as mental. However no two people's thoughts are exactly alike. Even the same person's thought at one time is not exactly the same as at another. Hence if whiteness were a thought, as opposed to the object of thought, no two people could think of it and no one person could think of it twice.

Perhaps it might be objected that Russell is being too pedantic. Yes, of course, no two people could think of whiteness *identically* and no one person could think of it *identically* at different times, but surely two people could think of whiteness *very much alike* and one person could think of it *very much alike* at different times; as *much alike* as makes no difference. If Russell had anticipated such an objection he might have replied, "Very much alike in what respect?" to which the only reply could have been, "In respect of whiteness that they all have in common, obviously", which takes us full circle back to the universal. So although universals are not thoughts *per se*, they may be the *object of thought*.

As far as existence is concerned, we can locate thoughts, feelings, minds and physical objects in space and time; however universals have a different kind of existence that is timeless and unchanging. Indeed for Plato, the world of matter and of change was a mere shadow of the eternal world of forms or ideas, hence the point of the allegory of the cave. However without waxing mystical we must acknowledge, as Russell does, that both worlds of existence or being "have the same claim on our impartial attention, both are real, and both are important to the metaphysician". One may devote a lifetime to the study of timeless universals in the form of mathematics, logic or metaphysics but the fleeting world of change contains all "thoughts and feelings, all the data of sense, and all physical objects, everything that can do either good or harm, everything that makes any difference to the value of life and the world".

Of course, this view is antithetical to many of the world's major religions which regard the temporal realm of change as undesirable or even illusory as in the concept of *maya* (from the Sanskrit: माया (māyā)) in various Indian philosophies. However there are reasons to believe that one cannot be roundly mistaken about everything, if only because it leaves nothing to be mistake about. That we do, and how we come to be acquainted with universals is the subject of Russell's brief but insightful chapter X.

According to Russell, "universals, like particulars, may be divided into those known by acquaintance, those known only by description, and those not known either by acquaintance or by description". Knowledge of universals known by acquaintance is exemplified by learning to abstract commonalities from sensory input. Thus we see first one patch of white then another and another and we soon learn to abstract the whiteness that they all have in common. This happens almost entirely unconsciously and even comparatively complex tasks such as face recognition can be learned by mindless algorithms, given the appropriate feedback. Russell calls universals of this sort 'sensible qualities'.

We come to apprehend relations in various ways that Russell describes only in the most general terms, from relations between different parts of the same 'sense-data' to meta-relations between different universals that require a higher degree of abstraction. What we have learned subsequently is that the same neurological mechanisms underlie most types of perception across different modalities and to varying degrees of abstraction. Receptors transduce chemical or mechanical changes into electrical signals that are carried via sensory nerves through various relay stations to the sensory cortex. Here cortical columns of some 100 neurons each which lie perpendicular to the cortical surface represent the basic functional unit of the cerebral cortex. In the neocortex of mammals there are six recognisable layers that process incoming information and pass the result up and down to adjacent layers with the outermost layer representing the most generalised state. Cortical columns thus represent both the most basic problem solving modules within the cortex and the source *in vivo* of the process of abstraction. (See Horton & Adams, 2005 for a good review.)

So while the neural basis of simple abstraction and hence immediate knowledge of rudimentary universals has been described, Russell's elucidation of the problem of *a priori* knowledge in the text is still relevant. If all knowledge ultimately derives from experience as the empiricists have it, then how is *a priori* knowledge possible? Consider the *a priori* proposition: 'two and two are four'. According to Russell, this proposition states a relation between two universals: 'two' and 'four'. If it can be shown that, in general, all *a priori* knowledge deals exclusively with relations among universals, then much of the mystery surrounding *a priori* knowledge will simply evaporate.

When we grasp the meaning of a proposition we seem to do so all at once; however according to Russell, we must first be acquainted with the words or objects that the proposition deals with to know what it means, even if we do not know whether it is true or false. If we do so consciously we shall see that many propositions that seem to be about particulars actually deal with universals. In the special case of 'two and two are four', if we interpret it to mean 'any collection formed of two twos is a collection of four', we are able to see what "it asserts, as soon as we know what is meant by 'collection' and 'two' and 'four'". We do not need to know, nor can we know, about all the pairs or couples in the universe to know what the proposition asserts. Although the general statement has implications for particular pairs or couples, once we know that they exist, it says nothing about the existence of this or that particular pair or couple.

Thus, if we first acquaint ourselves the words or objects that the proposition 'two and two are four' deals with we see that it deals exclusively with universals; therefore anyone who is acquainted with the universals in question and who can perceive the relation between them will be able to know what the proposition asserts. If, in general, we reflect upon our knowledge and perceive a relation among some universals we come to know something *a priori*. Perhaps what seemed strange was this: we have all been acquainted with the universals 'two' and 'four' since we learned to count before we could add, and yet the *a priori* knowledge that two and two are four only came later when we could perceive the additive relation between them. Perhaps the source of the strangeness that Russell refers to comes from treating the term '*a priori*' as if it literally means knowledge that comes prior in time, rather than prior to this or that particular instance of the universal proposition in question.

Russel also takes care to draw a distinction between genuine *a priori* judgements and empirical generalisations because they are expressed the same way. Like *a priori* propositions, all we have to

understand in the case of an empirical generalisation like 'All men are mortal' are the terms 'man' and 'mortal' and their relation to one another. What makes an empirical generalisation different however is its evidence base. The evidence for all men being mortal consists in innumerable instances of particular men dying and no instances any particular man living forever or beyond a certain advanced number of years. Nor do we need to know of every particular instance to believe the empirical generalisation because there is external evidence from genetics that no organism can live forever, if only because ordinary (non-cancerous) cells can only divide a limited number of times. There is nothing about the universals 'man' or 'mortal' between which we perceive a connection that counts as evidence for our empirical generalisation. In fact, we have no trouble in conceiving of an immortal man, which some religions take seriously, though this forms no part of our evidence base.

The two opposite points that Russell observes concerning *a priori* general propositions are as follows: Sometimes we arrive at knowledge of general propositions by a process of induction from a number of particulars before we perceive a connection between the universals involved. This experience is familiar to students of geometry who initially might 'play around' with various sketches which together suggest a general principle, only later to discover that some underlying theorem can be proved from first principles. The other philosophically more interesting point is that sometimes we can know a general proposition without knowing even a single instance of it. Mathematics, for example, abounds with existence theorems about infinitesimals and infinite series, which by definition we can never be fully acquainted with, and yet with which we can do some theoretically useful work.

According to Russell, knowledge of this latter sort is analogous to our knowledge of physical objects, which can only be known by inference from sense-data. So, although we might say 'this is a physical object' there is no 'this' with which we are immediately acquainted. Thus, our knowledge of physical objects is such that no actual instance can be given. The same sort of general knowledge applies to our knowledge of other minds (or '**theory of mind**' as it is called today) of which no instance is known to us by direct acquaintance. This capacity has been shown to exist in ravens, scrub jays, and non-human primates and which we know to be impaired in humans with certain developmental disorders or neuro-pathologies. (Wikipedia: Theory of mind)

Chapter X concludes with a brief survey of knowledge, including knowledge of particulars and universals, as developed in the text, including earlier chapters. What these two chapters succeed in doing is twofold. Firstly they demonstrate how our ability to recognise universals and perceive relations among them as well as to infer particular instances from them produces a network of interdependent modes of knowledge, that goes well beyond, but includes, the more frequently discussed propositional knowledge. (See Classic Text 07.) Secondly, they do so by appealing only to the most familiar examples of inferring universals from among sense-data and among relations. In doing so they demystify the strangeness and otherworldliness that has accumulated in much of the pseudo-religious exposition of universals throughout history. Today we recognise that the capacity of humans (and some non-humans, as well as algorithm based learning programmes) to detect and make inferences based on universals, is quite un-mysterious, albeit remarkable.

Task

1. Russell made the point that even if there were no humans, the part of the earth's crust where Edinburgh stands would still be north of the part of the earth's crust where London stands. Is it possible that relations could exist without anyone to perceive them or do they exist because we perceive them? How could anything be north of anything else if no one ever came up with the concept of "... is north of..."? This is not a trivial question.
2. Try to make a one page mind-map or table of Russell's summary of modes of knowledge at the end of his chapter X. This should incorporate and represent the difference between knowledge of things vs. knowledge of truths; immediate vs. derivative knowledge; acquaintance vs. description; particulars vs. universals; sense-data vs. sensible qualities, relations and certain abstract logical universals and intuitive knowledge or self-evident truths vs. deduced knowledge or deduced truths.
3. Russell does not discuss **procedural knowledge** or knowledge "how to" as opposed to propositional knowledge *i.e.* knowledge that... Clearly knowing how to walk, write, tie a knot, ride a bike, use a computer programme and generally solve practical problems which rely on multiple senses as well as other sorts of knowledge is of enormous importance. Would the question of universals and relations be relevant to a discussion of procedural knowledge?

Feedback

1. Although we have not yet fully discussed idealism (the belief that fundamental reality is either mental, mentally constructed or otherwise immaterial), the idea is often proffered as an explanation for the existence of universals. Very few modern philosophers accept the literal existence of Platonic universals in world beyond space and time - a world that we can only imperfectly participate in via the intellect. The temptation has often been to go to one extreme or another: Either deny that universals exist and insist that every apparent universal is in fact a collection of particulars or insist that universals exist in the mind of the knower or in virtue of the knower. If, in the latter case, one includes a belief in God, then he or she becomes the universal knower *i.e.* omniscient. Russell clearly accepted neither extreme. In the example discussed, even if there were no sentient beings on earth, the part of the earth's crust where Edinburgh stands would still be north of the part of the earth's crust where London stands at a particular time in geological history, in spite of the presence or absence of human beings, which would have made no difference to the evolution of the earth's crust. This we presume is a matter of fact not belief or perception. (A fact, recall, is simply a true statement.) If other sentient beings were to visit earth, and had a concept similar to our concept of "... is north of..." they might discover this fact although they would surely have different names for the places, Edinburgh and London. Neither would their discovery make it true - that is something after the fact.

Although Russell uses the word “subsist” for the “existence” of universals and relations, they do not exist in a shadow world waiting to be discovered. They are inherent in our way of thinking about concepts. Take the universal ‘bolder’. As soon as we have two or more instances of such things, the relations of ‘... is next to...’, ‘... is on top of...’, ‘... is far from...’, ‘... is north of...’ etc. are implicit in their spatial arrangement. There might, for example, be a bolder on Mars that is on top of another one, that we shall never know about and yet the relation of ‘... is on top of...’ might obtain between them for all of human history, a bald fact of the universe not plucked from the ether.

2. We chose to make a table, although we could just have well made a mind-map or cue cards. We took a page of A4 paper, laid it out landscape and wrote “knowledge of...” along the top and “knowledge is...” sideways along the left-hand side of the page. Then we divided up the remainder of the page into four equal blocks, two rows of two. Above the left-hand two blocks we wrote “things” and above the right-hand two blocks we wrote “truths”. Left of the top row we wrote “immediate” and left of the bottom two rows we wrote “derivative”. Inside the top left block, at the top, we wrote the word “Acquaintance” and divided the remaining space into two side-by-side columns labelled “Particulars” and “Universals”. Under “Particulars” we listed “sense-data”. Under “Universals we listed “sensible qualities”, “relations” and “certain abstract logical universals”. In the top right block, under truths, we wrote “intuitive knowledge a.k.a. self-evident truths”. In the bottom right block we wrote “deduced knowledge / deduced truths”. All the types of knowledge discussed by Russell in the excerpt fit into one of these blocks. If we wanted to we could have added examples.

3. In short, we believe so. Generally, we acquire procedural knowledge by doing - at first doing rather badly and then learning from our mistakes; sometimes learning from others by way of example or patient teaching. According to Wikipedia: Procedural knowledge, ‘One limitation of procedural knowledge is its job-dependent nature. As a result, it tends to be less general than declarative knowledge’. However, some tasks are generic and so can be generalised, while others are highly task specific and can only be solved “on the job” as it were. As one progresses from novice to master in any specialised field of practice one begins to discern patterns and connections between quite different tasks that are strategically or functionally similar. Sometimes such connections will suggest an entirely novel approach or solution to formerly problematic tasks, hence the invention or discovery of new procedural knowledge.

References

HORTON, J. & ADAMS, D. (2005) The cortical column: a structure without a function. *Philosophical Transactions of the Royal Society of London B Biological Sciences* **360** (1456) p. 837 - 862



What is it that Unites all of these Dogs?