PARTICULARS

There are two obvious ways in which a philosopher can attack a theory which he believes to be mistaken. He can seek to reduce it to absurdity by developing its implications and showing them to be either mutually inconsistent or incompatible with the incontrovertible. Or he can attempt to trace the error back to its roots, and show why those who defend it have been led to speak as they do. Of these two methods, it is clear that only the latter is capable of definitive results. A mistaken theory can be compared to a symptom of a disease. By the use of inadequate medicaments one can often 'cure' the symptoms while leaving the disease untouched. And by exposing the absurdity of a theory, one can often prevent philosophers from espousing it, at least overtly, though only too often they react to a proof that their theory conflicts with "obvious common sense" by piling a Pelion of paradox on the original Ossa. Even should the theory be abandoned, at least as an overt article of faith, the root confusion is left untouched by this method, and, like many a versatile disease, finds other ways of making its presence felt. Indeed, to change our metaphor, philosophers can often be observed to leap from the frying pan of one absurdity into the fire of another, and from there into the well of a third, and *da capo* as long as a fundamental confusion remains uncovered.

The above remarks contain nothing which has not been said often and better. My purpose in rehashing this familiar theme has been to provide a text for the argument to follow. Thus, the point of departure of the present paper is one more flogging of the absurd notion that this colorful universe of ours contains such queer entities as featureless substrata or bare particulars. That this notion is indeed absurd, few, if any contemporary philosophers would deny. In short, the first method of attack has achieved a full measure of success.[1] Bare particulars and featureless substrata have been driven into the philosophical underground, and remain unacknowledged even by those who are committed to them. But what of the second method? Has its goal, too, been reached? Does no confusion remain, to manifest itself, perhaps, in the invention of still other absurdities to which philosophers might cling in terror of falling back into the quicksand of bare

[1] Perhaps the neatest way in which to expose the absurdity of the notion of bare particulars, is to show that the sentence, 'Universals are exemplified by bare particulars,' is a self-contradiction. As a matter of fact, the self-contradictory character of this sentence becomes evident the moment we translate it into the symbolism of *Principia Mathematica*. It becomes, '$(x)\cdot(\exists\phi)\phi x \supset -(\exists\phi)\phi x$' or, in other words, 'If a particular exemplifies a universal, then there is no universal which it exemplifies.'

particulars? What of Lord Russell's dogged attempts to conceive of particulars as complexes of universals? Has he not repeatedly assured us[2] that only in this way can we lay the spectre of bare particulars? And what of those philosophers who persist in accounting for the sense of universal words in terms of resembling particulars—are they not motivated, at least in part, by the conviction that to 'accept universals' is to commit oneself either to bare particulars, or to Russell's expedient, which, as they see it, is, if anything, even more absurd? I shall contend that the fundamental confusion underlying the notion of bare particulars remains indeed to plague us, in spite of the moribund character of the doctrine itself, and that bare particulars, particulars as complexes of universals and universals as sets of resembling particulars can be taken, respectively, as the frying pan, the fire and the well of the metaphor at the end of the preceding paragraph.

Yet it is not for want of attempts to expose and sterilize the source of the notion of bare particulars that these confusions persist. Many such attempts have been made, often, it has seemed, with complete success. Indeed, it must be admitted that certain confusions which lead to the postulation of substratum particulars have been clarified and removed from the stream of progressive philosophical thought. Thus, one traditional line of argument in support of substratum particulars, that, namely, which moves from the sameness of a thing throughout its successive states to the positing of a substratum entity which 'has' these states, has been undercut by pointing out that the elements in a pattern (e.g., the notes in a melody), 'belong to the same thing' without requiring the existence of an additional particular which 'has' them. It was a signal merit of the doctrine of logical constructions to have freed us once and for all from the tendency to look for a substratum particular behind every patterned object. On the other hand, it is just not true, as many seem to have thought, that it was the confusion thus exposed which was responsible for *bare* particulars. Consider the following argument: Pierre and François are citizens of the same state, therefore there must surely be a particular which is the same state to which both Pierre and François stand in the relation *being a citizen of*. Clearly, what is being posited here is not a *bare* particular, but rather a particular which is a state. Or take the case of a melody. The parallel argument would be: The first and third notes whistled by Jones belong to the same performance of the tune *Lillibulero*, therefore there must be a particular which is the same melody-performance to which these notes belong. What is posited here is obviously not a *bare* particular, but rather a particular which is a melody-performance as contrasted with the note-performances which belong to it. In short, this confusion interprets the identity of a pattern of particulars in terms of an additional particular

[2] Most recently in *Human Knowledge, its Scope and Limits*, pp. 292 ff.

which exemplifies a Gestalt universal, and to which the original particulars *belong* in an appropriate mode of this relation. These surplus particulars, which are the 'whole' as opposed to the 'parts' (and might therefore appropriately be called *holoi*), are not introduced as bare particulars, then, but as melody-performances, states, etc. The business of the *holoi* with which this confusion populates the world is to be instances of irreducible *Gestalt* universals, as it is the business of ordinary particulars to be instances of ordinary universals, and there is no more reason to describe *holoi* as bare particulars than so to describe any other particulars.

The argument from the identity of a changing thing through the successive events in which it is said to participate is particularly instructive Consider, for example, the career of an oaktree. By itself, the confusion we have been discussing would merely result in the postulation of a *holon* which was the oaktree in contrast to the successive states which would be chronicled in giving its history. This time the surplus particular would be an instance of Oaktree, misconceived to be an irreductible *Gestalt* universal of the type which finds its instances in a special set of *holoi*, namely continuants. How, then, does the temptation to think of changing things as built on an abiding bare substratum arise? Actually, there are at least two confusions which yield this result without any assistance from the confusion we have been examining, though historically all these distinguishable confusions have been confused together. One of these, the mare's nest concealed in Aristotle's distinction between form and matter, is irrelevant to the argument of this paper, and I shall do no more than refer the reader to the analysis which I have given of it in another place.[3] The other leads directly to our central theme. Thus, suppose the philosopher who is worried about the sameness of a thing throughout change is already committed to the view that an object's having a character is to be understood in terms of a relation between a bare particular and a universal. Then, of course, he will be tempted to hold that the oaktree's continuance through change consists in the relation of its substratum to different sets of universals at different times. But even should he be led, by reflection on time and temporal relations, to recognize events as particulars, and hence to postulate a separate bare particular for each successive state of the object, he will also be led to postulate an additional abiding or continuant bare particular should he be guilty of the *Gestalt* confusion. For, in accordance with the above commitment, he will think of the *holon* which he introduces to be the identity of the oaktree in contrast to the multiplicity of its successive states as being a bare particular which participates in the *Gestalt* universal Oaktree.

[3] "Aristotelian Philosophies of Mind," in *Philosophy for the Future*, a collection of essays edited by R. W. Sellars, M. Farber, and V. J. McGill, and published by the Macmillan Co., 1949.

Now, the contention that the notion of bare particulars has its primary source in confusions relating to the exemplification of universals by particulars is by no means a novel one, and if it had been the sole function of the preceding paragraphs to usher in this claim, they need not have been written. However, besides introducing the main theme of this paper, they have not only made the worthwhile if negative point that bare particulars were not sired by the *Gestalt* confusion, but also, by focussing attention on the concept of logical construction, mobilized for subsequent use the most powerful tool of modern philosophical analysis. The key role played by the concept of logical construction in the clarification of puzzles relating to universals and particulars will emerge in the course of the next few pages.

II

I shall begin the constructive argument of this paper by constructing a universe of discourse in which the temptation to speak of bare particulars has been reduced to a minimum, yet which recognizes the distinction between universals and particulars to be ultimate. I shall then show how, by making one apparently innocuous change in this framework, one is put in the position of being able to avoid bare particulars only at the cost of embracing one or other of the equally absurd expedients for dodging them which misguided philosophical ingenuity has invented. In short, I shall recommend the conceptual frame I am about to sketch on the ground that by adopting it, and only by adopting it, can we avoid the merry-go-round of confusions on which so much time and energy has been wasted. Not on this negative ground only, however, is it to be recommended, for though when first encountered this frame inevitably wears an air of paradox, a closer acquaintance reveals it to be a source of positive clarification and insight, with decisive implications for other problems in this neighborhood.

Let us consider a domain of particulars each of which is an instance of one and only one simple non-relational universal.[4] Furthermore, it is not to be as a mere matter of fact that this is so, as though these particulars *could* exemplify more than one, but do not happen to do so. It is to be a defining characteristic of the conceptual frame we are elaborating that no particular belonging to it *can* exemplify more than one simple non-relational universal. Let us call these particulars *basic particulars*, and the simple non-relational universals they exemplify, *qualia*. Now the first step in removing the air of complete unreality which surrounds the above stipulation is to point out that even though the basic particulars of this universe each exemplify one and only one *quale*, it is nevertheless possible for this

[4] To which should be added that each pair of these particulars is an instance of at most one simple dyadic relation, and similarly in the case of simple triadic relations should these be needed or granted.

universe to contain complex objects exemplifying complex properties. To say this, of course, is not to assert that *over and above* basic particulars exemplifying *qualia*, the universe under consideration might contain additional particulars and universals, only this time, complex ones. For sentences attributing complex properties to complex particulars are logical shorthand for conjunctions of sentences each of which attributes a *quale* to a basic particular, or a simple dyadic (or triadic) relation to a pair (or trio) of basic particulars. In short, the fundamental principle of this conceptual frame is that what is ostensibly a single particular exemplifying a number of universals, is actually a number of particulars exemplifying simple universals.

We shall shortly be concerned to explore some of the implications of this framework for the tangle of puzzles described in our opening remarks. First, however, we must dispose of an immediate challenge which, if left unanswered, would make further elaboration pointless. The objection takes its point of departure in the fact that the proposed framework, whatever its pecularities, involves an ultimate dualism of universals and particulars. It runs as follows: "Any dualism of universals and particulars amounts to a distinction within things between a factor responsible for the particularity of the thing, and a factor responsible for its character; in brief, a *this*-factor and a *such*-factor. But surely this is exactly the doctrine of bare particulars!" Now this argument has a venerable history, but it is beyond question as unsound as an argument can be. Its plausibility rests on a confusion between *particulars* and *facts*. Suppose that a certain particular a exemplifies ϕ. Then a is an instance of ϕ, but ϕ is not a component of a. On the other hand, ϕ *is* a component of the fact that a is ϕ. But the fact that a is ϕ is not itself an instance of ϕ. Thus, the notion ot a thing which (1) has ϕ for a component, and yet (2) is an instance of ϕ, is a confusion which blends a and the fact that a is ϕ into a philosophical monstrosity. We can, indeed, say that the fact that a is ϕ consists of a '*this*-factor' and a '*such*-factor,' but the '*this*-factor,' instead of being a bare particular, is nothing more nor less than an instance of ϕ, and the 'thing' which consists of these factors is so far from exemplifying ϕ that it cannot be meaningfully said to do so. To say that a blue particular consists of Blue and a particular is indeed to talk nonsense; but it is nonsense which arises not out of a dualism of particulars and universals, but out of a confusion between particulars and facts.

At this point the reader may be moved to exclaim, "Yes, the source of bare particulars does indeed lie in the confusion of facts with particulars. But is not this the end of the story? You didn't need your rigmarole of particulars instancing only one *quale* in order to make this point. Why complicate your presentation with an unnecessary assumption? After all, is it not perfectly clear that one and the same particular *can* exemplify

more than one *quale*?" The reply to this challenge takes us to the heart of the paper. But before going one step farther, let me remind the reader that of course I admit that one and the same 'particular' can have more than one quality. I insist only that such 'particulars' are actually logical constructions out of particulars proper. Stripped of this possible source of misunderstanding, the above challenge reads, "Why did you introduce the assumption that basic particulars can exemplify only one *quale*,[5] since you did not need it to expose the confusion between particulars and facts which is the true source of bare particulars?" *My answer will consist in the attempt to show that it is only possible to think of a basic particular as exemplifying two or more simple non-relational universals if one is guilty of exactly this same confusion!*

Let us return to the discussion of the basic particular a which we supposed to be an instance of ϕ. To make our example more intuitive,[6] however, let us substitute for 'ϕ' the expression 'Greem' which we shall suppose to designate a simple non-relational universal capable of being exemplified by basis particulars, that is, a *quale*. In a, then, we have a particular which is greem. If we were to be aware of a we should be aware of something greem. Neither Greemness, nor the fact that a is greem, is greem. It is a that is greem. When we say that a is greem, we imply no internal complexity in a. Greemness is not an element of a, though it is of the fact that a is greem. Consider now, the class of basic particulars which are instances of Greemness. Suppose that the class is designated by 'Grom,' and that a member of the class is said to be a *grum*. Then a is a grum; and its being a grum involves no internal complexity.

In these terms our problem is the following: Is it possible for a basic

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[5] Notice that, for reasons which will come out shortly, I have avoided referring to the simple non-relational universals exemplified by basic particulars as *qualities*.

[6] The primary purpose of using 'greem' and, later, 'kleem' rather than 'ϕ' and 'ψ' is to bring into play the subtleties of the logical grammar of the English language. I do not wish to be taken as hinting that the color predicate mimicked by 'greem' stands for a universal whose instances are basic particulars; though I am taking advantage of the fact that this is often thought to be the case. I mention this because in the October, 1950, number of *Analysis* Mr. J. R. Jones devotes an essay ("What do we mean by an Instance") to the criticism of an earlier paper of mine ("On the Logic of Complex Particulars," *Mind*, 1949), on the ground that the contrast between Fido and a twinge, which I had used at the beginning of the latter to bring intuitive factors into play, is not a contrast between a complex and a genuinely simple particular. In short, Mr. Jones is in complete agreement with the logical theses of the paper but, making the gratuitous assumption that the twinge was offered by anticipation as a dead earnest example of the simple particulars discussed in the systematic part of the paper, he infers that I didn't understand the force of my own argument. This is the more surprising in that he notes that I later insist that ordinary language contains no expressions designating either simple particulars or the simple universals they exemplify.

particular, a particular which is not itself a structure of particulars, to be an instance of Greemness and also of another *quale*, say, Kleemness. Is it possible for *a*, *without internal complexity*, to be both greem and kleem, to be both a grum and a klum? The phrase 'without any internal complexity' is, of course, the heart of the matter. For if it is said that *a* must be complex to be both greem and kleem, then either the elements of the complex are particulars, in which case my principle has been granted, or else the elements of the complex are universals. In the latter case we have the old mistake of supposing that Greemness is an element in an item which is greem.[7] Now it is obvious that should we be guilty of this mistake, and think of the instancing relation as a relation which binds *a* and Greemness to constitute a greem item, then we should find no immediate absurdity in the claim that a basic particular can be an instance of both Greemness and Kleemness, for this would amount to the claim that one and the same basic particular can stand in the same relation to two universals, and surely one item can stand in the same relation to two other items. Roger is brother to Robert and also to John. Why could not one and the same basic particular *a* cooperate with Greemness to form a greem item, and with Kleemness to form a kleem item? To conceive of instancing in this way, however, is an obvious howler. Indeed, it is a self-contradictory mistake, since to say that *a* is an instance of Greemness is exactly to say that *a* is greem, whereas the theory says that not *a* but the complex *a-instancing-Greemness* is greem. In short, the price we would be paying for thinking of *a* as 'instancing' both Greemness and Kleemness would be the prohibitive one of making it an instance of neither, but rather a bare particular.

On the other hand, once the confusion between particulars and facts is completely avoided, the notion that a basic particular can be an instance of two *qualia* not only loses all plausibility, but is seen to be absurd. A basic particular which is an instance of Greemness is not a bare particular standing in a relation to Greemness, it is a grum. A basic particular which is an instance of Kleemness is not a bare particular standing in a relation to Kleemness, it is a klum. Surely, however intimately related a grum and a klum may be, they cannot be identical!

It is only 'complex particulars,' then, which can be both greem and kleem. To say this, of course, is to say that a sentence attributing these qualities to a complex particular is logical shorthand for a conjunction of sentences to the effect that certain basic particulars are greem, others are

[7] It must be borne in mind that the argument of the paper moves within the framework of the assumption that the distinction between universals and particulars is ultimate and irreducible, and that the contention that particulars are 'complexes of universals' is as unsound as the notion of bare particulars. For an incisive critique of the doctrine that particulars are reducible to universals see Gustav Bergmann's "Russell on Particulars," *Philosophical Review* (1948); also J. R. Jones, "Simple Particulars," *Philosophical Studies* (1950).

kleem, while the set of basic particulars as a whole is an instance of such and such a pattern or structure. Why we dignify this rather than that type of structure with such logical shorthand, is a matter for study in the philosophy of science, in what, but for the unfortunate phenomenalistic connotations Carnap has given the term, might be called *Konstitutionstheorie*. But that we must use what, from the standpoint of logical theory, would be the highly derived superstructure of an ideal language, is, of course, a matter of practical necessity. The subject-predicate form of ordinary language can only be understood in this setting. The objects designated by the subject term in singular sentences of this form are, without exception, complex particulars, *and the logical structures which find expression in the subject-predicate form of ordinary language are, strictly speaking, as many as there are types and levels of logical construction.* Thus, it is only scratching the surface to say, as we must, that the verb 'to be' has a different logical grammar when used in sentences attributing a *quality* to a complex particular, from that which it has in sentences to the effect that a basic particular is an instance of a *quale*.

We are now in a position to point out that if we were to use the same words 'greem' and 'kleem' in both of the latter types of sentence, they would nevertheless have a different logical grammar in the two usages. Thus, where S is a complex particular, not only is the 'is' of 'S is greem' different from the 'is' of '*a* is greem' (where *a* is a basic particular as before), so also is the 'greem' a different, though related, 'greem'. In other words, Greemness as a quality of complex particulars must not be confused with Greemness as a *quale*, even though saying of a complex particular that it has the former entails that some basic particulars are instances of the latter. It is a mistake to speak of basic particulars as instances of qualities, and it was for this reason that we introduced the term 'quale' to designate the simple non-relational universals of which basic particulars are instances.[8] It is even more obviously a mistake to speak of basic particulars themselves as qualities, and proclaim that the qualities of things are as particular as the things themselves. For while it is true that to say of a thing that it is greem is, in effect, to say that it consists, *inter alia*, of grums, it is a sheer mistake in logical grammar to speak of grums as qualities. It is a type confusion, a mixing of levels of discourse.

Let me conclude this section of the paper by recognizing that in view

[8] It is essential to note that the distinction between a *quale* and a quality by no means coincides with that between a simple and a complex quality. Simple and complex qualities alike are logical constructions out of *qualia*, the distinction being (roughly) that a simple quality is a logical construction out of a single *quale*, whereas a complex quality is a logical construction out of several *qualia*. More accurately, to predicate a simple quality of a complex particular is to say that some of its constituent basic particulars are instances of one certain *quale*, whereas to predicate a complex quality of it is to assert that it includes instances of several specified *qualia*.

of the fact that the reader rightly suspects my use of 'greem' to be a thinly disguised appeal to our intuitions concerning the color green, it is incumbent on me to make some sort of reply to the challenge: "How, on your position, can 'x is green' entail (as it obviously does) 'x is extended'? Green is surely a *quale*, and your argument, therefore, implies that 'x is green' and 'x is extended' can't both be true." My answer is, of course, that the predicate 'green' of ordinary usage has a complex logical structure. It designates a quality rather than a *quale*, and the particulars to which it applies are complex particulars. It applies, indeed, to *continua*, the elements of which have the logical properties of points. It is these points which are the basic particulars, and the *quale* which they exemplify has no designation in ordinary usage. We might well introduce the word 'greem' for this purpose. It is a *synthetic* necessary truth that the instances of *greem* are points in a *continuum*. On the other hand, 'x is *green*' = 'x is a *continuum* of which the elements are *greem*'; so that 'x is *green*' analytically entails 'x is extended.'

III

In the concluding paragraphs of this paper, I want to explore a traditional puzzle which, though of ancient vintage, has achieved a noticeable degree of clarification only in the last half century. It runs as follows: Granted that the distinction between particulars and *some* type of abstract entity[9] is ultimate and irreducible, must we accept *both* universals and classes as equally ultimate, or can entities of one of these types be defined in terms of entities of the other? and if so which? Fortunately, there is little to be gained from a survey of recent discussions of this topic, since the instruments we have forged enable us to penetrate beneath their common presuppositions to a foundation on which can be built a simple and straightforward solution.

Consider a model universe the basic particulars of which are instances of the *qualia* A, B, C. . . .[10] Suppose that A is instanced by basic particulars $x_1, \ldots x_m$ while B is instanced by $x_n, \ldots x_w$. Let us pose the following

[9] The use of this expression must not be taken to imply acceptance of a platonistic ontology. The present paper has nothing to say on the interesting question, "Are there abstract entities?" agitated of late by Quine, Carnap, and Ryle. The substantive contentions of my argument belong to logic rather than to the philosophy or epistemology of logic, and if, particularly in the following paragraphs, I have given them, on occasion, an overly 'ontological' formulation, I have done so solely for the sake of simplicity and convenience.

[10] Ordered couples of these basic particulars will be instances of simple dyadic relations, etc. It is important to note that the account of the ultimate identity of universals and classes which is developed in the text for the case of *qualia*, applies also to relations. The reader will have noticed that the distinction we have drawn between *qualia* and simple qualities should also be drawn in the case of relations.

question which will take us directly to the heart of the matter. Can we identify the class whose members are $x_1, \ldots x_m$ with the universal A; the class α with the *quale* A? In short, can we claim that at the level of basic particulars no distinction can be drawn between a *quale* and the class of its instances? Can we, to take an earlier example, identify Greemness with the class of grums? Is 'x is greem' just another way of writing 'x is a member of Grom'? 'A(x)' of writing 'x ϵ α'? In favor of this claim is the fact that no basic particular can be an instance of two *qualia*. This entails that if x is an instance of both F and G, then F and G must be identical. In short, two *qualia* with the same instances must, it would seem, be the same *quale*. Here we would have an identity condition which parallels the familiar identity condition for classes, for two classes are notoriously the same class if they have the same members.

Unfortunately, the matter is not quite so simple, and we should not be warranted in jumping to the conclusion that a *quale* is identical with the class of its instances. Thus, suppose that F and G are two *qualia* which *might* have been instanced in our model universe, but which in point of fact do not happen to have been so. (That this is a perfectly sensible assumption is made clear by the following 'ideal experiment.' Suppose that colors are *qualia* which depend for their exemplification on the excitation of nervous systems, and that our universe happened never to develop the necessary conditions for the emergence of life.) On this assumption, the classes corresponding to F and G would both be null classes, and hence the same class—whereas *ex hypothesi* F and G are different *qualia*. It is clear, then, that the framework we have so far developed can at best take us part of the way toward the identification at the level of basic particulars of universals with classes. Of course, if one were prepared to argue that it is logical nonsense to speak of a simple universal which has no instances, then the identification of *qualia* with the classes of their instances could be made without further ado. That to speak this *is* logical nonsense has indeed been argued. Formulated in traditional terms, the argument appeals to a supposedly evident principle of acquaintance to the effect that a term cannot designate a simple universal unless those who use this term intelligently have been acquainted with instances of the universal in question, from which it would follow that if 'A' designates a *quale*, the *quale* A must have had instances. It would take another paper to criticize this argument and expose the mare's nest of confusions on which the 'Principle of Acquaintance' and the related notion of 'Ostensive Definition' rest.[11] I shall

[11] For a discussion of the psychology of language and meaning which touches on this and related questions, see my essay, "Language, Rules and Behavior," in *John Dewey: Philosopher of Science and Freedom*, edited by Sidney Hook, and published in 1950 by the Dial Press, New York.

therefore move directly to a brief exposition of what I take to be the correct amount of the identity of *qualia* with the classes of their instances.

To sketch the background of this new picture, we need a broader canvas. Its fundamental theme can be put by saying first that the meaning of a term lies in the rules of its usage, and then adding that the rules in question are rules of inference.[12] Rules of inference, in turn, are of two types, *formal* and *material*. This classification corresponds to Carnap's distinction, in his *Logical Syntax of Language*,[13] between two types of 'transformation rule' (Carnap's term for rule of inference): (1) Logical or L-rules, which validate inferences in which the factual predicates, to use Quine's happy phrase, occur vacuously,—that is, could be systematically replaced by any others of the same type and degree without destroying the validity of the argument; (2) Physical or P-rules, which validate inferences in which the factual predicates have an essential rather than vacuous occurance. My only quarrel with Carnap is that he commits himself to the thesis that P-rules are a luxury which a language with factual predicates can take or leave alone. I have argued in a number of papers, as I am now arguing, that P-rules, or material rules of inference or, as I have also called them, *conformation* rules (by analogy with *formation* and *transformation* rules of inference—to express the *coherence* they give to the expressions of a language) are as essential to a language as L-rules or formal rules of inference.

To illustrate these distinctions, that 'ϕx' is inferrable from '$\phi x \cdot \Psi x$'[14] is a matter of a formal rule of inference. On the other hand, if it is a law of nature that if anything were a case of ϕ it would be a case of Ψ, the inference from 'ϕx' to 'Ψx' is warranted by a material rule of inference; *indeed, these are but two ways of saying the same thing.* Notice that if 'Ψx' is thus inferrable from 'ϕx', the generalized material implication,

$$(x)\ \phi x \supset \Psi x$$

can be asserted on the basis of a rule of the language. It can also be said to be true by virtue of the meanings of 'ϕ' and 'Ψ', for it was our contention above that the meaning of a term lies in the rules of inference, formal *and*

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[12] For an elaboration and defence of this conception, see the essay referred to in the previous footnote. I there distinguish between the rule-governed aspects of a language, and the causal tie between linguistic and nonlinguistic events which constitutes its application. The latter is not a matter of *rules*, though it is, of course, a matter of *uniformities*. The notion that in addition to syntactical rules there are 'semantical rules' coordinating language and world is shown to be a mistake.

[13] Rudolf Carnap, *The Logical Syntax of Language* (London, Kegan, Paul, Trench, Truebner and Co., Ltd., 1937), pp. 180ff.

[14] It will be noticed that for the sake of simplicity, the illustrations in this paragraph are formulated in terms of complex particulars and their properties.

material, by which it is governed.* I would certainly be willing to say that '$(x)\ \phi x \supset \Psi x$' is, in these circumstances, a synthetic *a priori* proposition. I see nothing horrendous in the notion that a language or conceptual frame work brings with it a commitment to certain logically synthetic propositions, provided that it is recognized that there is more than one pebble on the beach, i.e., that there are many alternative frameworks, one of which the world *persuades* us to adopt (or, better, adumbrate), only to persuade us later to abandon it for another. This, I believe, is a pragmatic conception of the *a priori* akin to that developed under this heading by C. I. Lewis in his *Mind and the World Order*[15] though I should reject the phenomenalism in which he clothes his formulation. Notice also that where 'Ψx' is not inferrable from 'ϕx', we say that '$(x)\ \phi x \supset \Psi x$' if true, is so as a mere matter of fact.

Now, we are all familiar with the Leibnitzian manner of explicating the laws of logic in terms of possible worlds. Can this same device be used to clarify the difference between laws of logic and laws of nature? Not only can it be done, but it is extremely helpful to do so, particularly in dealing with the problem we have in mind. However, whereas Leibnitz, on the whole, limited himself to the contrast between truths which do, and truths which do not, hold of all possible worlds, we shall need a somewhat more complicated apparatus with which to do our job. We must interpose between the notion of a possible world, and that of the totality of all possible worlds, the notion of a *family* of possible worlds. Before turning to our task, let us drop the adjective 'possible' and speak of worlds instead of possible worlds. The point of this proposal will emerge at the end of the following paragraph.

A world, then, is a set of basic particulars which exemplify the *qualia* and simple relations which make up what we shall call a battery of simple universals. *It must constantly be borne in mind that these basic particulars*

* If, as I am claiming, the sentences which formulate what we regard as the laws of the world in which we live are true *ex vi terminorum*, then how can it be rational to abandon such a sentence? What role could observational evidence play in the "establishing" of sentences which are to be true *ex vi terminorum*?

The inductive establishing of laws is misconceived if it is regarded as a process of supplementing observation sentences formulated in a language whose basic conceptual meanings are plucked from "data" and immune from revision ("Hume's Principle"). The rationality of "induction" is, rather, the rationality of adopting that framework of material rules of inference (meanings—even for observation predicates) and, within this framework, those (sketchy) statements of unobserved matters of fact (world picture) which together give maximum probability to our observation utterances *interpreted as sentences in the system*. Only if we do this do we adopt (and this is, of course, an analytic proposition) that world picture which is "most probable on the basis of our observations."

[15] Clarence Irving Lewis, *Mind and the World Order* (New York, Scribners, 1928).

are not bare particulars. Thus, suppose that one of the *qualia* in question is Greemness, and that the world in question, let us call it W_1, includes the particular x_1 which is greem. Then, although 'x_1 is greem' is not an analytic proposition, nor 'x_1 is kleem' a contradiction, x_1 *is* a grum, and there is no such thing as a world in which x_1 is *not* grum. What might be confused with such a world is a *possible state of* W_1. Thus, although x_1 is a grum, the sentence, 'x_1 is kleem' is a synthetic proposition, and can accordingly be said to express a possibility. A set of atomic sentences which constitutes a complete description of the particulars of W_1 and which includes the sentence 'x_1 is kleem'[16] can be said to describe a possible but not actual state of W_1. The 'possible worlds' of many neo-Leibnitzian treatments of logic are actually what we have called possible states of one and the same world. We have dropped the adjective 'possible' and speak in terms of worlds instead of possible worlds, since otherwise we should have to use, on occasion, the clumsy and confusing phrase, 'possible state of a possible world.'

If the challenge were pressed, "Why isn't what you are calling 'a possible but not actual state of W_1,' just another world, say W_2, so that whereas in W_1 x_1 is a grum, in W_2 x_1 is a klum?" the answer would lie in pointing out that this objection involves the mistake of bare particulars. To see this, we need only remind ourselves that x_1, a particular belonging to W_1 is *ex hypothesi* a grum. Now, to say that it is logically possible for x_1 (which is a grum) to be a klum, in short, to point out that 'x_1 is kleem' is not a contradiction, *does not in the slightest entail that* x_1 *is somehow neutral as between Greemness and Kleemness. i.e., is a bare particular*. Thus, while it is a possibility with respect to W_1 that x_1 be kleem, there can be nothing identical with x_1 which *is* a klum, and hence no world which includes x_1 as an instance of Kleemness. Each world, then, has its own set of particulars, there being no overlap between the particulars of one world and those of another.[17]

What, then, is a family of worlds? To construct this notion, conceive of a set of sentences with the following characteristics: (1) each sentence is a generalized material implication which is not logically true; (2) these

[16] It will be remembered that a basic particular cannot be an instance of more than one *quale*. Thus, at the level of basic particulars the form '$\phi x \cdot \psi x$' is logical nonsense. Thus, if the above set of sentences includes the sentence 'x_1 is greem', it cannot include the sentence 'x_1 is kleem.'

[17] I have gone into this point in some detail, because I have found, on the basis of responses to my paper, "Concepts as Involving Laws and Inconceivable without them," *Philosophy of Science* (1948), that this difference between a possible state of a world, and another (possible) world is as difficult to grasp as it is essential to a correct formulation of the distinction between 'necessary' and 'contingent' truths in the neo-Leibnitzian manner.

sentences are certified by the material rules of inference of the language in which they are formulated, in the manner illustrated above; (3) the sentences are about basic particulars and the *qualia* and simple relations they exemplify; (4) no further sentence of this type could be added to the set without resulting in inconsistency. Now, one simple way of describing this set of sentences is to say that they constitute an implicit definition of the battery of predicates involved. Another way is to say that they formulate internal relations or real connections between the universals designated by these predicates. Still another way is to say that they state uniformities which hold in all systems of particulars which exemplify these *qualia* and relations. The last of these needs only minor rephrasing to be what we are looking for. The sentences give expression to a set of uniformities which hold in all worlds of the *family* associated with this battery of simple universals. Every basic particular belongs to a world; every world belongs to a family. Laws of logic are generalizations which hold of all worlds of all families;[18] laws of nature are generalizations which hold of all worlds of a family. There are no *worlds* which violate the laws of nature. What might be mistaken for such a world is a logically possible state of a world, but we need scarcely emphasize again that a logically possible state of a world is not another world.

Now, all this jargon of worlds and families may strike the reader as an unusually complicated way of making points which might better have been left in the idiom of the distinction between the vacuous and essential occurrence of predicates in arguments warranted, respectively, by formal and material rules of inference. Let me emphasize once again that I am not disputing this. The fact remains, however, that the 'ontological' jargon of worlds and possibilities has long been used by philosophers and logicians in their attempts to understand the structure of conceptual systems. Indeed, it is by no means entirely foreign to common usage; it was not constructed out of whole cloth by minute philosophers. Most of the puzzles which are the inherited stock in trade of contemporary philosophy either belong in this frame, or else concern the very status of the frame itself. Even should this 'ontological' frame be but the shadow of rules of language, it by no means follows that there is no point in the effort to develop it more consistently and systematically than has been done in the past. Puzzles and antinomies within the frame (though not perplexities

[18] It is clear from this that Russell's worries about the need for an axiom of infinity stem from the fact that what he calls the domain of the logically possible is actually the domain of what we should call possible states of *this* world. Since there are, presumably, possible worlds which contain a finite number of basic particulars, Russell is correct in claiming that it is not a truth of logic that the number of basic particulars in *this* world is infinite. He is wrong, however, in assuming that logic is concerned with *this* world to the exclusion of other (possible) worlds.

concerning the frame itself) *can* be resolved within the frame, even though the resulting clarification is but the shadow of an insight into linguistic usage which *might* have been obtained directly. The problems with which I am concerned in this paper, problems relating to universals, classes and particulars, and their mutual connexions, are part and parcel of this 'ontological' frame, and this is where I am proposing to resolve them,[19] leaving to others or to another day the attempt to translate the fruits into insights concerning linguistic usage. However, it would be disappointing, would it not, to discover that this translation was really the same thing all over again?

Revenons a nos moutons! The problem which led us to elaborate this framework of worlds and possibilities concerned the relation of *qualia* to the classes of their instances. We were on the point of asserting their identity when it occurred to us that it makes sense to say that the world might have contained no instances of two *qualia* F and G, even though in point of fact it does do so. F and G, then, would both determine the null class of basic particulars. They could not, we concluded, be identical with the classes of their instances, for then they would be identical, whereas *ex hypothesi* they are distinct. Notice, however, that in the framework we have since developed, we no longer speak in terms of *the* world (that is, the world which includes *this*), but rather in terms of a set of worlds subdivided into families. Consequently, instead of speaking of the instances of F in *the* world, we must distinguish between the instances of F in a given world, and the instances of F in the totality of worlds with which the *quale* F is associated. While the classes of instances of F in some worlds of the family are null classes, this cannot be true of the classes of instances of F in all worlds of the family. For this would amount to saying that F was a *quale* which *could not have instances*, an obvious piece of logical nonsense. The way is therefore open to an identification of *qualia*, not with the classes of their instances in *a* world, let alone *the* world, but with the classes of their instances in *all* worlds of the family with which each is associated. Thus, Greemness would be identical with the class of all grums in the family of worlds with which is associated the battery of simple universals one of which is Greemness. The identity of *qualia* with these classes of their instances provides a basis for the analysis of the relations of universals and classes at the level of complex particulars. For every statement about the properties of complex particulars or the classes to which they belong, is, in principle, translatable into sentences mentioning only basic particulars

[19] For a resolution within this frame of the problem of negative facts, see the dialogue contained in my paper "On the Logic of Complex Particulars," *Mind* (1949).

and the *qualia* and simple relations they exemplify.[20] Indeed, it provides the basis for a completely extensional formulation of logical and semantical concepts. But that is a story for another occasion.

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EXTRACTO

El propósito de este trabajo es mostrar en detalle que es posible aceptar como definitiva la distinción entre universales y particulares sin recurrir a los "meros particulares" o a los "substratos indeterminados". Se indica que esto sólo puede hacerse a condición de que se reconozcan los particulares *básicos* como instancias de un único universal, los pares de particulares basicos como instancias de una única relación dual, y así sucesivamente. Un particular que ejemplifique más de una cualidad es necesariamente un particular complejo, es decir, una estructura de particulares básicos. Los universales no relacionales ejemplificados por particulares básicos se llaman *qualia*. Las proposiciones que atribuyen *qualidades* a complejos particulares constituyen abreviaciones lógicas de proposiciones conjuntas, de modo que ciertos particulares básicos ejemplifican diversamente ciertos *qualia*, y conjuntamente ejemplifican relaciones.

La parte final explora las implicaciones del anterior análisis con vistas a la relación de los universales con las clases.

[20] See footnote 10 above.