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LOGIC AND ONTOLOGY

MY purpose in this article is first to discuss G. F. Warnock's "Metaphysics in Logic", published in *Essays in Conceptual Analysis* edited by Professor Antony Flew, and then to say what little I have to say on my own account on the same subject. I will begin with a few general remarks. Mr. Warnock belongs to the "Philosophy-Without-Tears" School, so named because it makes philosophy very much easier than it has ever been before: in order to be a competent philosopher, it is only necessary to study Fowler's *Modern English Usage;* post-graduates may advance to *The King's English,* but this book is to be used with caution for, as its title shows, it is somewhat archaic. Mr. Warnock states that we should not "impose the neat simplicities of logic upon the troublesome complexities of language". He is concerned to discuss the existential quantifier, and thinks it important to point out that a number of assertions, which the logician would represent by the one symbol $\exists$, would be represented in common speech by a variety of phrases, and on this ground he assumes that the general concept represented by $\exists$ is unimportant or spurious. This seems to me a totally absurd inference. Perhaps I can illustrate the absurdity by means of a fable.

Once upon a time, a very long while ago, there was a tribe which lived upon the banks of a river. Some say that the river was called "The Isis", and those who lived beside it, "The Isidians", but perhaps this is a later accretion to the original legend. The language of the tribe contained the words "minnow", "trout", "perch", and "pike", but did not contain the word "fish". A party of Isidians, proceeding down the river rather further than usual, caught what we call a salmon.[1] Immediately, a furious debate broke out: one party maintained that the creature was a sort of pike; the other party maintained that it was obscene and horrible, and that anybody who mentioned it should be banished from the tribe. At this juncture, a stranger arrived from the banks of another stream which was despised because it went footing slow. "In our tribe," he said, "we have the word 'fish' which applies

[1] See *Crotchet Castle,* Chapter IV.

equally to minnows, trout, perch, and pike, and also to this creature which is causing so much debate". The Isidians were indignant. "What is the use", they said, "of such new-fangled words? Whatever we get out of the river can be named in our language, since it is always a minnow or a trout or a perch or a pike. You may advance against this view the supposed recent occurrence in the lower reaches of our sacred stream, but we think it a linguistic economy to make a law that this occurrence shall not be mentioned. We therefore regard your word 'fish' as a piece of useless pedantry".

This fable is scarcely a parody of Mr. Warnock's argument about the existential quantifier. "Existential quantifier" is a general concept analogous to "fish". Applied to names, it is analogous to minnows; applied to predicates, it is analogous to trout; applied to relations, it is analogous to perch; and so on. The fact that in ordinary talk people use different words for different occasions when the logician uses the existential quantifier is due to the fact that people who have not studied logic have not arrived at the very general idea represented by $\exists$, just as the Isidians in the fable had not arrived at the general idea "fish". Mr. Warnock says that the existential quantifier confuses things that common speech distinguishes. This is exactly as if the Isidians had complained that a man who uses the word "fish" confuses minnows with pike. Mr. Warnock speaks of the "invaluable non-simplicity of ordinary speech". I do not deny that there are distinctions in ordinary speech which are not made in logic. In ordinary speech, we include the expression of our own emotions. If we say that So-&-so is an unmitigated scoundrel, or that unfortunately So-&-so has not invariably acted in accordance with the moral law, the element of fact in the two statements is the same, but our emotional attitude towards the one fact is different in the two cases.

Mr. Warnock deliberately and consciously ignores all that logicians have done to clarify the problems with which he professes to deal. He makes play with the statement "Valhalla is mythological". He does not mention the somewhat careful theory according to which statements that seem to be about Valhalla are really about "Valhalla". This theory may be right or wrong, but I cannot see the justification for pretending that there is no such theory. He tells us at the beginning of his article that the central question with which he is concerned is: are there abstract entities? He then proceeds to object to the logician's interpretation of the words "there are", and on this ground (at least, I can find no other in his article) he leaves his central question unanswered and,

apparently, in his view unanswerable. He points out, quite truly, that the use of the word "something" does not, in ordinary speech, imply that there is such a thing. He instances the statement "something is a prime number", which, as he says, "is odd and mystifying". It does not occur to him that the language of mathematical logic surpasses common language both in precision and in generality. If you have twelve things and twelve names, it may easily happen that common speech applies all twelve names to all twelve things. Common speech has two opposite defects: it has often one word with many meanings and many words with one meaning. The former defect may be illustrated by the following sentence: "Whether Romulus existed is doubtful, since reasons exist for questioning the reliability of existing legends as to the first century of Rome's existence". The opposite defect of having several expressions for the same meaning is illustrated by Mr. Warnock's discussion of when we should say "There are primes", "Lions still exist in Africa", "There are shadows on the moon"—which last, he seems to think, does not imply that shadows exist, a phrase which he rejects solely on the ground that most people would not use it. The logician thinks that a language is preferable in which there is one name for one thing. And when I say "preferable", I do not mean "preferable" for every-day use, but "preferable" in an attempt to make precise statements about the world.

I come now to the particular question of "existence". I maintain—and I think that this has great importance in avoiding muddles—that the word "existence" as ordinarily used gives rise to syntactical confusion and has been a source of a great deal of metaphysical confusion. Take, for example, the following piece of reasoning: "my present sensation exists; this is my present sensation; therefore this exists". I maintain that the two premisses may be true, but the conclusion is nonsense. It is impossible to make this clear in common language. This is an argument against common language. I maintain that the only legitimate concept involved is that of $\exists$. This concept may be defined as follows: given an expression fx containing a variable, x, and becoming a proposition when a value is assigned to the variable, we say that the expression $(\exists x).fx$ is to mean that there is at least one value of x for which fx is true. I should prefer, myself, to regard this as a definition of "there is", but, if I did, I could not make myself understood.

When we say "there is" or "there are", it does not follow from the truth of our statement that what we say there is or there are is part of the furniture of the world, to use a deliberately vague

phrase. Mathematical logic admits the statement "there are numbers" and metalogic admits the statement "numbers are logical fictions or symbolic conveniences". Numbers are classes of classes, and classes are symbolic conveniences. An attempt to translate $\exists$ into ordinary language is bound to land one in trouble, because the notion to be conveyed is one which has been unknown to those who have framed ordinary speech. The statement "there are numbers" has to be interpreted by a rather elaborate process. We have first to start with some propositional function, say fx, then to define "the number of things having the property f", then to define "number" as "whatever is the number of things having some property or other". In this way we get a definition of the propositional function "n is a number", and we find that if we substitute for n what we have defined as "1", we have a true statement. This is the sort of thing that is meant by saying there is at least one number, but it is very difficult, in common language, to make clear that we are not making a platonic assertion of the reality of numbers.

The relation of logic to ontology is, in fact, very complex. We can in some degree separate linguistic aspects of this problem from those that have a bearing on ontology. The linguistic problems are capable, at least in theory, of a precise solution, but the ontological problems remain much more obscure. The purely linguistic problems, however, have an ontological background, though a somewhat vague one. Sentences are composed of words, and, if they are to be able to assert facts, some, at least, of the words must have that kind of relation to something else which is called "meaning". If a waiter in a restaurant tells me, "We have some very nice fresh asparagus", I shall be justly incensed if he explains that his remark was purely linguistic and bore no reference to any actual asparagus. This degree of ontological commitment is involved in all ordinary speech. But the relation of words to objects other than words varies according to the kind of word concerned, and this gives rise to a logical form of the doctrine of parts of speech. If a sentence is to have significance, unless it is a sentence of pure logic, some of its words must point to something, but others need not. A sentence could not significantly contain the phrase "The Queen of England" unless there were something in the world that was pointed to by the word "Queen" and by the word "England", but there need not be anything pointed to by the word "the" or the word "of". A large part of the bearing of mathematical logic upon ontology consists in diminishing the number of objects required in order to make sense of statements which we feel to be intelligible. The only reason for this process of whittling

away is to avoid rash and unwarranted assumptions. If our ordinary empirical statements are to be significant, they must (if they are not linguistic) point to something outside words. The purely technical question thus arises: what is the smallest vocabulary which will enable us to assert what we believe to be fact?

Presuming this problem solved, we are left with the ontological problem: what relations must subsist between our words and sentences, on the one hand, and fact, on the other, if our words are to have meaning and our sentences are to be significant? We can, to begin with, exclude from our vocabulary all words that have a verbal definition, since we can always substitute the definition for the words. Sometimes (omitting niceties) the relation of a word to an object is fairly clear: we know the object indicated by the name "Dwight D. Eisenhower"; we know what we mean by the names of colours; and so on. But there are other words about which we feel more difficulty: if we say "Alexander preceded Caesar", we feel (perhaps mistakenly) that Alexander and Caesar are solid. But what about the word "preceded"? We could, at a pinch, imagine a universe consisting only of Alexander or only of Caesar or only of the pair of them. But we cannot imagine a universe consisting only of "preceded". It is this sort of thing that has led to belief in substance and to doubt about universals. Here, again, the needs of language are clear, but the metaphysical implications of these needs are obscure. We cannot do without such words as "precede", but such words do not seem to point at one of the bricks of the universe in the kind of way in which proper names can do.

The question "Are there universals?" can be interpreted in various ways. In the first place, it can be interpreted in the sense of the existential quantifier. We can say: "There are sentences containing two names and a relation-word, and without such sentences many assertions of facts which we believe ourselves to know would be impossible". We can go on to say that, just as the names in such sentences point to objects, so the relation-words must point to something extra-linguistic. It is a fact that Alexander preceded Caesar, and this fact does not consist merely of Alexander and Caesar. Relation-words, it is clear, serve a purpose in enabling us to assert facts which would otherwise be unstatable. So far, I think, we are on firm ground. But I do not think it follows that there is, in any sense whatever, a "thing" called "preceding". A relation-word is only used correctly when relata are supplied.

This applies equally to predicates. Quine finds a special difficulty when predicates or relation-words appear as apparent variables. Take, for example, the statement "Napoleon had all the

qualities of a great general''. This will have to be interpreted as follows: ''whatever f may be, if 'x was a great general' implies fx, whatever x may be, then f(Napoleon)''. This seems to imply giving a substantiality to f which we should like to avoid if we could. I think the difficulty real, and I do not know the answer. We certainly cannot do without variables that represent predicates or relation-words, but my feeling is that a technical device should be possible which would preserve the differences of ontological status between what is meant by names, on the one hand, and predicates and relation-words, on the other.

What mathematical logic does is not to establish ontological status where it might be doubted, but rather to diminish the number of words which have the straight-forward meaning of pointing to an object. It used to be a common view that all the integers were entities, and those who would not go so far as this were at least persuaded that the number 1 is an entity. We cannot prove that this is not the case, but we can prove that mathematics affords no evidence for it.

Finally, the question ''Are there universals?'' is ambiguous. In some interpretations, the answer is certainly ''yes''; in others, no decisive answer seems possible at present. What I have to say about the ontological status of universals is contained in the last chapter of *An Inquiry into Meaning and Truth.*

BERTRAND RUSSELL

NOTES ON LOGIC

INTRODUCTION

IN the spring of 1914 Bertrand Russell came to Harvard as a visiting lecturer. One of his two courses was on logic, and I was assigned to assist him with it. He was late in arriving, and I gave two or three weeks of lectures, mostly on how to read the symbolism of the *Principia Mathematica.* His lectures also largely followed the *Principia.* He assigned Frege's *Foundations of Arithmetic* to be read—in German. He also had with him some notes and excerpts, giving the opinions of a brilliant student of his, named Ludwig Wittgenstein, who had been recommended by Frege to come to him. I copied this manuscript, dated September, 1913.

It is Wittgenstein's theory of that time about propositions. I may say, as a first approximation of my own, a proposition is not the words of a statement, but it is *what the statement says.* It is the same proposition, whether it is asserted or denied, believed, con-